

CHAPTER V. TRANSPORT AND COMMUNICATION.

A. SHIPPING.

§ 1. System of Record.

In the system of recording statistics of oversea shipping Australia is considered as a unit, and, therefore, only one entry and one clearance is counted for each voyage, without regard to the number of States visited (*see* also Section 5 following, paragraph 1.)

On the arrival at, or departure from, a port in Australia, whether from or for an oversea country or from another port in Australia, the master or agent must "enter" the vessel with the Customs authorities at the port, and supply certain prescribed information in regard to the ship, passengers and cargo. At the end of each month the information so obtained is forwarded to this Bureau. Similar documents furnish information regarding oversea migration and interstate migration by sea. This arrangement has been in operation since 1st July, 1924.

The net tonnage is the gross tonnage less certain deductions on account of crew spaces, engine room, water ballast and other spaces not used for passengers or cargo. The unit of measurement is a ton of 100 cubic feet.

From 1st July, 1914, the Trade and Shipping of Australia have been recorded for the fiscal years ending 30th June.

Commencing with 1935-36 particulars of sailing vessels with auxiliary engines, previously included in the columns headed "Steam", have been included in those headed "Sailing", this classification being considered more correct as the main method of propulsion of these vessels is sail.

The outbreak of war with Japan in December, 1941, resulted in Australia becoming the land base of operations in the South-West Pacific Area. The outcome of this action was the transport by sea to Australia of large numbers of Allied troops with huge quantities of arms and equipment, munitions and stores, which resulted in a substantial increase in the volume of shipping in ports throughout Australia. Particulars regarding these vessels have been excluded from the following tables of "oversea" and "interstate" shipping movement except in Section 3, paragraph 1. The published tables, therefore (except Section 3, paragraph 1), relate primarily to vessels engaged in normal trade (i.e., carrying part or full cargo for civil purposes), and are strictly comparable with pre-war figures.

The total volume of all shipping including vessels carrying troops and war supplies which entered the principal ports of Australia during the years 1938-39 and 1942-43 to 1945-46 is shown in Section 3, paragraph 1. These particulars were compiled from information supplied by the State authorities controlling ports and harbours and include all vessels entering ports with the exception of warships. The year 1938-39 has been inserted for comparative purposes.

As a result of enemy activity the Customs Officers were withdrawn from the ports of Thursday Island (Queensland), Broome (Western Australia) and Darwin (Northern Territory) during February, March and April, 1942, respectively, and the ports closed as Customs Stations. Consequently, no particulars are available of shipping movements at these ports between the dates named and June, 1945, as they were still under the control of the defence authorities. Shipping in these ports during this period was predominantly military and naval in character. The port of Darwin (Northern Territory) was reopened as a Customs Station in July, 1945, Broome in December, 1945, and Thursday Island in August, 1946.

§ 2. Oversea Shipping.

1. Total Movement.—The following table gives the number and net tonnage of oversea steam and motor vessels and sailing vessels which entered Australian ports during the years 1935-36 to 1945-46 :—

OVERSEA SHIPPING : VESSELS ENTERED, AUSTRALIA.

Year.	Steam and Motor.		Sailing.		Total.	
	Vessels.	Net Tons.	Vessels.	Net Tons.	Vessels.	Net Tons.
		'000.		'000.		'000.
1935-36	1,550	6,200	(a) 65	(a) 38	1,615	6,238
1936-37	1,542	6,246	99	28	1,641	6,274
1937-38	1,800	7,096	105	32	1,905	7,128
1938-39	1,725	6,684	151	27	1,876	6,711
1939-40	1,573	6,459	101	7	1,674	6,466
1940-41	1,260	5,372	56	7	1,316	5,379
1941-42	1,248	5,166	28	8	1,276	5,174
1942-43	943	3,820	13	4	956	3,824
1943-44	1,085	4,482	9	2	1,094	4,484
1944-45	1,051	4,480	8	4	1,059	4,484
1945-46	1,140	5,260	6	3	1,146	5,263

(a) See § 1 above.

The average tonnage per vessel entered has risen from 3,862 tons per vessel in 1935-36 to 4,593 tons in 1945-46.

Particulars regarding the total oversea movement of shipping for each year from 1822 to 1920-21 will be found in Official Year Book No. 15, p. 507, for each year from 1921-22 to 1930-31 in Official Year Book No. 25, p. 189, and for each of the years 1931-32 to 1934-35 in Official Year Book No. 34, p. 81.

2. Total Oversea Shipping, States.—The following table gives the numbers and net tonnages of vessels which entered and cleared the various States direct from and to oversea countries during the year 1945-46 :—

SHIPPING ENTERED FROM AND CLEARED TO OVERSEA COUNTRIES DIRECT, 1945-46.

State or Territory.	Entered.		Cleared.	
	Vessels.	Net Tonnage.	Vessels.	Net Tonnage.
		'000.		'000.
New South Wales	452	2,124	437	1,768
Victoria	172	798	171	840
Queensland	193	704	273	1,061
South Australia	75	294	73	276
Western Australia	242	1,299	245	1,375
Tasmania	9	33	20	86
Northern Territory	3	11	6	24
Total	1,146	5,263	1,225	5,430

3. Shipping Communication with various Countries.—Records of the number and tonnage of vessels arriving from and departing to particular countries, as they are invariably made, may be misleading for the reason that the tonnage of a vessel can be recorded against one country only, notwithstanding that the same vessel on the same

voyage may carry cargo or passengers to or from Australia from or to several countries. For instance, a mail steamer on a voyage from the United Kingdom to Australia, through the Suez Canal, may call at Marseilles, Genoa, Port Said, Aden and Colombo, yet can be credited only to the United Kingdom, the country where the voyage commenced, to the exclusion of all of the others from the records. Also a number of vessels touch at New Zealand ports on their voyages to and from the United States of America and Canada, but their tonnages are not included in the records of Australian shipping trade with New Zealand. Similarly, the record of shipping engaged in trade between Australia and the United Kingdom via South African ports does not show tonnage to and from South Africa, the whole of it being included in the figures for United Kingdom. In view of this defect, statistics relating to the direction of the shipping to and from Australia are restricted to the following tables in which countries situated on the main trade routes are grouped together. This grouping into larger geographical divisions to some extent avoids the limitations referred to, except, as already pointed out, in the case of Africa and New Zealand.

DIRECTION OF OVERSEA SHIPPING : AUSTRALIA.

Countries.	Cargo and Ballast.	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
NET TONNAGE ENTERED. '000.						
United Kingdom and European Countries	Cargo	1,878	355	328	416	795
	Ballast	121	6	3	..	18
New Zealand	Cargo	767	258	182	234	317
	Ballast	242	77	152	80	188
Asiatic Countries and Pacific Islands	Cargo	2,206	1,277	1,240	1,898	2,071
	Ballast	256	142	665	478	445
Africa	Cargo	44	457	236	289	360
	Ballast	123	48	29	..	3
North and Central America	Cargo	1,059	1,095	1,505	982	1,024
	Ballast	..	4	31	43	12
South America	Cargo	10	105	113	64	30
	Ballast	5	..	..	..	..
Total	Cargo	5,964	3,547	3,604	3,883	4,597
	Ballast	747	277	880	601	666
..	..	6,711	3,824	4,484	4,484	5,263
NET TONNAGE CLEARED. '000.						
United Kingdom and European Countries	Cargo	2,778	774	701	855	1,205
	Ballast	13	17	4	..	7
New Zealand	Cargo	901	326	307	268	502
	Ballast	37	50	24	27	70
Asiatic Countries and Pacific Islands	Cargo	1,687	1,239	1,915	1,501	1,548
	Ballast	743	241	170	491	889
Africa	Cargo	172	290	306	178	98
	Ballast	6	20	22	21	..
North and Central America	Cargo	440	771	1,093	746	620
	Ballast	46	391	573	429	408
South America	Cargo	12	73	38	39	3
	Ballast	..	97	50	94	80
Total	Cargo	5,990	3,473	4,360	3,587	3,976
	Ballast	845	816	843	1,062	1,454
..	..	6,835	4,289	5,203	4,649	5,430

4. Nationality of Oversea Shipping.—Due to war conditions, shipping of British nationality progressively declined during the years 1939-40 to 1943-44 to 43.40 per cent. compared with 72.82 per cent. in 1938-39. On the other hand, shipping of United States of America nationality visiting Australia during the same period advanced to

33.07 per cent. in 1943-44 compared with 2.61 per cent. in 1938-39. There was a reversal of this position in the next two years, the shipping of British nationality having in 1945-46 increased to 68.10 per cent., while United States of America shipping declined to 18.72 per cent.

Particulars of the nationality of oversea shipping for the four years ended 30th June, 1946, compared with the year 1938-39, are given in the following table :—

OVERSEA SHIPPING : NATIONALITY OF VESSELS ENTERED, AUSTRALIA.

Nationality.	Net Tonnage.				
	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
	'000.	'000.	'000.	'000.	'000.
BRITISH—					
Australian	331	191	279	188	308
United Kingdom	3,744	1,281	1,338	1,713	3,024
Canadian	20	17	80	190	106
New Zealand	563	147	145	114	89
Other British	229	174	104	85	57
Cargo	4,379	1,650	1,500	2,049	3,074
Ballast	508	160	446	241	510
Total British	4,887	1,810	1,946	2,290	3,584
Per cent. on total	72.82	47.33	43.40	51.07	68.10
FOREIGN—					
Danish	55	..	..	..	3
Dutch	291	247	271	122	132
French	108	7	9	19	37
German	141	..	..	..	..
Italian	68	..	..	..	..
Japanese	330	..	..	..	10
Norwegian	325	600	470	301	213
Swedish	124	114	80	90	116
United States of America	175	943	1,483	1,463	985
Other Foreign	207	103	225	199	183
Cargo	1,585	1,897	2,104	1,834	1,523
Ballast	239	117	434	360	156
Total Foreign	1,824	2,014	2,538	2,194	1,679
Per cent. on total	27.18	52.67	56.60	48.93	31.90
Cargo	5,964	3,547	3,604	3,883	4,597
Per cent. on total	88.87	92.75	80.38	86.60	87.35
Ballast	747	277	880	601	666
Per cent. on total	11.13	7.25	19.62	13.40	12.65
Grand Total	6,711	3,824	4,484	4,484	5,263

The Australian tonnage which entered Australia from overseas during the year 1945-46 represented 5.85 per cent. of the total tonnage entered and was mainly confined to the New Zealand and Pacific Island trade.

§ 3. Shipping of Principal Ports.

1. Total Shipping, Australia.—The following table, which has been compiled from information supplied by the State authorities controlling ports and harbours, shows the total volume of shipping—oversea, interstate and coastwise—which entered the principal ports of Australia during the years 1942-43 to 1945-46 compared with 1938-39, irrespective of whether these vessels were transporting civilian goods or troops and war equipment. Warships are excluded from the table.

TOTAL SHIPPING OF PRINCIPAL PORTS : AUSTRALIA.

Port of Entry.	1938-39.		1942-43.		1943-44.		1944-45.		1945-46.	
	Ves-sels.	Net Tons.	Ves-sels.	Net Tons.	Ves-sels.	Net Tons.	Ves-sels.	Net Tons.	Ves-sels.	Net Tons.
		'000.		'000.		'000.		'000.		'000.
<i>New South Wales—</i>										
Sydney ..	7,384	11 650	3,773	5,544	3,695	5,953	3,805	6,479	3,671	6,286
Wentworth ..	850	1,225	476	778	468	847	447	901	299	606
Newcastle ..	4,272	5,099	2,675	3,156	2,584	3,312	2,308	3,013	2,307	2,957
<i>Victoria—</i>										
Melbourne ..	3,384	8,537	1,846	3,400	1,649	3,279	1,777	4,612	1,650	3,632
Geelong ..	486	850	233	443	144	287	115	363	126	158
<i>Queensland—</i>										
Brisbane ..	1,472	4,916	1,134	2,589	1,495	3,936	904	2,551	482	1,413
Bowen ..	188	336	265	352	245	328	256	294	96	168
Cairns ..	725	790	1,135	938	1,022	1,248	801	801	357	312
Gladstone ..	155	526	128	213	228	436	85	120	78	121
Mackay ..	219	546	54	118	46	105	52	121	45	108
Rockhampton ..	252	596	57	40	58	60	49	48	50	60
Thursday Island	158	303	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Townsville ..	641	1,473	820	1,815	1,040	2,440	592	1,326	218	507
<i>South Australia—</i>										
Adelaide ..	2,988	5,524	2,211	1,540	2,475	1,635	2,237	1,668	2,170	1,682
Lincoln ..	438	493	314	389	307	431	374	470	375	454
Pirrie ..	619	815	685	652	397	538	297	584	270	532
Walleroo ..	281	220	113	101	201	101	213	138	163	116
Whyalla ..	680	1,037	772	1,000	625	987	423	838	360	685
<i>Western Australia—</i>										
Fremantle ..	846	4,012	603	2,624	762	3,153	665	2,644	495	2,427
Albany ..	125	511	27	69	26	90	32	112	46	148
Bunbury ..	107	240	51	115	58	130	70	180	65	174
Carnarvon ..	115	183	60	93	42	72	47	84	54	96
Geraldton ..	132	291	31	98	53	141	102	146	48	128
<i>Tasmania—</i>										
Hobart ..	616	1,153	374	370	454	1,121	251	410	234	369
Burnie ..	577	781	339	294	292	276	228	229	193	237
Devonport ..	492	476	296	280	267	266	282	295	235	241
Launceston ..	460	502	287	149	220	143	272	156	252	169
<i>Northern Territory—</i>										
Darwin ..	176	184	(a)	(a)	(a)	(a)	(a)	(a)	9	31

(a) Port closed.

2. Australia, New Zealand and United Kingdom.—A table showing the total shipping tonnage which entered the principal ports of Australia, New Zealand and the United Kingdom during 1938 is published in Official Year Book No. 36, p. 112. Particulars relating to the ports of the United Kingdom are not available for the years subsequent to 1938.

§ 4. Vessels Built and Registered.

1. **Vessels Built.**—The following table shows the number and tonnage of vessels built in Australia during each of the calendar years 1938 and 1943 to 1946, so far as such information can be ascertained from the Shipping Registers of the various States. The Merchant Shipping Act, under which vessels are registered in Australia, does not, however, make it compulsory to register vessels under 15 tons burden if engaged in river or coastal trade. Larger vessels are also exempt from registration if not engaged in trade. Yachts and small trading vessels may be, and frequently are, registered at the request of the owners.

VESSELS BUILT IN AUSTRALIA.

Year.	Steam.		Motor.(a)			Sailing.			Total.			
	No.	Tonnage.		No.	Tonnage.		No.	Tonnage.		No.	Tonnage.	
		Gross.	Net.		Gross.	Net.		Gross.	Net.		Gross.	Net.
1938 ..	..	..	..	11	721	394	..	..	..	11	721	394
1943 ..	4	19,850	10,869	1	68	46	..	..	..	5	19,918	10,915
1944 ..	4	20,327	10,843	4	121	82	..	..	..	8	20,448	10,925
1945 ..	5	25,302	14,063	22	1,240	748	2	24	15	29	26,566	14,826
1946 ..	4	9,448	4,571	19	981	678	5	240	160	28	10,669	5,409

(a) Including vessels with auxiliary motors.

2. **Vessels Registered.**—The following table shows the number and net tonnage of steam, sailing and other vessels on the register of each State on the 31st December, 1946 :—

VESSELS ON THE STATE REGISTERS, 31st DECEMBER, 1946.

State or Territory.	Steam and Motor.		Sailing.				Barges, Hulks, Dredges, &c., not Self-propelled.		Total.	
			Propelled by Sail Only.		Fitted with Auxiliary Power.					
	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.
New South Wales	504	75,782	178	6,217	125	1,631	48	9,977	855	93,607
Victoria ..	154	161,143	46	620	60	1,122	50	20,589	310	183,474
Queensland ..	60	16,640	61	874	44	534	24	3,712	189	21,760
South Australia ..	79	28,139	15	307	29	1,467	39	6,258	162	36,171
Western Australia	34	5,319	233	3,392	47	1,187	11	3,676	325	13,574
Tasmania ..	35	3,686	59	2,147	54	1,505	1	382	149	7,720
Northern Territory	..	..	16	154	4	65	..	..	20	219
Total ..	866	290,709	608	13,711	363	7,511	173	44,594	2,010	356,525

3. **World's Shipping Tonnage.**—A table showing the number and gross tonnage of steam and motor, and of sailing vessels owned at the 1st July, 1939, by the most important maritime countries, together with the proportion of the grand total owned by each country is published in Official Year Book No. 36, p. 114. The figures, which were compiled from *Lloyd's Register of Shipping* are not available for later years.

§ 5. Interstate Shipping.

1. **System of Record.**—*Interstate Shipping* comprises two elements: (a) Vessels engaged solely in interstate trade: and (b) Vessels trading between Australia and oversea countries and in the course of their voyage proceeding from one State to another. (It should be mentioned that these vessels, except under special circumstances, do not now engage in interstate carrying.) No complexity enters into the record of those in category (a), but with regard to the method of recording the movements of the oversea vessels (b) some explanation is necessary. Each State desires that its shipping statistics (which are prepared in this Bureau) should show in full its shipping communication with oversea countries, but at the same time it is necessary to avoid any duplication in the statistics for Australia as a whole. In order to meet these dual requirements, a vessel arriving in any State from an oversea country—say United Kingdom—*via* another State, is recorded in the second State as from United Kingdom *via* States, thus distinguishing the movement from a *direct* oversea entry. Continuing the voyage, the vessel is again recorded for the statistics of the third State as from United Kingdom *via* other States. On an inward voyage the *clearance* from the first State to the second State is a *clearance* interstate, and is included with interstate tonnage in conformity with the pre-federation practice of the States, and to preserve the continuity of State statistics. Thus, movements of ships which are, from the standpoint of Australia as a whole, purely coastal movement, must for the individual States be recorded as “Oversea *via* other States” or “Interstate” according to the direction of the movement. The significance of the record of these movements will be more clearly seen from the following tabular presentation of the inward and outward voyages to and from Australia of a mail steamer which, it is presumed, reaches Fremantle (Western Australia) and then proceeds to the terminal port of the voyage—Sydney (New South Wales)—*via* South Australia and Victoria. From the terminal port the vessel will commence the outward voyage, and retrace its inward track.

ITINERARY OF AN OVERSEA VESSEL ON AUSTRALIAN COAST.

Particulars.	Recorded as—	
	For the State and for Australia.	For the States.
Inward Voyage—		
Enters Fremantle from United Kingdom	Oversea direct	
Clears Fremantle for Adelaide .. ..	.. ..	Interstate direct
Enters Adelaide from United Kingdom	.. ..	.. ..
<i>via</i> Fremantle .. ..	.. ..	Interstate direct
Clears Adelaide for Melbourne .. ..	.. ..	.. ..
Enters Melbourne from United Kingdom	.. ..	Oversea <i>via</i> States
<i>via</i> Adelaide .. ..	.. ..	Interstate direct
Clears Melbourne for Sydney .. ..	.. ..	Oversea <i>via</i> State
Enters Sydney from United Kingdom	.. ..	Interstate direct
<i>via</i> Melbourne .. ..	.. ..	Oversea <i>via</i> States
Outward Voyage—		
Clears Sydney for United Kingdom <i>via</i>		
Melbourne .. ..	.. ..	Oversea <i>via</i> States
Enters Melbourne from Sydney .. ..	.. ..	Interstate direct
Clears Melbourne for United Kingdom <i>via</i>		
Adelaide .. ..	.. ..	Oversea <i>via</i> States
Enters Adelaide from Melbourne .. ..	.. ..	Interstate direct
Clears Adelaide for United Kingdom <i>via</i>		
Fremantle .. ..	.. ..	Oversea <i>via</i> States
Enters Fremantle from Adelaide .. ..	.. ..	Interstate direct
Clears Fremantle for United Kingdom ..	Oversea direct	

From the method outlined above, the requirements for Australia and for the individual States are ascertained as follows. (a) The aggregate of all ships recorded for each State as “Oversea *direct*” gives the oversea shipping for Australia as a whole;

(b) the aggregate for all ships recorded in any State as "Oversea direct" plus those recorded as "Oversea via States" gives the total *oversea shipping* for that State; and (c) the aggregate for all ships recorded as "Oversea via States" may also be used, together with those recorded as "Interstate direct," to furnish figures showing the total interstate *movement* of shipping.

It should be remembered, however, that all oversea vessels do not follow the same itinerary as the vessel in the table above.

2. *Interstate Movement.*—(i) *Interstate direct.* The following table gives the number and tonnage of vessels recorded as having entered each State from any other State (including *oversea* vessels on interstate direct voyages) during each of the years 1942-43 to 1945-46 compared with the year 1938-39. The shipping of the Murray River, between the States of New South Wales, Victoria and South Australia, is excluded :—

INTERSTATE SHIPPING : NUMBER AND TONNAGE OF VESSELS ENTERED.

State or Territory.	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
NUMBER.					
New South Wales	2,183	1,310	1,282	1,209	1,112
Victoria	2,243	1,356	1,210	1,143	1,104
Queensland	639	388	389	410	303
South Australia	1,036	527	562	573	482
Western Australia	382	159	209	192	221
Tasmania	1,301	845	773	739	695
Northern Territory	39	(a)	(a)	(a)	6
Total	7,823	4,585	4,425	4,266	3,923
NET TONNAGE. '000.					
New South Wales	6,205	2,622	2,535	2,391	2,439
Victoria	4,751	1,888	1,741	1,798	1,815
Queensland	1,730	570	621	763	587
South Australia	3,322	1,238	1,414	1,471	1,247
Western Australia	2,019	622	745	684	1,045
Tasmania	1,770	625	604	635	674
Northern Territory	103	(a)	(a)	(a)	20
Total	19,900	7,565	7,660	7,742	7,827

(a) Port of Darwin closed.

From 1938-39 the total net tonnage declined steadily each year until 1942-43, when it represented only 38 per cent. of the total for the pre-war year, and remained practically unchanged during the next three years, the total for 1945-46 being 39 per cent. of the 1938-39 total.

(ii) *Oversea via States.* To ascertain the aggregate movement of shipping between the States, including the total interstate movements of oversea vessels, the figures in the

following table which give the number and tonnage of vessels entered from or cleared for oversea countries via other Australian States, must be added to those in the preceding table :—

SHIPPING ENTERED AND CLEARED FROM AND TO OVERSEA COUNTRIES VIA OTHER AUSTRALIAN STATES.

State or Territory.	Entered.		Cleared.		Total.	
	Vessels.	Net Tonnage. '000.	Vessels.	Net Tonnage. '000.	Vessels.	Net Tonnage. '000.
1944-45.						
New South Wales ..	137	614	189	762	326	1,376
Victoria ..	122	601	100	452	222	1,053
Queensland ..	63	364	31	137	94	501
South Australia ..	39	189	74	300	113	489
Western Australia ..	10	44	6	27	16	71
Tasmania ..	13	61	9	33	22	94
Northern Territory ..	(a)	(a)	(a)	(a)	(a)	(a)
Total ..	384	1,873	409	1,711	793	3,584

1945-46.						
New South Wales ..	197	964	219	1,081	416	2,045
Victoria ..	166	873	137	598	303	1,471
Queensland ..	99	546	52	224	151	770
South Australia ..	40	192	76	306	116	498
Western Australia ..	7	34	10	34	17	68
Tasmania ..	24	126	24	105	48	231
Northern Territory ..	..	..	..	..	..	..
Total ..	533	2,735	518	2,348	1,051	5,083

(a) Port of Darwin closed.

Oversea vessels moving interstate are with few exceptions not engaged in the active interstate trade of Australia, but are merely proceeding to the several States in continuation of their oversea voyages.

(iii) *Total, Australia.* The appended table shows the total interstate movement of shipping, including oversea vessels travelling oversea via States and interstate direct, for each of the years 1938-39, and 1942-43 to 1945-46 :—

TOTAL INTERSTATE MOVEMENT OF SHIPPING : AUSTRALIA.

Year.	Entered.		Cleared.	
	Vessels.	Net Tonnage. '000.	Vessels.	Net Tonnage. '000.
1938-39	9,603	29,977	9,669	30,000
1942-43	4,953	9,175	5,010	9,358
1943-44	4,780	9,393	4,848	9,471
1944-45	4,650	9,615	4,716	9,709
1945-46	4,456	10,562	4,491	10,584

(iv) *Total, States.* The following table shows the number and tonnage of vessels which entered and cleared each State from and for other States during the years 1944-45 and 1945-46, including the interstate movements of oversea vessels :—

TOTAL INTERSTATE SHIPPING OF EACH STATE.

State or Territory.	1944-45.				1945-46.			
	Entered.		Cleared.		Entered.		Cleared.	
	Vessels.	Net Tonnage.	Vessels.	Net Tonnage.	Vessels.	Net Tonnage.	Vessels.	Net Tonnage.
		'000.		'000.		'000.		'000.
New South Wales	1,346	3,005	1,426	3,491	1,309	3,403	1,350	3,740
Victoria ..	1,265	2,399	1,300	2,443	1,270	2,688	1,263	2,643
Queensland ..	473	1,127	458	912	402	1,133	377	884
South Australia ..	612	1,660	606	1,557	522	1,439	539	1,470
Western Australia	202	728	185	651	228	1,079	245	1,097
Tasmania ..	752	696	741	655	719	800	715	748
Northern Territory	(a)	(a)	(a)	(a)	6	20	2	2
Total ..	4,650	9,615	4,716	9,709	4,456	10,562	4,491	10,584

(a) Port of Darwin closed.

3. *Vessels engaged Solely in Interstate Trade.*—The following table gives the number and net tonnage of vessels engaged solely in interstate trade which entered the ports of each State direct from other States during the years 1944-45 and 1945-46.

VESSELS ENGAGED SOLELY IN INTERSTATE TRADE: NUMBER AND TONNAGE OF VESSELS ENTERED.

State or Territory.	Vessels Entered.			
	1944-45.		1945-46.	
	No.	Net Tonnage.	No.	Net Tonnage.
		'000.		'000.
New South Wales ..	1,043	1,768	876	1,506
Victoria ..	1,014	1,314	949	1,200
Queensland ..	300	417	217	313
South Australia ..	417	905	353	725
Western Australia ..	64	150	67	168
Tasmania ..	705	526	643	521
Northern Territory ..	(a)	(a)	3	12
Total ..	3,543	5,080	3,108	4,445

(a) Port of Darwin closed.

4. **Interstate and Coastal Services.**—The subjoined table gives particulars, so far as they are available, of all steamships engaged in regular interstate or coastal services at the end of each of the years 1943 to 1946 compared with the year 1938 :—

INTERSTATE AND COASTAL STEAMSHIP SERVICES IN AUSTRALIA.

Particulars.	1938.	1943.	1944.	1945.	1946(b).
Number of companies operating ..	30	27	26	25	26
Number of steamships ..	167	117	117	120	158
Tonnage { Gross ..	366,182	286,884	283,233	287,498	480,089
Net ..	200,131	159,658	157,824	160,012	275,921
Horse-power (Nominal) ..	39,598	27,597	27,414	27,280	41,210
Number of passengers for which licensed(a) { 1st class ..	3,909	2,107	2,088	2,056	1,808
2nd class and steerage ..	1,719	961	961	961	627
Master and officers ..	557	435	431	446	585
Engineers ..	606	444	443	454	644
Crew ..	4,663	3,331	3,320	3,384	4,732

(a) Excluding purely day passenger accommodation.

(b) Includes vessels under the control of the Australian Shipping Board.

§ 6. Tonnage of Cargo.

1. **Oversea and Interstate Cargo.**—(i) *Australia.* The table hereunder shows the aggregate tonnage of oversea cargo discharged and shipped and the tonnage of interstate cargo shipped in all ports for the years 1942-43 to 1945-46 compared with the year 1938-39. Cargo which was stated in cubic feet has been converted to tons measurement on the basis of 40 cubic feet to the ton.

CARGO MOVEMENT : AUSTRALIA.

Year.	Oversea Cargo.				Interstate Cargo.	
	Discharged.		Shipped.		Shipped.	
	Tons Weight. '000.	Tons Meas. '000.	Tons Weight. '000.	Tons Meas. '000.	Tons Weight. '000.	Tons Meas. '000.
1938-39 ..	4,208	2,191	5,138	1,093	7,221	1,731
1942-43 ..	3,654	1,424	2,380	1,257	7,604	1,808
1943-44 ..	4,138	1,781	3,355	1,702	7,517	1,722
1944-45 ..	4,343	1,797	3,060	1,811	7,666	1,640
1945-46 ..	4,600	1,649	2,462	1,470	6,216	1,213

(ii) *Principal Ports.* The following table shows the tonnage of oversea and interstate cargo discharged and shipped at principal ports during 1945-46. Comparable figures for the year 1944-45 appear in *Transport and Communication Bulletin* No. 36.

TONNAGE(a) OF CARGO DISCHARGED AND SHIPPED AT PRINCIPAL PORTS, 1945-46.

Port.	Discharged.			Shipped.		
	Oversea.	Interstate.	Total.	Oversea.	Interstate.	Total.
	Tons '000.	Tons '000.	Tons '000.	Tons '000.	Tons '000.	Tons '000.
Sydney	2,374	1,175	3,549	1,252	444	1,696
Kembla	106	408	514	103	227	330
Newcastle	145	1,013	1,158	195	2,473	2,668
Other .. .. .	..	..	..	11	3	14
Total, New South Wales	2,625	2,596	5,221	1,561	3,147	4,708
Melbourne	1,437	2,146	3,583	766	802	1,568
Geelong	208	155	363	2	34	36
Other	25	..	25	4	..	4
Total, Victoria	1,670	2,301	3,971	772	836	1,608
Brisbane	708	347	1,055	320	182	502
Cairns	35	43	78	77	116	193
Townsville	56	52	108	110	76	186
Other	22	65	87	57	174	231
Total, Queensland	821	597	1,328	564	548	1,112
Adelaide	312	1,028	1,340	242	330	572
Pirje	28	124	152	140	202	342
Wallaroo	34	1	35	30	41	71
Whyalla .. .. .	..	93	93	..	1,256	1,256
Other	28	55	83	47	58	105
Total, South Australia	402	1,301	1,703	459	1,887	2,346
Fremantle	559	389	948	332	183	515
Bunbury	25	1	26	50	86	136
Geraldton	25	..	25	63	34	97
Other	10	13	23	3	15	18
Total, Western Australia	619	403	1,022	448	318	766
Hobart	102	323	425	69	226	295
Devonport	9	64	73	9	140	149
Launceston .. .. .	..	135	135	10	128	138
Other	1	81	82	30	192	222
Total, Tasmania	112	603	715	118	686	804
Darwin (Northern Territory) .. .. .	..	7	7	10	7	17
Total, AUSTRALIA	6,249	7,718	13,967	3,932	7,429	11,361

(a) Tons weight and tons measurement combined

2. Nationality.—The following table shows the total oversea cargo discharged and shipped according to the nationality of the vessels carrying during the years 1942-43 to 1945-46 compared with the year 1938-39 :—

TONNAGE^(a) OF OVERSEA CARGO DISCHARGED AND SHIPPED.

Vessels Registered at Ports in—	Net Tonnage.				
	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
	'000.	'000.	'000.	'000.	'000.
British Countries—					
Australia	416	276	323	305	433
United Kingdom	7,731	2,641	3,358	4,057	4,982
Canada	53	75	242	568	351
New Zealand	503	435	375	320	243
Other British	446	344	242	260	167
Total British	9,149	3,771	4,540	5,510	6,176
Per cent. on Total	72.43	43.27	41.37	50.05	60.66
Foreign Countries—					
Denmark	184	..	..	..	22
France	189	25	18	43	47
Germany	370	..	..	..	..
Italy	84	..	..	..	..
Japan	260	..	..	..	..
Netherlands ^(b)	573	370	196	193	234
Norway	834	1,640	1,387	911	578
Sweden	354	472	415	412	379
United States of America	159	2,140	3,870	3,480	2,286
Other Foreign	475	297	549	461	459
Total Foreign	3,482	4,944	6,435	5,500	4,005
Per cent. on Total	27.57	56.73	58.63	49.95	39.34
Grand Total	12,631	8,715	10,975	11,010	10,181

(a) Tons weight and tons measurement combined.

(b) Includes Netherlands East Indies.

Owing to war conditions the percentage of cargo carried in British vessels decreased from 72.43 in 1938-39 to 41.37 in 1943-44, but increased to 50.05 in 1944-45 and to 60.66 in 1945-46. On the other hand the percentage of cargo carried on foreign vessels increased from 27.57 in 1938-39 to 58.63 in 1943-44, but decreased to 49.95 in 1944-45 and to 39.34 in 1945-46.

§ 7. Control of Shipping.

1. War-time Control.—An account of the action taken by the Commonwealth Government to control and regulate shipping throughout Australian waters during the 1939-45 War is given in Official Year Book No. 36, pp. 121-130.

2. Post-war Control.—Following on the termination of hostilities in Europe and with the end of the war in the Pacific in prospect, a review was made of the war-time controls in the light of the then existing circumstances.

On 1st January, 1946, the Shipping Co-ordination Regulations were substantially amended. The amended Regulations provided for the establishment of an Australian Shipping Board to exercise the functions of the Shipping Control Board, Commonwealth Ships Chartering Committee and the Central Cargo Control Committee previously established separately under these Regulations; and also of the Marine Salvage Board which was constituted under other National Security Regulations. As a result of this action the activities of the various war-time shipping authorities were consolidated and considerable economies in administration were secured. The amendments also had the effect of repealing some war-time powers previously exercised by these bodies, notably the Cargo Control Committee.

At about the same time the Allied Consultative Shipping Council, the British-American-Australian Shipping Sub-Committee and the Port Equipment and Development Committee which had operated during the war, although not under any specific regulations, also lapsed.

During the war period allied control of shipping was exercised through an international body known as the United Maritime Authority which had branches in London and Washington and whose functions were, in brief, to allocate the available pool of shipping to the various Allied Nations so as to make the best overall use of the ships under the control of those Nations. The Agreement under which this body operated expired on the 2nd March, 1946. With the expiry of the United Maritime Authority the international war-time control of shipping lapsed and was replaced, under the auspices of the United Maritime Consultative Council, by arrangements for international co-operation, as, for example, through a voyage licensing system. A modified scheme was also continued which provided for the provision of ships for the lifting of relief supplies for Europe, and the United Maritime Consultative Council was utilized to facilitate the exchange of information on shipping as between Governments.

During the period the United Maritime Authority operated, Australia had been allotted a number of ships to assist in the carriage of cargoes around the coast and for the servicing of troops in operational areas. With the expiry of United Maritime Authority these vessels were returned to their owners. By arrangement with the United Kingdom Authorities, however, the Australian Shipping Board was able to negotiate for the charter of an average of 15 vessels for use on the coast and in June, 1947, these vessels were operating in Australian waters.

Following the cessation of hostilities, the majority of the vessels which had been operating under service control were released for commercial use and most of these, after necessary refitting, are now again operating in commercial employment. The end of the war relieved the Australian coastal fleet from its obligations in regard to the servicing of troops in operational areas, but the tonnage available to the Australian Shipping Board continued to be short of requirements, as the Commonwealth undertook the responsibility of assisting in the servicing of troops of the British Commonwealth Occupation Force in Japan, and a demand continued in the islands north of Australia for the return to the mainland of surplus war materials. Furthermore, the end of hostilities brought with it an increased demand on shipping space for the movement of goods necessary for the restoration of industries as well as for the regular movement of coal, iron-stone, sugar and other bulk products.

The difficulties were further increased by the climatic conditions which prevailed in New South Wales and Queensland during the 1944-45 and 1945-46 seasons, which necessitated the carriage of substantial quantities of wheat from other States to the afflicted areas. The net result of these demands was, as stated above, that shipping remained short of requirements, and in order to ensure that the tonnage available was used to the best possible advantage and that all ports received equitable treatment it has been found necessary to continue the requisitioning of vessels of the Australian coastal fleet.

On 18th August, 1947, all requisitioned vessels, with a few exceptions, were released to their owners immediately they returned to their home ports.

In March, 1947, legislation was passed providing for the setting up on a permanent basis of a Stevedoring Industry Commission to continue in peace-time the functions performed during the war by the Stevedoring Industry Commission which operated under the Shipping Co-ordination Regulations. The new Commission, appointed on 19th December, 1947, deals with all matters affecting the waterfront industry with the exception of standard hours of work and standard rates of pay which continue to be the function of the Arbitration Court.

The Maritime Industry Commission set up during the war also continues to function, and consideration is being given to the question of whether similar action will be taken to set up a permanent commission to control maritime industries as was done in the case of the waterfront industries.

§ 8. Miscellaneous.

1. **Lighthouses.**—A list of the principal lighthouses on the coast of Australia, giving details of the location, number, colour, character, period, candle-power and visibility of each light so far as particulars were available was published in *Transport and Communication Bulletin* No. 14.

2. **Distances by Sea.**—The distances by sea between the ports of the capital cities of Australia and the most important ports in other countries which trade with Australia are shown in *Transport and Communication Bulletin* No. 37.

3. **Shipping Freight Rates.**—The *Quarterly Summary of Australian Statistics* gives a list of the ruling freight rates for general merchandise both in respect of oversea and interstate shipments. The latest figures available, which give the rates current at 31st March, 1948, show that the rate for general merchandise from Australia to United Kingdom and Continent was 123s. od. per ton weight or measurement, while the rates for wheat (bagged) and wool (greasy) were respectively 110s. od. per ton weight and $1\frac{1}{8} + 5$ per cent. less $7\frac{1}{2}$ per cent. per lb. These rates, which are expressed in sterling, are subject to an adjustment of $25\frac{1}{2}$ per cent. when freight is prepaid in Australia.

4. **Depth of Water at Main Ports.**—A table, compiled from information supplied by the Director of Navigation, showing the depth of water available and tides at principal ports of Australia at 1st January, 1947, is included in *Transport and Communication Bulletin* No. 37.

5. **Shipping Casualties.**—Courts of Marine Inquiry are constituted by a Magistrate assisted by skilled assessors, and, when necessary, are held at the principal port in each State and at Launceston (Tasmania). Such courts have power to deal with the certificates of officers who are found at fault. Particulars of shipping casualties reported on or near the coast during the years 1940 to 1946 are shown in the table below. This information also was furnished by the Director of Navigation:—

TOTAL SHIPPING CASUALTIES AND LOSSES : AUSTRALIA.

Year ended 31st December—	Total Losses of Vessels.			Total Casualties to Vessels.		
	Number.	Net Tonnage.	Lives Lost.	Number.	Net Tonnage.	Lives Lost.
		000.			000.	
1940	6	16	34	237	419	34
1941	1	(a)	7	161	326	7
1942	20	53	138	233	512	147
1943	14	37	439	215	440	453
1944	5	16	1	192	498	1
1945	2	4	4	179	432	4
1946 .. ..	..	..	..	173	395	..

(a) Less than 500 net tons.

6. **Commonwealth Navigation and Shipping Legislation.**—An account in some detail of the Commonwealth navigation and shipping legislation is contained in Official Year Book No. 17 (pp. 1053-5).

Under the provisions of the Navigation Act the coasting trade of Australia in passengers and cargo is reserved by Section 288 to ships licensed to engage in that trade. Licences are granted to ships complying with Australian conditions respecting wages, manning, crew accommodation, and so on, stipulations which have confined the trade to Australian-owned vessels.

Provision was made in the Act for permits to be granted to unlicensed British ships to carry cargo and passengers on the coast when it was shown that the licensed service was inadequate. The permit system, however, was not entirely satisfactory and in 1926 the Act was amended to allow the Governor-General, by notice in the *Gazette*, to permit unlicensed British ships of a specified size and speed to engage in the passenger trade between particular ports. Such a permit, however, could only be granted when it was shown that the tourist traffic was being injured or retarded. By a further amendment in 1935, this concession was revised to permit unlicensed British ships of not less than 10,000 tons and a sea speed of not less than 14 knots to carry passengers between any two ports in Australia not connected by rail. In every case the voyage must be made in one ship without break of journey, transshipment, or second call at any intermediate port. On arriving at the port of destination the passenger may be taken on to the next port of call of the ship, which may be his first port of embarkation, or a further port not connected by rail.

In the Navigation Act of 1935 also the carriage of wireless equipment was extended to all ships engaged in interstate trade. A similar provision for intra-state vessels has been made by some of the States.

The Navigation (Maritime Conventions) Act of 1934 was an amendment of the Navigation Act to enable the Commonwealth to give effect to the provisions of a number of maritime conferences of recent years, of which the most important were those dealing with the safety of life at sea and load lines.

The war-time and post-war control of shipping is referred to in Section 7.

7. **Ports and Harbours.**—A report in two volumes on "Transport in Australia," with special reference to Ports and Harbours facilities, was submitted to the Commonwealth Government by Sir George Buchanan, and published as two Parliamentary Papers (No. 86 printed 14th March, 1927, and No. 108 printed 9th May, 1927).

B. RAILWAYS.

§ 1. General.

1. **Introduction.**—The policy of Government ownership and control of railways has been adopted in each State and at 30th June, 1946, only 648 route miles of the 27,861 open for general traffic in Australia were privately owned, while 25,012 route miles and 2,201 route miles were owned by the State Governments and the Commonwealth respectively. In the following tables details of the four lines owned by the Commonwealth are grouped and shown with the totals for the various State-owned systems. Separate particulars for each Commonwealth line are given in *Transport and Communication Bulletin* No. 37, issued by this Bureau, and also in Official Year Book No. 31, p. 125, et seq.

2. **Railways Communication in Australia.**—An account of the progress of railway construction in Australia since the opening of the first line in 1854 will be found in Official Year Book No. 6, p. 681. Further information regarding railway communication in Australia is given in Official Year Book No. 22, pp. 259–61.

3. **Standardization of Railway Gauges.**—(i) *Sir Harold Clapp's Recommendations.* In March, 1944, Sir Harold Clapp, Director-General of Land Transport, Commonwealth Department of Transport and formerly Chairman of Commissioners, Victorian Railways, was requested by the Commonwealth Government to submit a report and recommendation regarding the standardization of Australia's railway gauges on the basis of a 4 ft. 8½ in. gauge.

The report, which also covers the construction of certain strategical and developmental railways, was submitted in March, 1945, and the projects recommended, estimated to cost £76,751,000, were as follows:—(a) construction of an independent standard gauge line from Fremantle–Perth to Kalgoorlie (419 miles); (b) conversion to standard gauge of the entire South Australian 5 ft. 3 in. gauge system and the 3 ft. 6 in. gauge lines of the South Eastern Division (1,760 miles); (c) conversion to standard gauge of the entire Victorian 5 ft. 3 in. gauge system, and the Upper Ferntree Gully–Emerald section of the Gembrook 2 ft. 6 in. gauge line (4,980 miles); (d) acquisition of the Silvertown Tramway Company's line (36 miles) between Cockburn (South Australia) and Broken Hill (New South Wales) and the conversion to standard gauge of such line, as well as the 3 ft. 6 in. gauge lines of the Peterborough Division of the South Australian Railways (366 miles) to provide a standard gauge line between Port Pirie and Broken Hill; (e) provision of a standard gauge strategic and developmental railway linking Bourke (New South Wales) with Townsville and Dajarra and tributary lines (Queensland) via Cunnamulla, Charleville, Blackall, Longreach, Winton and Hughenden (1,544 miles); (f) construction of a standard gauge strategic and developmental railway between Dajarra (Queensland) and Birdum (Northern Territory) and the conversion to standard gauge of the Birdum–Darwin line (961 miles).

Other recommendations were that on agreement being reached between the Commonwealth and the States as to the carrying out of the foregoing projects arrangements be made for complete surveys, plans and estimates to be prepared for the standardization of the Queensland and Western Australian Railways not covered by the proposals mentioned.

The conversion to standard gauge of the 3 ft. 6 in. gauge Central Australia Railway (Port Augusta to Alice Springs) and the extension thereof beyond the existing terminal at Alice Springs was not recommended, nor was the introduction of standard gauge in Tasmania.

Projects (a) to (e) were estimated to take up to eight years to complete and (f) three years later. The work of constructing the last-mentioned line (Northern Territory) which is dependent on the completion of the standard gauge railway through Central Queensland to Dajarra would not be commenced until the sixth year.

Man-power to be absorbed in the projects would be equivalent to approximately 103,000 man-years. Something like 850,000 tons of steel for rails and fastenings, metal sleepers, rolling stock construction, etc., would be required, as well as 12 million timber sleepers and 26 million super. feet of sawn timber.

The project involves the conversion of 8,470 miles of existing railways, the construction of 1,600 miles of new railways, and the building of 578 locomotives and 9,746 items of rolling stock. In addition the scheme provides for the conversion of 412 locomotives and 26,000 items of rolling stock.

The report includes a chapter on standardization and modernization of railway equipment and the opinion is expressed that "standardization without modernization would not be justified".

Modernization proposals cover increased speeds of trains, welding of rails, reductions in the tare weight of passenger and goods rolling-stock by the use of special alloy steels such as "Cor-Ten", modernization of passenger cars, greater use of electric traction on dense traffic routes, Diesel-electric locomotives for special work, Fork lift trucks and the establishment of a car and wagon interchange bureau.

The utilization of appropriate government ordnance and munitions factories and annexes with the existing personnel and plant is recommended to assist existing railway workshops in the very large locomotive and rolling stock construction programme involved.

(ii) *Agreement between the Commonwealth and New South Wales, Victoria and South Australia.* In order to implement the Commonwealth Government's desire to bring about the standardization of gauges Commonwealth-State discussions have taken place from time to time. Arising from these discussions a Railway Standardization Agreement was signed in 1946 between the Commonwealth of Australia and the States of New South Wales, Victoria and South Australia. This agreement was ratified by the Commonwealth of Australia on the 15th August, 1946, under the Railway Standardization Agreement Act (No. 50 of 1946).

Works for the standardization of railway gauges to be executed are set out under clause 10 of the Act as follows :—

- (a) Conversion to standard gauge of the entire South Australian 5 ft. 3 in. gauge system, and of the 3 ft. 6 in. gauge lines of the South-Eastern Division, the conversion to standard gauge of existing locomotives and rolling stock suitable for conversion, and the construction of standard gauge locomotives and rolling stock to the extent necessary to replace the existing capacity of all units unsuitable for conversion to standard gauge.
- (b) Conversion to standard gauge of the entire Victorian 5 ft. 3 in. gauge system and the 2 ft. 6 in. gauge line from Ferntree Gully to Emerald, the conversion to standard gauge of existing locomotives and rolling stock suitable for conversion, and the construction of standard gauge locomotives and rolling stock to the extent necessary to replace the existing capacity of all units unsuitable for conversion to standard gauge.
- (c) Acquisition by the State of New South Wales and conversion to standard gauge of the 3 ft. 6 in. gauge line of the Silverton Tramway Company Limited between Cockburn, South Australia, and Broken Hill, New South Wales, and of the locomotives, rolling stock and equipment of that company, the conversion to standard gauge of existing locomotives and rolling stock suitable for conversion and the construction of standard gauge locomotives and rolling stock to the extent necessary to replace the existing capacity of all units unsuitable for conversion to standard gauge.
- (d) Conversion to standard gauge of the 3 ft. 6 in. gauge lines of the Peterborough Division of the South Australian Railways, the conversion to standard gauge of existing locomotives and rolling stock suitable for conversion, and the construction of standard gauge locomotives and rolling stock to the extent necessary to replace the existing capacity of all units unsuitable for conversion to standard gauge.
- * (e) Conversion to standard gauge of the 3 ft. 6 in. gauge lines of the Commonwealth Railways from Port Augusta to Alice Springs, the conversion to standard gauge of existing locomotives and rolling stock suitable for conversion, and the construction of standard gauge locomotives and rolling stock to the extent necessary to replace the existing capacity of all units unsuitable for conversion to standard gauge.

* Not included in Clapp Report recommendations. The undertaking for the construction of a north south trans-continental railway formed part of the obligations of the Commonwealth to South Australia under the Northern Territory Acceptance Act 1910.

- (f) Construction of a new standard gauge line in New South Wales from Bourke to Barrington.
- *(g) Construction of a new standard gauge railway from Alice Springs to Birdum and the construction of the standard gauge locomotives and rolling stock necessary to operate this line.
- (h) Conversion to standard gauge of the 3 ft. 6 in. gauge Commonwealth Railway line from Birdum to Darwin, the conversion to standard gauge of existing locomotives and rolling stock suitable for conversion and the construction of standard gauge locomotives and rolling stock to the extent necessary to replace the existing capacity of all units unsuitable for conversion to standard gauge.
- (i) The provision of terminal facilities rendered necessary by the conversion of any line specified in the foregoing provision of this clause.

The main financial provisions of the Act are covered under clause 23 as follows :—

- (1) The Commonwealth shall bear the whole cost of the standardization works set out in paragraphs (e), (g) and (h) of clause 10 of this Agreement.
- (2) The cost of the standardization works set out in paragraphs (a) and (d) of clause 10 of this Agreement shall be borne as follows :—
 - (a) The cost of construction of new locomotives and rolling stock to replace existing units of the South Australian railways system unsuitable for conversion, up to a maximum of £3,684,064 shall be borne by the State of South Australia, and if the total cost of such construction exceeds £4,912,085, the Commonwealth shall bear the amount of the excess.
 - (b) One-half of that part of the cost of the said standardization works which is not borne as mentioned in paragraph (a) of this sub-clause shall be borne by the Commonwealth, and the other half shall be borne by the States and shared on a *per capita* basis of population ;
- (3) The cost of the standardization works set out in paragraph (b) of clause 10 of this Agreement shall be borne as follows :—
 - (a) The cost of construction of new locomotives and rolling stock to replace existing units of the Victorian railways system unsuitable for conversion up to a maximum of £8,462,768 shall be borne by the State of Victoria, and if the total cost of such construction exceeds £11,283,690, the Commonwealth shall bear the amount of the excess.
 - (b) One-half of that part of the cost of the said standardization works which is not borne as mentioned in paragraph (a) of this sub-clause shall be borne by the Commonwealth and the other half shall be borne by the States and shared on a *per capita* basis of population,
- (4) One-half of the cost of the standardization works set out in paragraphs (c) and (f) of clause 10 of this Agreement shall be borne by the Commonwealth, and the other half shall be borne by the States and shared on a *per capita* basis of population.

The Act shall be inoperative until the Agreement has been approved by legislation in the States concerned.

The necessary legislation has been passed in the State of South Australia, but the States of New South Wales and Victoria have not approved the Agreement to date.

It is estimated that the construction of the uniform gauge in the three States will take seven years.

* Not included in Clapp Report recommendations. The undertaking for the construction of a north south trans-continental railway formed part of the obligations of the Commonwealth to South Australia under the Northern Territory Acceptance Act 1919.

(iii) *Historical.* For the history of the adoption of the various existing railway gauges by the several States and particulars of the scheme for unification of gauge advocated by a Royal Commission in 1921 *see* Official Year Book, No. 15, pp. 534-6.

4. Government Railways. Lines under Construction and Lines Authorized, 1946.—

(i) *Lines under Construction.* In spite of the great extensions of State railways since 1875 and also the construction of various railways by the Commonwealth Government, there are still, in some States, immense areas of country which are as yet practically undeveloped, and in which little in the nature of permanent settlement has been accomplished. The general policy of the States was to extend the existing lines inland in the form of light railways as settlement increased, and while it is true that lines which were not likely to be commercially successful in the immediate future have been constructed from time to time for the purpose of encouraging settlement, the general principle that the railways should be self-supporting was kept in view.

(a) *New South Wales.* Construction work on the Sandy Hollow to Maryvale line (approximately 147 miles) and on the connecting link between St. James and Wynyard stations of the underground railway of Sydney has been recommenced following on funds being made available for this work. Work on the new Hawkesbury River railway bridge and approach tunnels was completed during the year and the bridge was opened for traffic on 1st July, 1946. The duplication of track on the main Southern line between Cootamundra and Junee has made good progress, and work was continued in stages on the comprehensive long-range scheme for the quadruplication of tracks on the main Western line between Lidcombe and Penrith. Preliminary surveys have been carried out and the permanent traverse of the base survey established for both the Eastern Suburbs railway (Central Station and Ruscutters Bay) and Southern Suburbs railway (Central Station and Redfern).

(b) *Other.* At 30th June, 1946, no construction work on new lines was in progress in Victoria, Queensland, South Australia, Western Australia, Tasmania, nor for the Commonwealth Government.

(ii) *Lines Authorized for Construction.* In the States of New South Wales, Victoria, Queensland, South Australia and Western Australia at the 30th June, 1946, there were certain lines authorized for construction but not commenced. These lines were authorized many years ago, some as early as 1910 and none later than 1933. Particulars may be found in Official Year Book No. 36, p. 133. There have been no later authorizations.

5. *Grafton-South Brisbane (Uniform Gauge) Line.*—The 4 ft. 8½ in. gauge line from Grafton (New South Wales) to Brisbane (Queensland) which was opened for traffic on 27th September, 1930, was constructed under agreement between the Commonwealth and the States of New South Wales and Queensland to overcome the break of gauge between Sydney and Brisbane; and was the first step towards uniform gauge railway communication between the capitals of the mainland States. To 30th June, 1946, the capital cost of construction and equipment was £4,362,500, and the working of the line, which is the responsibility of the New South Wales and Queensland Railway Commissioners, resulted in a profit of £90,124 being shown on the New South Wales section and a profit of £146,151 on the Queensland section. The interest charge for the year 1945-46 was £198,638, payable as follows—New South Wales, £63,457, and Queensland, £23,763, the remainder, £111,418, being borne by the Commonwealth. Figures relating to the operations, etc., of the line are incorporated as far as possible with those for New South Wales and Queensland in the tables which follow. Further particulars of the construction of the line will be found in Official Year Book, No. 31, p. 122.

6. *Mileage Open for Traffic, all Lines.*—(i) *General.* Almost all the railways open for general traffic in Australia are owned and controlled by the State or Commonwealth Governments. Private lines have been laid down for the purpose of opening up forest lands, mining districts or sugar areas. These lines are not generally used for the conveyance of passengers or the public conveyance of goods, and it should be understood that the private lines included in the tables below form only a small part of all private railways in Australia.

The following table shows the route mileage of Commonwealth, State and private lines open for general traffic in each State at different periods since the inauguration of railways in Australia in 1854 up to the year 1945-46 :—

GOVERNMENT AND PRIVATE RAILWAYS : MILEAGE OPEN.

Year.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1855 ..	14	2	..	7	..	..	..	..	23
1861 ..	73	114	..	56	..	..	..	..	243
1871 ..	358	276	218	133	12	45	..	..	1,042
1881 ..	1,040	1,247	800	845	92	168	..	..	4,192
1890-91 ..	2,263	2,763	2,205	1,666	656	425	145	..	10,123
1900-01 ..	2,926	3,238	2,904	1,736	1,984	618	145	..	13,551
1910-11 ..	4,027	3,574	4,390	1,993	3,208	675	145	..	18,012
1920-21 ..	5,402	4,337	7,013	3,463	4,906	877	199	5	26,202
1930-31 ..	6,160	4,742	6,795	3,932	4,911	806	317	5	27,668
1940-41 ..	6,196	4,784	6,750	3,861	5,112	758	490	5	27,956
1941-42 ..	6,195	4,791	6,750	3,861	5,112	758	490	5	27,962
1942-43 ..	6,195	4,783	6,750	3,850	5,112	757	490	5	27,942
1943-44 ..	6,194	4,761	6,750	3,848	5,112	758	490	5	27,918
1944-45 ..	6,182	4,761	6,702	3,850	5,112	759	490	5	27,861
1945-46 ..	6,182	4,761	6,702	3,850	5,112	759	490	5	27,861

(ii) *Government and Private Lines Separately.* The next table shows for each State (a) the length of lines open for traffic owned by the State Government, and by the Commonwealth Government in that State and ; (b) the length of private lines available for general use by the public :—

GOVERNMENT AND PRIVATE RAILWAYS : MILEAGE CLASSIFIED, 1945-46.

State or Territory.	Government Lines—		Private Lines available for General Traffic.	Total Open for General Traffic.
	State.	Commonwealth.		
	Miles.	Miles.	Miles.	Miles.
New South Wales ..	6,128	..	54	6,182
Victoria ..	4,748	..	13	4,761
Queensland ..	6,566	..	136	6,702
South Australia ..	2,547	1,252	51	3,850
Western Australia ..	4,381	454	277	5,112
Tasmania ..	642	..	117	759
Northern Territory ..	..	490	..	490
Aust. Cap. Territory ..	..	5	..	5
Australia ..	25,012	2,201	648	27,861

7. *Comparative Railway Facilities.*—The mileage of line open to the public for general traffic (including both Government and private lines) is shown in the following statement in relation to both population and area at 30th June, 1946 :—

GOVERNMENT AND PRIVATE RAILWAYS : COMPARISON OF FACILITIES, 1945-46.

Particulars.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Mileage of Railway—									
Per 1,000 of population ..	2.10	2.35	6.15	6.06	10.38	3.01	46.42	0.32	3.73
Per 1,000 sq. miles of Territory ..	19.98	54.17	10.00	10.13	5.24	28.95	0.94	5.32	9.37

8. Classification of Lines according to Gauge, 1945-46.—The next table gives a classification according to gauge of the route mileage open of (a) Commonwealth railways, given in the State or Territory in which situated; (b) State railways; and (c) Private railways open to the public for general traffic. Particulars of Government railways are up to 30th June, 1946, and of private railways open for general traffic to 31st December, 1945, as nearly as possible.

GOVERNMENT AND PRIVATE RAILWAYS : GAUGES, 1945-46.

State or Territory in which situated.	Route mileage having a gauge of—					Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	

COMMONWEALTH RAILWAYS.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
South Australia	654	598	..	..	1,252
Western Australia	454	..	..	..	454
Northern Territory	490	..	..	490
Aust. Cap. Territory	5	..	..	..	5
Total	1,113	1,088	..	..	2,201

STATE RAILWAYS.

New South Wales	2	6,126	..	..	..	6,128
Victoria	4,634	..	..	114	..	4,748
Queensland .. ..	..	69	6,467	..	30	6,566
South Australia	1,480	..	1,067	..	..	2,547
Western Australia .. ..	..	..	4,381	..	..	4,381
Tasmania .. ..	..	..	642	..	..	642
Total	6,116	6,195	12,557	114	30	25,012

PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC.

New South Wales .. ..	..	17	37	..	..	54
Victoria	13	..	..	..	..	13
Queensland .. ..	..	..	50	..	86	136
South Australia .. ..	..	..	51	..	..	51
Western Australia .. ..	..	..	277	..	..	277
Tasmania .. ..	..	..	110	..	7	117
Total	13	17	525	..	93	648

ALL RAILWAYS OPEN FOR GENERAL TRAFFIC.

New South Wales	2	6,143	37	..	..	6,182
Victoria	4,647	..	..	114	..	4,761
Queensland .. ..	..	69	6,517	..	116	6,702
South Australia	1,480	654	1,716	..	..	3,850
Western Australia .. ..	..	454	4,658	..	..	5,112
Tasmania .. ..	..	..	752	..	7	759
Northern Territory .. ..	..	..	490	..	..	490
Aust. Cap. Territory .. ..	..	5	..	..	..	5
GRAND TOTAL	6,129	7,325	14,170	114	123	27,861

9. **Summary of Operations, 1945-46.**—In the following table a summary is given of the working of all railways open for general traffic in Australia during the year ended 30th June, 1946. In order to provide more accurate averages the basis of compilation has been altered as from 1941-42 in respect of the following items:—Capital cost per mile open, gross revenue, working expenses and net revenue per train mile run (private railways only), and average earnings of employees. The comparison with figures published for years earlier than 1941-42 is thereby impaired:—

GOVERNMENT AND PRIVATE RAILWAYS : SUMMARY OF OPERATIONS, 1945-46.

Particulars.	Common-wealth Railways.	State Railways.	Private Railways.(a)	Total for Australia.
Mileage open (route) 30th June, 1946				
miles	2,201	25,012	048	27,861
Capital cost £'000	18,091	311,877	5,138	335,106
Cost per mile £	8,219	12,469	7,929	12,028
Gross revenue £'000	1,566	68,610	739	70,915
" " per train-mile d.	206.70	194.09	185.30	194.05
Working expenses £'000	1,502	58,233	584	60,319
" " per train-mile d.	198.35	164.74	140.60	165.00
Net revenue £'000	63	10,377	155	10,595
" " per train-mile d.	8.35	29.35	38.70	28.99
Train-miles run miles '000	1,818	84,838	1,050	87,706
Passenger-journeys No. '000	347	545,409	1,461	547,217
Tons of goods, etc., carried tons '000	276	36,450	2,354	39,080
Average number of employees No.	(b) 2,781	(b) 125,039	(c) 1,294	129,114
" earnings per employee £	367	343	329	344

(a) Incomplete. Full particulars not available for all items. (b) Excludes construction staff. (c) Employees at 31st December, 1945.

Details shown above relating to capital cost do not include particulars of amounts totalling about £61.5 million, written off during the period 1st July, 1927 to 1st July, 1937. If these are taken into account, the cost per mile for State Railways is increased to £14,928 and for all railways to £14,234.

§ 2. Government Railways.

1. **Cost of Construction and Equipment.**—The following table gives particulars of the mileage open and the capital cost of Government railways in Australia. The cost shown for Australia (£329,968,000) does not represent the total expenditure on construction and equipment, as legislation has been introduced in Victoria, Queensland, South Australia and Tasmania, for the purpose of reducing the capital indebtedness of the railways. Figures relating to capital cost do not include charges for works in the course of construction, surveys, and discounts and flotation charges on loans allocated to the railways.

GOVERNMENT RAILWAYS : MILEAGE AND COST TO 30th JUNE, 1946.

System.	Mileage Open.		Total Cost of Construction and Equipment.	Average Cost per Route-Mile Open.	Cost per Head of Population.	Route Mileage per 1,000 of Population.
	Route.	Track.				
	Miles.	Miles.	£'000.	£	£	Miles.
New South Wales	6,128	8,368	154,976	25,290	52.62	2.08
Victoria (a) ..	4,748	6,119	53,299	11,225	26.31	2.34
Queensland (a) ..	6,566	7,449	40,689	6,197	37.35	6.93
South Australia (a)	2,547	3,139	30,647	12,032	48.27	4.01
Western Australia	4,381	4,840	26,752	6,106	54.30	8.89
Tasmania (a) ..	642	694	3,068	4,779	12.17	2.55
Commonwealth ..	2,201	2,361	18,090	8,219	..	..
Australia (a) ..	27,213	32,970	(b)329,968	12,125	44.19	3.64

(a) See following paragraph. Line, £2,446,972.

(b) Includes Commonwealth proportion Grafton-South Brisbane

The reductions made in the capital indebtedness referred to above were :—Victoria, £25,684,423; Queensland, £28,000,000; South Australia, £3,088,986; and Tasmania, £4,738,000. After adding these figures to the capital costs of the respective States and adjusting the route-mileage for New South Wales and Queensland to exclude portions of the Grafton-South Brisbane Line, the cost per route-mile open in each State and for the Commonwealth railways is as follows :—New South Wales, £25,290; Victoria, £16,635; Queensland, £10,572; South Australia, £13,245; Western Australia, £6,106; Tasmania, £12,159; Commonwealth, £8,219; and for all Government railways in Australia, £14,422. The lowest average cost is in Western Australia, and the highest is in New South Wales. Very few engineering difficulties were encountered in Western Australia, and the fact that contractors were permitted to carry traffic during the term of their contract considerably reduced expenditure.

Adjusted figures for the cost per head of population for each State and for Australia are as follows :—New South Wales, £52.62; Victoria, £38.99; Queensland, £63.05; South Australia, £53.13; Western Australia, £54.30; Tasmania, £30.98; all Government railways in Australia, £52.43.

2. **Expenditure on Construction and Equipment from Revenue and from Loans.**—The following table gives particulars of the expenditure on construction and equipment from revenue and from loans :—

GOVERNMENT RAILWAYS : CAPITAL EXPENDITURE FROM REVENUE AND FROM LOANS.

System.	Expenditure from Revenue to 30th June, 1946.	Net Loan Expenditure.				Total to 30th June, 1946.
		1938-39.	1944-45.	1945-46.	Total to 30th June, 1946.	
	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.
New South Wales ..	666,864	2,002	1,186	2,275	162,124	
Victoria ..	a 6,202,710	(b) 354	(b) 496	(b) 389	(b) 80,149	
Queensland ..	..	490	472	251	67,536	
South Australia ..	..	261	409	308	36,970	
Western Australia ..	631,715	(c) 195	69	70	25,867	
Tasmania ..	..	35	143	90	(d) 8,008	
Commonwealth ..	3,203,685	..	Cr. 41	Cr. 7	11,321	
Australia ..	10,704,974	3,337	2,734	3,376	(e) 394,422	

(a) From proceeds of sale of State lands, Consolidated Revenue Fund, National Recovery Loan, etc. (b) Gross Loan Expenditure. (c) Includes expenditure on railways provided in Unemployment Relief work programmes. (d) Includes losses funded. (e) Includes £2,446,972 Commonwealth Loan Expenditure on Grafton-South Brisbane Line.

3. **Gross Revenue.**—(i) *General.* The total revenue from all sources, the revenue per average mile worked and the revenue per train-mile run during the years 1942-43 to 1945-46 in comparison with 1938-39 were as follows :—

GOVERNMENT RAILWAYS : GROSS REVENUE.

Year.	N.S.W.(a)	Vic.(b)	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.	Australia.
TOTAL GROSS REVENUE.								
	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.
1938-39 ..	19,946	9,284	7,798	3,119	3,599	487	547	44,780
1942-43 ..	34,872	17,030	18,027	5,810	4,418	842	3,747	84,746
1943-44 ..	35,301	15,882	16,430	5,979	4,387	871	3,459	82,309
1944-45 ..	32,377	15,259	13,809	5,460	4,276	900	2,424	74,505
1945-46 ..	32,113	14,675	11,917	4,871	4,107	928	1,565	70,176

(a) Includes £800,000 per annum contribution from consolidated revenue towards losses on working of country developmental lines. (b) Includes the following recoups by the Treasury—1938-39, £10,000 guarantee in respect of losses on certain lines; and in 1942-43, 1943-44, 1944-45 and 1945-46 £357,000, £279,500, £285,300 and £121,500, respectively, being recoups of losses resulting from reduction in suburban fares and Defence Force fare concessions.

GOVERNMENT RAILWAYS: GROSS REVENUE—*continued.*

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.	Australia.
GROSS REVENUE PER AVERAGE MILE WORKED.								
	£	£	£	£	£	£	£	£
1938-39 ..	3,263	1,953	1,188	1,220	822	740	248	1,645
1942-43 ..	5,691	3,580	2,745	2,280	1,008	1,313	1,702	3,113
1943-44 ..	5,761	3,345	2,502	2,348	1,001	1,357	1,572	3,025
1944-45 ..	5,283	3,214	2,103	2,143	976	1,402	1,101	2,738
1945-46 ..	5,241	3,091	1,815	1,912	937	1,445	711	2,579
GROSS REVENUE PER TRAIN-MILE RUN.								
	d.	d.	d.	d.	d.	d.	d.	d.
1938-39 ..	159.01	124.54	134.38	121.19	131.38	61.30	145.42	138.70
1942-43 ..	214.60	221.69	217.95	205.32	167.24	91.21	258.88	211.62
1943-44 ..	228.36	232.23	199.21	211.75	174.20	95.66	240.46	215.27
1944-45 ..	199.76	224.15	188.59	197.99	166.30	98.13	239.83	198.18
1945-46 ..	202.81	215.49	183.25	183.99	156.33	99.84	206.70	194.35

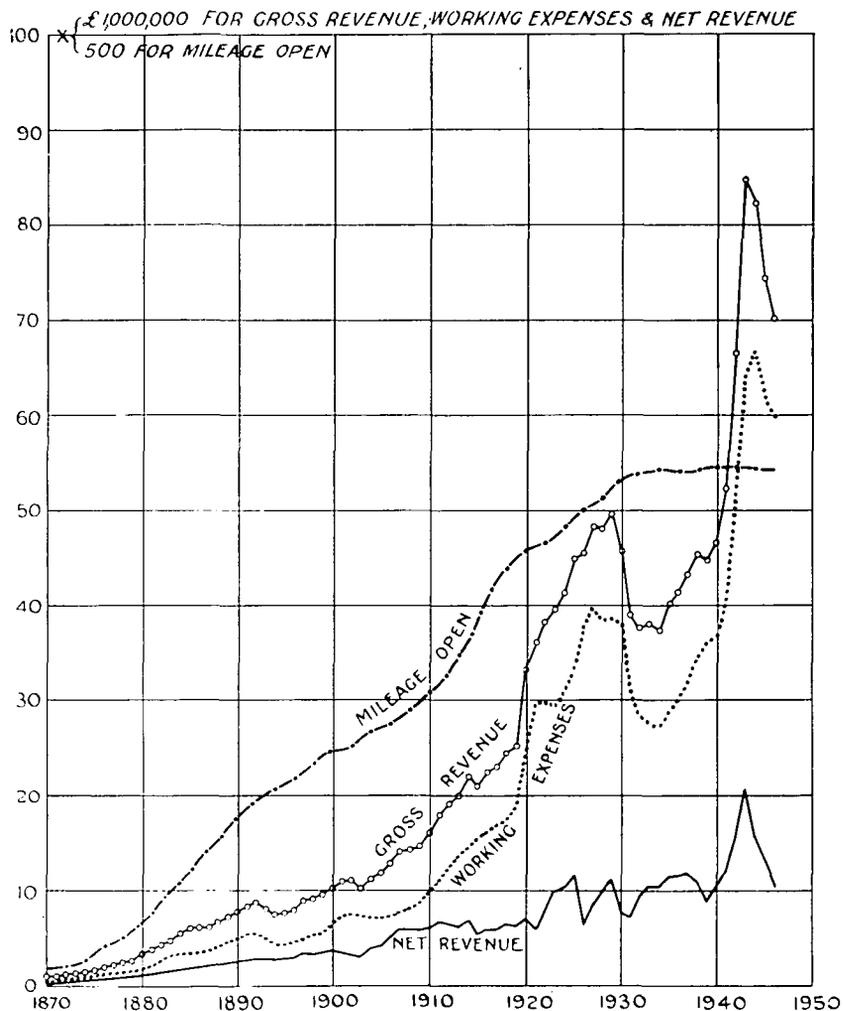
(ii) *Coaching, Goods and Miscellaneous Receipts.* (a) *Totals.* The gross revenue is composed of (a) receipts from coaching traffic, including the carriage of mails, horses, parcels, etc., by passenger trains; (b) receipts from the carriage of goods and live stock; and (c) rents and miscellaneous items. The following table shows the gross revenue for 1938-39 and 1942-43 to 1945-46 classified according to the three chief sources of receipts. The total of the three items specified has already been given in the preceding paragraph.

GOVERNMENT RAILWAYS: COACHING, GOODS AND MISCELLANEOUS RECEIPTS.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.	Australia
	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.
COACHING TRAFFIC RECEIPTS.								
1938-39 ..	6,877	4,286	2,057	754	704	152	194	15,024
1942-43 ..	12,766	7,647	4,674	1,703	1,360	314	961	29,425
1943-44 ..	12,867	7,174	4,861	1,671	1,426	310	940	29,249
1944-45 ..	12,305	7,171	4,332	1,646	1,375	320	797	27,946
1945-46 ..	13,362	7,413	4,145	1,574	1,324	334	656	28,808
GOODS AND LIVE STOCK TRAFFIC RECEIPTS.								
1938-39 ..	10,356	4,276	5,474	2,144	2,807	318	224	25,599
1942-43 ..	18,240	8,141	12,732	3,649	2,881	490	2,712	48,845
1943-44 ..	18,408	7,485	10,842	3,720	2,789	516	2,434	46,194
1944-45 ..	16,138	6,863	8,823	3,382	2,759	528	1,047	39,540
1945-46 ..	14,739	6,058	7,226	2,889	2,674	563	803	34,952
MISCELLANEOUS RECEIPTS.								
	(a)	(b)						
1938-39 ..	2,713	722	266	222	88	17	129	4,157
1942-43 ..	3,866	1,242	621	458	177	38	74	6,476
1943-44 ..	4,026	1,223	727	588	172	45	85	6,866
1944-45 ..	3,934	1,225	654	432	142	52	79	6,518
1945-46 ..	4,012	1,204	546	408	109	31	106	6,416

(a) See note (a) to Gross Revenue table above. (b) See note (b) to Gross Revenue table above.
(c) Excludes particulars of North Australia Commonwealth Railway.

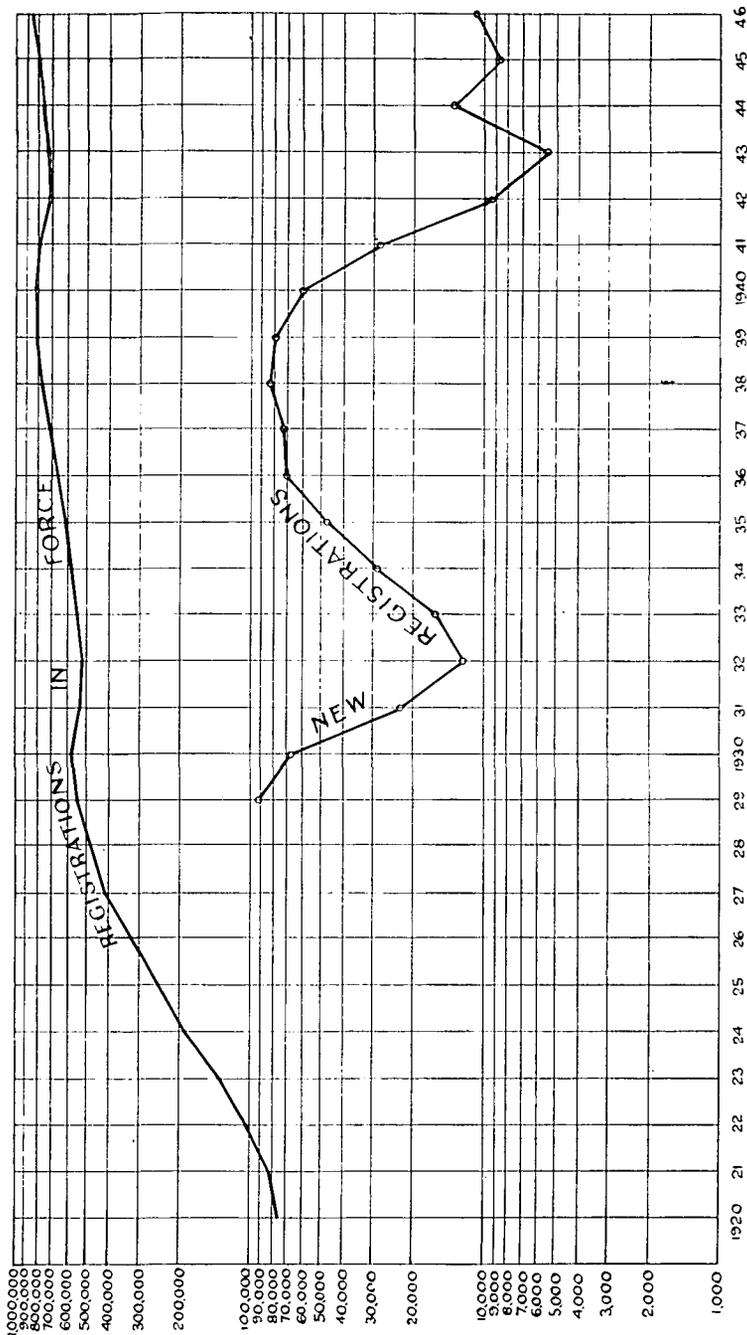
FINANCIAL POSITION OF THE GOVERNMENT RAILWAYS OF AUSTRALIA, 1870 TO 1946.



EXPLANATION.—The base of each square represents throughout ten years. The significance of the vertical height of each square varies according to the nature of the several curves.

In the curves for (i) gross revenue; (ii) working expenses; and (iii) net revenue, the vertical side of each square represents £10,000,000. The mileage open is shown by a broken line, the vertical side of each square representing 5,000 miles.

MOTOR VEHICLE REGISTRATION—AUSTRALIA, 1920 TO 1946.



(See page 175.)

EXPLANATION.—This is a ratio graph, the vertical scale being logarithmic, and the curves rise and fall according to the rate of increase or decrease. Actual numbers are indicated by the scale at the side of the graph.
 The graphs show for all motor vehicles other than motor cycles the registrations in force at 30th June each year and the number of new registrations during the year.

(b) *Percentages.* The following table shows for each of the years 1944-45 and 1945-46 the percentage which each class of receipts bears to the total gross revenue:—

GOVERNMENT RAILWAYS : PERCENTAGES OF RECEIPTS.

System.	1944-45.			1945-46.		
	Coaching.	Goods and Live Stock.	Miscellaneous.	Coaching.	Goods and Live Stock.	Miscellaneous.
	%	%	%	%	%	%
New South Wales ..	38.01	49.84	12.15	41.61	45.90	12.49
Victoria ..	47.00	44.98	8.02	50.51	41.29	8.20
Queensland ..	31.37	63.89	4.74	34.78	60.64	4.58
South Australia ..	30.15	61.95	7.90	32.31	59.31	8.38
Western Australia ..	32.15	64.53	3.32	32.24	65.11	2.65
Tasmania ..	35.51	58.65	5.84	35.97	60.66	3.37
Commonwealth ..	(a) 41.46	(a) 54.43	(a) 4.11	41.96	51.27	6.77
Australia ..	(a) 37.76	(a) 53.43	(a) 8.81	41.05	49.81	9.14

(a) Excludes particulars of North Australia Commonwealth Railways.

4. *Working Expenses.*—(i) *General.* In order to make an adequate comparison of the working expenses, allowance should be made for the variation of gauges and of physical and traffic conditions, not only on the different systems of the State and Commonwealth railways, but also on different portions of the same systems. When traffic is light, the percentage of working expenses is naturally greater than when traffic is heavy; and this is especially true in Australia, where ton-mile rates are in many cases based on a tapering principle—i.e., a lower rate per ton-mile is charged upon merchandise from remote interior districts—and where on many of the lines there is but little back loading.

During the war years large amounts were set aside by the Railways as reserves, mainly to provide for depreciation and accrued leave, to be expended as circumstances permit. War conditions subjected the Railways to heavy demands, and shortages in man-power and materials rendered it impossible to deal with the resulting rapid deterioration of stock, tracks and works. Leave accrued because shortages in staff prevented the taking of annual leave. The railway authorities therefore took the opportunity, which increased revenues offered, to provide for these future commitments. Particulars of the amounts thus set aside by each State during the years 1940-41 to 1944-45 are shown in the following table. These amounts are included in the maintenance of Way and Works and Rolling Stock sections following.

GOVERNMENT RAILWAYS : RESERVES MAINLY FOR DEPRECIATION AND ACCRUED LEAVE.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.	Australia.
	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.
1940-41 ..	1,215	625	125	25	..	100	..	2,090
1941-42 ..	2,403	1,651	710	170	12	100	150	5,196
1942-43 ..	5,214	2,485	1,707	81	80	90	100	9,757
1943-44 ..	3,509	1,272	2,279	112	96	112	100	7,480
1944-45 ..	1,129	919	465	108	36	152	..	2,809

The following table shows the total annual expenditure, the percentage thereof on gross revenue, and the expenditure per average mile worked and per train-mile run for the years 1942-43 to 1945-46 in comparison with 1938-39:—

GOVERNMENT RAILWAYS : WORKING EXPENSES.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.	Australia.
	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.
1938-39 ..	14,543	8,060	6,193	2,931	2,911	678	642	35,958
1942-43 ..	27,343	14,040	11,400	4,661	3,448	964	2,171	64,027
1943-44 ..	27,535	13,214	13,163	5,213	3,796	1,136	2,521	66,578
1944-45 ..	24,673	12,833	11,675	5,146	3,764	1,167	2,113	61,371
1945-46 ..	24,934	12,531	10,425	5,107	4,027	1,209	1,502	59,735

GOVERNMENT RAILWAYS: WORKING EXPENSES—*continued.*

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.	Australia.
PERCENTAGE ON GROSS REVENUE.								
	%	%	%	%	%	%	%	%
1938-39 ..	72.91	86.82	79.42	93.97	80.90	139.18	117.43	80.30
1942-43 ..	78.41	82.44	63.24	80.21	78.03	114.45	57.95	75.55
1943-44 ..	78.00	83.20	80.12	87.18	86.54	130.46	72.87	80.89
1944-45 ..	76.21	84.10	84.55	94.24	88.03	129.65	87.16	82.36
1945-46 ..	77.64	85.39	87.49	104.86	98.05	130.34	95.96	85.12

PER AVERAGE MILE WORKED.								
	£	£	£	£	£	£	£	£
1938-39 ..	2,378	1,695	943	1,146	665	1,030	292	1,321
1942-43 ..	4,462	2,951	1,736	1,829	787	1,502	936	2,352
1943-44 ..	4,493	2,783	2,005	2,047	866	1,770	1,145	2,447
1944-45 ..	4,026	2,703	1,778	2,020	859	1,804	960	2,255
1945-46 ..	4,069	2,639	1,588	2,005	919	1,883	682	2,195

PER TRAIN-MILE RUN.								
	d.	d.	d.	d.	d.	d.	d.	d.
1938-39 ..	115.93	108.13	106.72	113.88	106.28	85.31	170.77	111.38
1942-43 ..	168.27	182.77	137.83	164.69	130.51	104.39	150.02	159.88
1943-44 ..	178.13	193.21	159.60	184.61	150.74	124.80	175.21	174.12
1944-45 ..	152.22	188.51	159.45	186.59	146.40	126.27	209.04	163.22
1945-46 ..	157.47	184.01	160.32	192.93	153.28	130.13	198.35	165.44

(ii) *Distribution.* The following table shows the distribution of working expenses under the chief four heads of expenditure for the years 1938-39 and 1942-43 to 1945-46 :—

GOVERNMENT RAILWAYS: DISTRIBUTION OF WORKING EXPENSES.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.	Australia.
	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.
MAINTENANCE OF WAY AND WORKS.(a)								
1938-39 ..	2,972	1,374	1,602	503	667	129	245	7,492
1942-43 ..	6,700	2,833	2,634	721	679	160	602	14,329
1943-44 ..	5,948	2,623	2,930	924	761	201	746	14,133
1944-45 ..	4,697	2,395	2,414	810	709	192	640	11,857
1945-46 ..	4,732	2,467	2,131	778	736	212	438	11,494

ROLLING STOCK.(a)								
1938-39 ..	5,622	2,801	2,695	1,389	1,321	373	251	14,452
1942-43 ..	11,177	5,552	5,610	2,241	1,593	527	1,179	27,879
1943-44 ..	11,360	4,927	6,639	2,513	1,769	522	1,394	29,124
1944-45 ..	10,059	4,710	5,804	2,544	1,793	533	1,161	26,604
1945-46 ..	9,478	4,533	4,974	2,519	1,932	552	800	24,788

TRANSPORTATION AND TRAFFIC.								
1938-39 ..	3,502	2,254	1,533	682	779	151	101	9,002
1942-43 ..	5,198	2,931	2,410	1,089	833	195	345	13,001
1943-44 ..	5,598	2,960	2,742	1,180	932	205	333	13,950
1944-45 ..	5,440	3,095	2,632	1,199	935	208	258	13,767
1945-46 ..	5,926	3,044	2,504	1,217	1,008	226	193	14,118

GOVERNMENT RAILWAYS: DISTRIBUTION OF WORKING EXPENSES
—continued.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.	Australia.
	£'ooo.	£'ooo.	£'ooo.	£'ooo.	£'ooo.	£'ooo.	£'ooo.	£'ooo.
OTHER CHARGES.								
1938-39 ..	2,448	1,630	363	357	144	24	45	5,011
1942-43 ..	4,268	2,724	746	610	343	82	45	8,818
1943-44 ..	4,629	2,704	852	596	334	208	48	9,371
1944-45 ..	4,477	2,633	825	593	327	234	54	9,143
1945-46 ..	4,798	2,487	816	593	351	219	71	9,335

(a) See par. 4 (l).

5. **Net Revenue.**—The following table shows the net earnings, i.e., the excess of gross earnings over working expenses, and the amount of such net earnings per average mile worked and per train-mile run for the years 1942-43 to 1945-46 in comparison with 1938-39:—

GOVERNMENT RAILWAYS: NET REVENUE.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.	Australia.
NET REVENUE.								
	£'ooo.	£'ooo.	£'ooo.	£'ooo.	£'ooo.	£'ooo.	£'ooo.	£'ooo.
1938-39 ..	5,403	1,224	1,605	188	688	— 191	— 95	8,822
1942-43 ..	7,529	2,990	6,627	1,149	970	— 122	1,576	20,719
1943-44 ..	7,766	2,668	3,267	766	591	— 265	938	15,731
1944-45 ..	7,704	2,426	2,134	314	512	— 267	311	13,134
1945-46 ..	7,180	2,144	1,491	— 237	80	— 281	63	10,440

NET REVENUE PER AVERAGE MILE WORKED.

	£	£	£	£	£	£	£	£
1938-39 ..	884	257	244	74	157	— 290	— 43	324
1942-43 ..	1,229	629	1,009	451	221	— 89	716	761
1943-44 ..	1,267	562	498	301	135	— 413	426	578
1944-45 ..	1,257	511	325	123	117	— 402	141	483
1945-46 ..	1,172	452	227	— 93	18	— 438	29	384

NET REVENUE PER TRAIN-MILE RUN.

	d.	d.	d.	d.	d.	d.	d.	d.
1938-39 ..	43.08	16.42	27.66	7.31	25.10	—24.01	—25.35	27.33
1942-43 ..	46.33	38.92	80.12	40.63	36.73	—13.18	108.86	51.74
1943-44 ..	50.24	39.02	39.61	27.14	23.45	—29.14	65.25	41.14
1944-45 ..	47.54	35.64	29.14	11.40	19.90	—28.14	30.79	34.96
1945-46 ..	45.34	31.48	22.93	— 8.94	3.05	—30.29	8.35	28.91

In the graphs accompanying this Chapter the gross and net revenue and working expenses are shown from 1870 to 1946.

6. Interest.—The interest payments on expenditure from loans for the construction and equipment of the Government railways in Australia during the years 1938–39 and 1942–43 to 1945–46 were as follows:—

GOVERNMENT RAILWAYS : INTEREST PAYMENTS ON RAILWAY LOAN EXPENDITURE.

Year.	N.S.W. (a)	Victoria. (b)	Q'land. (a) (b)	S. Aust. (b)	W. Aust.	Tasmania. (b)	C'wealth.	Australia (a)
	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.
1938–39 ..	5,360	1,860	1,642	1,075	1,001	80	395	11,540
1942–43 ..	5,350	1,890	1,572	1,063	1,032	85	364	11,482
1943–44 ..	5,328	1,902	1,579	1,074	1,043	89	363	11,505
1944–45 ..	5,350	1,903	1,592	1,072	1,051	96	356	11,547
1945–46 ..	5,240	1,902	1,480	1,054	1,040	97	341	11,265

(a) Includes interest charges on the Grafton–South Brisbane Line, which for 1942–43 to 1944–45 amounted annually to £225,939 and were contributed by New South Wales, £72,179; Queensland, £27,029; and the Commonwealth, £126,731. During 1945–46 the annual interest charge was reduced to £198,638 and was contributed by New South Wales, £63,457; Queensland, £23,763; and the Commonwealth, £111,418. See par. 5, p. 149. (b) Capital indebtedness reduced by legislation in these four States. See par. 1, p. 153.

The interest payable on the cost of construction and equipment as shown in the table in par. 1, p. 152, after the expenditure from Consolidated Revenue (£10,704,974 to June, 1946) for that purpose had been deducted, was at the rate of 3.62 per cent. in 1944–45 and 3.53 per cent. in 1945–46.

Exchange on interest payments abroad and certain other charges are not included in the table above. These items are not charged against the railways in Queensland and Western Australia and have been excluded for the purposes of comparison. In the remaining States the amounts paid on account of exchange in 1944–45 were—New South Wales, £760,000; Victoria, £200,026; South Australia, £125,714; and Tasmania, £6,878; and in 1945–46—New South Wales, £721,000; Victoria, £184,876; South Australia, £93,944; and Tasmania, £8,243.

7. Profit or Loss.—The following table shows, for the years 1938–39 and 1942–43 to 1945–46 the actual profit or loss after deducting working expenses and interest, but excluding exchange, from the gross revenue:—

GOVERNMENT RAILWAYS : PROFIT OR LOSS.

PROFIT OR LOSS AFTER PAYMENT OF WORKING EXPENSES AND INTEREST.

Year.	N.S.W. (a)	Victoria.	Q'land. (a)	S. Aust.	W. Aust.	Tasmania.	C'wealth.	Australia. (a)
	£'000.	£'000.	£'000.	£'000.	£'003.	£'000.	£'000.	£'000.
1938–39 ..	43	— 636	— 37	— 886	— 313	— 272	— 490	— 2,718
1942–43 ..	2,179	1,100	5,055	86	— 62	— 207	1,212	9,237
1943–44 ..	2,438	766	1,689	— 308	— 452	— 354	575	4,227
1944–45 ..	2,354	524	542	— 758	— 539	— 363	— 45	1,588
1945–46 ..	1,939	242	11	— 1,291	— 960	— 378	— 277	— 825

(a) See note (a), par. 6, above.

For the first time since 1939–40 the Government railways of Australia as a whole showed a loss in 1945–46 after the payment of working expenses and interest.

8. Traffic.—(i) *General.* Reference has already been made to the difference in the traffic conditions on many of the lines. These conditions differ not only in the several State and Commonwealth systems, but also on different lines in the same system, and apply to both passenger and goods traffic. By far the greater part of the population of Australia is confined to a fringe of country near the coast, more especially in the eastern

and southern districts. A large proportion of the railway traffic between the chief centres of population is therefore carried over lines in the neighbourhood of the coast, and is thus, in some cases, open to seaborne competition. In more recent years competition from air transport has become an important factor.

The following table gives particulars for the years 1942-43 to 1945-46 in comparison with 1938-39 :—

GOVERNMENT RAILWAYS : TRAFFIC.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.	Australia.
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NUMBER OF PASSENGER-JOURNEYS.

	'000.	'000.	'000.	'000.	'000.	'000.	'000.	'000.
1938-39 ..	186,720	142,123	24,639	17,529	11,416	2,297	117	384,841
1942-43 ..	237,441	195,830	33,263	30,864	17,092	3,324	463	518,277
1943-44 ..	250,566	194,138	38,154	27,356	18,773	3,131	522	532,640
1944-45 ..	254,099	195,698	38,962	24,820	18,099	3,261	473	535,412
1945-46 ..	267,423	196,118	38,199	23,119	17,136	3,414	347	545,756

PER AVERAGE MILE OF LINE WORKED.

	No.	No.	No.	No.	No.	No.	No.	No.
1938-39 ..	30,541	29,896	3,752	6,854	2,608	3,490	53	14,134
1942-43 ..	38,747	41,158	5,065	12,108	3,901	5,177	210	19,037
1943-44 ..	40,889	40,888	5,811	10,741	4,285	4,877	237	19,573
1944-45 ..	41,465	41,217	5,934	9,745	4,131	5,079	215	19,675
1945-46 ..	43,639	41,305	5,818	9,077	3,911	5,318	158	20,055

TONNAGE OF GOODS AND LIVE STOCK CARRIED.

	'000.	'000.	'000.	'000.	'000.	'000.	'000.	'000.
1938-39 ..	15,417	5,976	5,234	2,640	2,859	844	186	33,156
1942-43 ..	19,646	8,759	6,706	3,430	2,505	982	473	42,501
1943-44 ..	19,403	8,294	6,567	3,648	2,560	978	516	41,966
1944-45 ..	18,793	8,064	6,240	3,476	2,904	924	381	40,782
1945-46 ..	16,885	7,229	5,758	2,970	2,728	880	276	36,726

PER AVERAGE MILE OF LINE WORKED.

	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1938-39 ..	2,522	1,257	797	1,032	653	1,282	84	1,218
1942-43 ..	3,206	1,841	959	1,346	572	1,475	215	1,546
1943-44 ..	3,166	1,747	923	1,432	584	1,523	234	1,525
1944-45 ..	3,067	1,698	950	1,365	663	1,443	173	1,499
1945-46 ..	2,755	1,523	877	1,166	623	1,375	125	1,350

(ii) *Metropolitan and Country Passenger Traffic and Revenue, 1940-41.* A further indication of the difference in passenger traffic conditions is obtained from the comparison of the volume of metropolitan and suburban and country traffic during 1940-41 shown below. Figures for later years are not available for all States, because statistical compilations have been restricted owing to staff shortages and the extra work caused by war traffic.

GOVERNMENT RAILWAYS : METROPOLITAN AND SUBURBAN, AND COUNTRY PASSENGER TRAFFIC AND RECEIPTS, 1940-41.

System.	Passenger-Journeys.			Revenue.		
	Metropolitan and Suburban.	Country.	Total.	Metropolitan and Suburban.	Country.	Total.
	'000.	'000.	'000.	£'000.	£'000.	£'000.
New South Wales	180,441	13,705	194,146	3,403	4,233	7,636
Victoria ..	149,652	9,566	159,218	2,623	2,381	5,004
Queensland ..	21,055	5,139	26,194	365	1,424	1,789
South Australia ..	18,642	1,718	20,360	269	552	821
Western Australia	9,967	1,551	11,518	129	512	641
Tasmania .. (a)	1,790	1,002	2,792	(a) 24	142	166
Commonwealth ..	..	194	194	..	296	296
Australia ..	381,547	32,875	414,422	6,813	9,540	16,353

(a) Estimated.

(iii) *Goods Traffic.* (a) *Classification.* Some indication of the differing conditions of the traffic in each system is also given by an examination of the tonnage of the various classes of commodities carried, and of the revenue derived therefrom. The following table shows the number of tons of various commodities carried during 1945-46.

GOVERNMENT RAILWAYS : CLASSIFICATION OF COMMODITIES CARRIED, 1945-46.
'000 TONS CARRIED.

System.	Coal, Coke and Shale.	Other Minerals.	Grain and Flour.	Wool.	Live Stock.	All other Com- modities.	Total.
New South Wales ..	(a)	(a)	(a)	(a)	1,013	15,872	16,885
Victoria ..	(a)	(a)	(a)	(a)	620	6,609	7,229
Queensland ..	965	376	..	82	605	3,730	5,758
South Australia ..	312	470	359	30	183	1,616	2,970
Western Australia ..	308	278	750	37	138	1,217	2,728
Tasmania ..	88	103	(a)	8	35	646	880
Commonwealth ..	73	3	(a)	2	56	142	276
Australia ..	(b)	(b)	(b)	(b)	2,650	29,832	36,726

(a) Included with "All other Commodities".

(b) Not available.

(b) *Revenue.* The following table shows the revenue derived from goods and live stock traffic during 1945-46 :—

GOVERNMENT RAILWAYS : REVENUE FROM GOODS AND LIVE STOCK, 1945-46.

Class.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.	Australia.	
	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	
General merchandise	(a)	5,439	3,750	1,740	2,024	434	666	(a)	
Wool ..		(b)	552	65	97	12	6		
Live Stock ..		519	835	219	182	34	105		
Minerals—									
Coal and coke ..		(b)	431	101	174	(e)	21		
Other ..		(b)	264	510	110	83	3		
Miscellaneous		100	(c) 1,394	(d) 254	87	..	2		
Total ..	14,739	6,058	7,226	2,889	2,674	563	803	34,952	

(a) Not available.

(b) Included with "General Merchandise"

(c) Includes agricultural produce, £1,370,000.

(d) Includes wheat, £199,000.

(e) Included with "Other Minerals".

(iv) *Passenger-Mileage and Ton-Mileage.* Particulars of passenger-mileage and ton-mileage in respect of the Government railways in Australia for the years 1938-39 to 1941-42 are given on pages 147-8 of Official Year Book No. 36. Figures for later years are not available for all States owing to the restriction of statistical compilations necessitated by staff shortages and extra work caused by war traffic.

9. Rolling Stock.—The following table shows the number of rolling stock in use at 30th June for each of the years 1939, 1945 and 1946. Further details may be found in *Transport and Communication Bulletins*.

GOVERNMENT RAILWAYS : ROLLING STOCK.

System.	30th June—								
	1939.			1945.			1946.		
	Locos.	Coaching Stock.	Other Stock.	Locos.	Coaching Stock.	Other Stock.	Locos.	Coaching Stock.	Other Stock.
New South Wales ..	1,284	2,808	24,257	1,148	2,827	25,483	1,151	2,816	25,715
Victoria ..	581	2,439	20,993	593	2,434	20,654	596	2,473	20,829
Queensland ..	752	1,413	18,733	782	1,452	20,848	774	1,446	20,807
South Australia ..	335	594	7,966	328	643	7,993	328	649	8,024
Western Australia ..	427	475	11,110	414	427	10,950	424	426	11,055
Tasmania ..	95	225	2,120	104	223	2,422	108	217	2,383
Commonwealth ..	113	89	1,359	168	125	2,056	168	124	2,079
Australia ..	3,587	8,043	86,538	3,537	8,131	90,406	3,549	8,151	90,892

10. Accidents.—The following table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock on the Government railways of Australia for each of the years 1943-44 to 1945-46 :—

GOVERNMENT RAILWAYS : ACCIDENTS.

System.	1943-44.		1944-45.		1945-46.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales (a) ..	141	813	141	797	106	721
Victoria ..	35	242	47	510	42	415
Queensland ..	32	326	27	300	20	293
South Australia ..	20	311	10	321	12	218
Western Australia ..	13	197	27	173	22	195
Tasmania ..	3	7	3	6	4	5
Commonwealth ..	5	159	4	168	..	212
Australia ..	249	2,055	259	2,275	206	2,059

(a) Excludes accidents to railway employees.

11. Consumption of Oil and Coal.—The following table shows the quantities and values of oil and coal consumed by the various Government Railway Departments during 1945-46 :—

GOVERNMENT RAILWAYS : OIL AND COAL CONSUMED, 1945-46.

System.	Oil.				Coal.			
	Lubrication.		Fuel, Light, etc.		Locomotives.		Other Purposes.	
	Gallons. '000.	£'000.	Gallons. '000.	£'000.	Tons. '000.	£'000.	Tons. '000.	£'000.
N.S.W. ..	(a)	(a)	(a)	(a)	1,322	1,372	717	958
Victoria ..	202	39	1,785	84	381	728	144	249
Q'land. ..	317	67	562	41	576	654	42	49
S. Aust. ..	116	21	1,222	84	291	649	7	13
W. Aust. ..	104	23	472	29	343	465	6	7
Tas. ..	45	10	363	20	69	100	1	1
C'wealth ..	49	10	274	17	71	215	1	4
Australia	(a)	(a)	(a)	(a)	3,053	4,183	918	1,281

(a) Not available.

12. *Staff Employed.*—(i) *Numbers.* The following table gives details of the average staff employed by the Government railways of Australia during 1945-46 :—

GOVERNMENT RAILWAYS : AVERAGE STAFF EMPLOYED(a), 1945-46.

System.	Operating Staff.		Construction Staff.		Total Staff.	
	Salaried.	Wages.	Salaried.	Wages.	Salaried.	Wages.
	No.	No.	No.	No.	No.	No.
New South Wales ..	8,428	44,824	4	1,155	8,432	45,979
Victoria ..	3,236	23,571	(b)	(b)	3,236	23,571
Queensland ..	3,672	18,909	..	..	3,672	18,909
South Australia ..	1,849	9,126	(c)	(c)	1,849	9,126
Western Australia ..	1,467	7,634	..	..	1,467	7,634
Tasmania ..	237	2,086	..	101	237	2,187
Commonwealth ..	295	2,486	..	37	295	2,523
Australia ..	19,184	108,636	4	1,293	19,188	109,929

(a) Excludes members of staff serving with Defence Services.

(b) In Victoria, railway construction work is not under the control of the Railways Commissioners.

(c) Staff engaged on special work.

(ii) *Salaries and Wages Paid.* The following table gives details of the salaries and wages paid by the Government railways of Australia during 1945-46 :—

GOVERNMENT RAILWAYS : SALARIES AND WAGES PAID, 1945-46.

System.					Total Salaries and Wages Paid.	Average Earnings per Employee.
					£'000.	£
New South Wales ..	..	..	..	..	18,825	346
Victoria ..	..	..	..	..	9,062	338
Queensland ..	..	..	..	..	8,292	367
South Australia ..	..	..	..	..	3,619	330
Western Australia ..	..	..	..	..	2,928	322
Tasmania ..	..	..	..	..	778	321
Commonwealth ..	..	..	..	..	1,032	367
Australia ..	..	..	..	..	44,536	345

§ 3. Private Railways.

1. *Total Mileage Open, 1945-46.*—The bulk of the private railways in Australia has been laid down for the purpose of hauling timber, firewood, sugar-cane, coal and other minerals, and it is not generally used for the conveyance of passengers or for public goods traffic. In many cases the lines are practically unballasted and easily removable.

The railways referred to in this section include only lines open to the public for general passenger and goods traffic. Complete particulars of lines used for special purposes only are not available.

2. Lines Open for General Traffic.—The following statement gives a summary of the operations of private railways open for general traffic for 1945-46 :—

PRIVATE RAILWAYS : SUMMARY OF OPERATIONS, 1945-46.

State,	Route- Miles Open.	Capital Cost.	Gross Revenue.	Working Expenses.	Train- Miles Run.	Passenger- Journeys.	Goods, etc., Carried.	Em- ployees.
	Miles.	£'000.	£'000.	£'000.	'000.	'000.	'000 tons.	No.
N.S.W.(a)	54	1,256	320	253	460	1,277	679	414
Vic. . .	13	44	10	9	12	10	21	17
Q'land(a) . .	136	85	22	22	56	..	136	25
S.A.(a) . .	51	524	(b)	(b)	72	74	1,196	163
W.A. . .	277	2,294	209	134	260	58	127	357
Tas.(a) . .	117	935	178	166	190	42	195	318
Australia(a)	648	5,138	739	584	1,050	1,461	2,354	1,294

(a) Incomplete.

(b) Not available.

Some of the particulars given in the table are incomplete in respect of New South Wales, Queensland, South Australia and Tasmania. In New South Wales and Queensland several lines, although owned by private companies, are operated by the Government Railway Departments, and Government rolling stock is used thereon, while some of the companies are not able to supply particulars of the capital cost, revenue and working expenses of the lines which they operate. In some cases the figures relating to tonnage of goods, etc., include particulars of coal, ores, timber, sugar-cane, etc., carried for private purposes, as details relating to goods carried for the general public are not recorded separately.

C. TRAMWAYS.

1. Systems in Operation.—(i) *General.* Tramway systems are in operation in all the capital cities and in a number of the larger towns of Australia. The systems are operated mainly by governmental and municipal authorities, and from 1941-42 have been all electric.

In many parts of Australia private lines used for special purposes in connexion with the timber, mining, sugar, or other industries are often called tramways, but they are more properly railways (see above), and the traffic on them has nothing in common with that of the street tramways for the conveyance of passengers, which are dealt with in the present section.

(ii) *Total Mileage Open and Classification of Lines.* The following tables show for each State the total mileage of tramway lines open for general passenger traffic for 1945-46 classified (a) according to the controlling authority; (b) according to gauge:—

TRAMWAYS : ROUTE MILEAGE OPEN, 1945-46.

Particulars—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Australia.
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ACCORDING TO CONTROLLING AUTHORITY.

	Miles.						
Government ..	172	172	50	..	394
Municipal	63	96	10	34	203
Private	9	..	9
Total ..	172	172	63	96	69	34	606

ACCORDING TO GAUGE.

Gauge—							
5 ft. 3 in. ..	..	5	..	..	..	..	5
4 ft. 8½ in. ..	172	167	63	96	..	..	498
3 ft. 6 in. ..	..	..	..	..	69	34	103
Total ..	172	172	63	96	69	34	606

2. *Summary of Operations, Australia.*—The following table gives a summary of the working of all electric tramway systems in Australia for the years 1941-42 to 1945-46:—

ELECTRIC TRAMWAYS : SUMMARY OF OPERATIONS, AUSTRALIA.

Particulars.	1941-42.	1942-43.	1943-44.	1944-45.	1945-46.
Mileage open for traffic .. miles	587	591	602	603	606
Cost of construction and equipment					
£'000	26,289	26,533	26,888	27,156	27,428
Cost per mile £	44,785	44,895	44,664	45,034	45,261
Gross revenue £'000	9,370	10,507	11,238	11,265	11,313
Working expenses "	6,916	7,746	8,372	8,420	8,858
Net earnings "	2,454	2,761	2,866	2,845	2,455
Interest "	856	837	827	790	724
Percentage of working expenses on gross revenue %	73.80	73.73	74.50	74.74	78.29
Percentage of net earnings on capital cost %	9.33	10.41	10.66	10.48	8.95
Car-miles run '000 miles	81,778	85,441	87,157	87,756	88,878
Gross revenue per tram-mile d.	27.49	29.51	30.94	30.81	30.55
Working expenses per tram-mile ..	20.29	21.76	23.05	23.03	23.92
Net earnings per tram-mile ..	7.20	7.75	7.89	7.78	6.63
Passenger-journeys '000	873,657	990,482	1,083,212	1,069,716a	1,049,254
" " per car-mile No.	10.68	11.89	12.43	12.19	11.81
Average revenue per passenger-journey d.	2.57	2.55	2.49	2.53	2.59
Persons employed at end of year No.	18,167	18,906	19,051	20,149	20,938

(a) Excludes passengers crossing Sydney Harbour Bridge whose journeys did not extend beyond Bridge Section.

3. Traffic and Accidents.—Particulars of the traffic of electric tramways and the accidents which occurred in the movement of rolling stock are shown in the following table for each State during 1945-46, and for Australia during the last five years :—

ELECTRIC TRAMWAYS : TRAFFIC AND ACCIDENTS.

State.	Average Mileage Open for Year.		Car-Miles Run.	Passenger-Journeys.	Average Number Passengers per Car-Mile.	Accidents.	
	Route.	Track.				Persons—	
						Killed.	Injured.
STATES, 1945-46.							
New South Wales	Miles. 172	Miles. 323	'000. a 36,200	'000. b 417,344	No. 11.53	No. 45	No. 4,426
Victoria ..	172	317	25,103	306,659	12.22	19	807
Queensland ..	63	112	10,107	147,007	14.54	9	560
South Australia ..	96	149	9,518	84,970	8.93	9	147
Western Australia	69	108	5,321	59,805	11.24	11	301
Tasmania ..	34	47	2,629	33,469	12.73	4	56
Australia ..	606	1,056	88,878	1,049,254	11.81	97	6,297
AUSTRALIA, 1941-42 TO 1945-46.							
1941-42	587	1,008	81,778	873,657	10.68	114	3,605
1942-43	591	1,015	85,441	990,482	11.89	(c) 135	(c) 6,194
1943-44	602	1,033	87,157	1,083,212	12.43	(c) 121	(c) 5,031
1944-45	603	1,036	87,756	1,069,716b	12.19	100	5,367
1945-46	606	1,056	88,878	1,049,254b	11.81	97	6,297

(a) Estimated.

(b) See note (a) above.

(c) Excludes particulars for Perth.

4. State Details.—(i) *New South Wales.* The electric tramways of Sydney and Newcastle are the property of the Government, and are under the control of the Department of Road Transport and Tramways. In Sydney and suburbs, at the 30th June, 1946, the Government tramways were divided into four distinct systems operated by electricity, and one, the Kogarah-Rockdale-Sans Souci line, by trolley bus (6 miles 32 chains). In addition, 2 miles 18 chains of trolley bus route operated in the city and suburban system. The gauge of all lines is 4 ft. 8½ in.

(ii) *Victoria.* In Melbourne, electric tramway systems with route mileages of 131 miles 29 chains are worked by the Melbourne and Metropolitan Tramways Board, while two electric tramways, (a) St. Kilda to Brighton 5 miles 14 chains and (b) Sandringham to Black Rock 2 miles 34 chains, belong to and are operated by the Railways Commissioners. The State Electricity Commission operates 11 miles 2 chains of electric tramways at Geelong, 13 miles 67 chains at Ballarat and 8 miles 51 chains at Bendigo.

A short account of the formation of the Melbourne Tramway and Omnibus Company and of the Tramways Board will be found in earlier issues of this work (see Year Books No. 7, page 652, No. 9, page 679, and No. 15, page 593).

With the exception of the St. Kilda-Brighton line, which is of 5 ft. 3 in. gauge, all the tramways of the State are of 4 ft. 8½ in. gauge.

(iii) *Queensland.* The electric tramways in the city and suburbs of Brisbane were controlled by a private company, with head office in London, until the 31st December, 1922, on which date they were purchased by the Queensland Government which, under the provisions of the Brisbane Tramways Trust Act 1922, appointed a Trust to control and operate the system until 1st December, 1925, when the control passed to the Brisbane City Council. The total length of the Brisbane tramways was 63 route miles at 30th June, 1946, the gauge of the line being 4 ft. 8½ in.

(iv) *South Australia.* The tramways in Adelaide and suburbs are controlled by a Municipal Tramways Trust created in 1907. Electric traction was inaugurated in 1909, and at the 31st January, 1947, the Tramways Trust operated a total route mileage of 80 miles of 4 ft. 8½ in. gauge. Over 16 miles of trolley bus route were included in the total route mileage operated (96 miles).

(v) *Western Australia.* The Perth electric tramways were taken over by the Government on the 1st July, 1913, and are now worked in conjunction with the Government railways. The length of route open at 30th June, 1946, was 50 miles. Trolley bus route miles included in this total amounted to 14. Electric tramways with a route mileage at 31st August, 1946, of 10½ miles and controlled by the municipal authorities, are in operation in Fremantle. In Kalgoorlie and Boulder a private company controls the electric tramways, of which, at the end of 1946, the length of line was 9.40 route miles. All the electric tramways of the State are of 3 ft. 6 in. gauge.

(vi) *Tasmania.* In Hobart there is a system of electric tramways consisting of 14 route miles of 3 ft. 6 in. gauge and 6 miles of trolley bus route controlled by the Hobart Municipal Council. The Launceston City Council operates a length of 14 miles of 3 ft. 6 in. gauge in that city.

(vii) *Summary of Operations.* The following table gives particulars of the working of electric tramways in each State of Australia for the years 1942-43 to 1945-46 in comparison with the year 1938-39 :—

ELECTRIC TRAMWAYS : SUMMARY OF OPERATIONS.

Year ended 30th June—	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Gross Revenue.	Working Expenses.	Net Earnings.	In- st.	Percentage of Working Expenses on Gross Revenue.	Car Miles.	Passengers carried.	Persons employed at end of year.
		£'000.	£'000.	£'000.	£'000.	£'000.	%	'000.	'000.	
NEW SOUTH WALES.										
1939	182	8,944	3,449	3,080	369	310	89.30	34,941	322,238	8,062
1943	164	8,566	4,114	3,554	560	267	86.39	34,000	403,390	9,383
1944	172	8,712	4,302	3,913	389	258	90.96	34,000	436,048	9,285
1945	172	8,715	4,320	3,874	446	259	89.68	35,500	a 424,225	9,251
1946	172	8,727	4,370	4,128	242	232	94.47	36,200	a 417,344	9,320
VICTORIA.										
1939	166	8,086	2,112	1,388	724	254	65.72	22,803	175,198	4,355
1943	171	8,636	3,253	1,928	1,325	205	59.27	25,323	291,222	4,575
1944	171	8,760	3,403	2,001	1,402	202	58.80	25,451	304,404	4,470
1945	172	8,744	3,476	2,036	1,440	185	58.57	25,172	310,052	4,826
1946	172	8,897	3,495	2,126	1,369	180	60.81	25,103	306,659	5,305
QUEENSLAND.										
1939	60	2,391	831	632	199	120	76.05	8,100	91,444	1,911
1943	63	2,397	1,249	824	425	131	65.97	9,467	135,480	1,856
1944	63	2,350	1,455	896	559	132	61.58	10,017	157,432	1,929
1945	63	2,327	1,462	956	506	101	65.39	10,327	159,679	2,314
1946	63	2,358	1,356	985	371	90	72.64	10,107	147,007	2,383

(a) See note (a) to table in para. 2 above.

ELECTRIC TRAMWAYS: SUMMARY OF OPERATIONS—*continued.*

Year ended 30th June—	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Gross Revenue.		Working Expenses.		Net Earnings.	Interest.	Percentage of Working Expenses on Gross Revenue.	Car Miles.	Passengers carried.	Persons employed at end of year.
			£'000.	£'000.	£'000.	£'000.						

SOUTH AUSTRALIA.

1939	78	4,438	711	494	217	154	69.48	8,712	52,906	1,750	(b)
1943	94	4,371	1,069	776	293	157	72.59	8,506	79,406	1,741	
1944	96	4,477	1,190	877	313	158	73.70	9,065	88,889	1,959	
1945	96	4,759	1,144	884	260	156	77.27	8,719	84,243	2,290	
1946	96	4,812	1,199	934	265	158	77.87	9,518	84,970	2,331	

WESTERN AUSTRALIA.

1939	71	1,752	367	342	25	44	93.19	4,756	38,095	792
1943	70	1,869	562	466	96	48	82.92	5,682	57,732	950
1944	69	1,878	615	515	100	48	83.74	6,087	65,269	998
1945	69	1,863	573	480	93	48	83.77	5,432	59,788	1,010
1946	69	1,867	583	513	70	48	87.93	5,321	59,805	1,100

TASMANIA.

1939	29	664	179	153	26	27	85.47	2,049	15,595	337
1943	29	694	260	198	62	29	76.15	2,463	23,252	401
1944	31	711	273	170	103	29	62.27	2,537	31,170	410
1945	31	748	290	190	100	41	65.52	2,606	31,729	458
1946	34	767	310	172	138	16	55.43	2,629	33,469	499

AUSTRALIA.

1939	586	26,275	7,649	6,089	1,560	909	79.60	81,361	695,476	17,207	(b)
1943	591	26,533	10,507	7,746	2,761	837	73.73	85,441	990,482	18,006	
1944	602	26,888	11,238	8,372	2,866	827	74.50	87,157	1,083,212	19,051	
1945	603	27,156	11,265	8,420	2,845	790	74.74	87,756	1,069,716a	20,149	
1946	606	27,428	11,313	8,858	2,455	724	78.29	88,878	1,049,254a	20,938	

(a) See note (a) to table in para. 2 above.

(b) Includes motor omnibus employees in South Australia.

D. MOTOR OMNIBUS PASSENGER SERVICES.

1. General.—Motor omnibus passenger services have been in operation for some years in the capital cities and some of the larger towns of the States of Australia, and in the Australian Capital Territory.

Governmental and Municipal authorities operate certain services and the others are run by private operators; in the States the former are run in conjunction with the existing electric tramway systems.

2. Government and Municipal Services.—(i) *Summary of Operations, 1945-46.* In the following table a summary is given of the operations during the year ended 30th June, 1946 of omnibus systems controlled by Governmental and Municipal authorities.

GOVERNMENT AND MUNICIPAL MOTOR OMNIBUS PASSENGER SERVICES, 1945-46.

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	A.C.T.	Aus- tralia.
Length of route .. miles	450	69	35	21	(a) 238	23	10	846
Number of buses .. No.	509	315	34	61	31	17	29	996
Capital cost .. £'000	1,193	736	89	151	78	26	25	2,298
Bus mileage run .. '000 miles	18,549	7,865	1,007	1,250	975	187	702	30,535
Passenger journeys .. '000	b 125,160	70,196	8,114	6,268	4,602	1,615	3,404	b 219,359
Gross traffic receipts .. £'000	1,565	752	87	98	61	15	39	2,617
Working expenses .. £'000	(c) 1,850	667	67	117	61	12	55	2,829
Number of employees .. No.	3,108	1,357	85	(d)	41	(e) 8	100	(f) 4,699

(a) Includes railway bus service, Perth-Kojonup. (b) Excludes passengers across Sydney Harbour Bridge whose journeys did not extend beyond the Bridge section. (c) Includes estimate of administrative and general charges. (d) Not available, employees interchangeable with Electric Tramways and included therein (Section C.). (e) Excludes employees Hobart Municipal buses, who are interchangeable with Electric Tramways and included therein (see Section C.). (f) See notes (d) and (e).

(ii) *Summary of Operations, Australia.* The following table gives a summary of the working of motor omnibus passenger services in Australia under Governmental and Municipal control during the five years ended 1945-46.

GOVERNMENT AND MUNICIPAL MOTOR OMNIBUS PASSENGER SERVICES : SUMMARY OF OPERATIONS, AUSTRALIA.

Particulars.	1941-42.	1942-43.	1943-44.	1944-45.	1945-46.
Mileage open for traffic .. miles	(a)	(a)	760	768	846
Number of buses .. No.	872	901	949	997	996
Cost of plant and equipment .. £'000	2,127	2,116	2,196	2,275	2,298
Gross revenue .. £'000	2,485	2,493	2,458	2,508	2,617
Working expenses .. £'000	2,037	2,289	2,353	2,599	2,829
Net revenue .. £'000	448	204	105	— 91	— 212
Percentage of working expenses on gross revenue .. %	82.00	91.80	95.73	103.65	108.09
Percentage of net revenue on capital cost .. %	21.06	9.34	4.78	—4.03	—9.22
Bus miles run .. '000 miles	28,359	29,349	29,555	29,745	30,535
Gross revenue per bus mile run .. d.	21.02	20.39	19.96	20.23	20.57
Working expenses per bus mile run .. d.	17.24	18.72	19.11	20.97	22.23
Net revenue per bus mile run .. d.	3.78	1.67	0.85	—0.74	—1.66
Passenger journeys .. '000	192,590	203,791	209,354	214,919	219,359
Passenger journeys per bus mile .. No.	6.79	6.94	7.08	7.26	7.18
Average gross revenue per passenger journey .. d.	3.10	2.94	2.81	2.80	2.86
Persons employed .. No.	4,566	4,619	4,857	4,774	4,699

(a) Not available.

3. *Privately Controlled Services.*—(i) *General.* Particulars of motor omnibus passenger services under the control of private operators are recorded in the States of New South Wales, South Australia and Western Australia only.

In New South Wales, particulars are compiled for the Metropolitan and Newcastle Transport Districts only, but in South Australia and in Western Australia all operators throughout the State are covered.

(ii) *Summary of Operations.* The operations of motor omnibus passenger services under the control of private operators in these States during the five years ended June, 1946, are shown in the following table.

PRIVATE MOTOR OMNIBUS PASSENGER SERVICES : SUMMARY OF OPERATIONS.

Year.	Buses.	Bus-miles Run.	Passenger-Journeys.	Value of Plant and Equipment.	Gross Revenue.	Persons Employed
	No.	'000.	'000.	£'000.	£'000.	No.
NEW SOUTH WALES.(a)						
1941-42 ..	422	10,054	43,905	248	585	730
1942-43 ..	443	9,949	51,035	285	741	755
1943-44 ..	490	10,093	54,118	350	761	835
1944-45 ..	519	10,873	59,474	393	836	899
1945-46 ..	555	12,106	66,117	466	951	991
SOUTH AUSTRALIA.						
	(b)					
1941-42 ..	46	3,925	5,699	(c)	238	(c)
1942-43 ..	57	3,555	6,876	(c)	268	(c)
1943-44 ..	57	3,405	7,187	(c)	278	(c)
1944-45 ..	57	3,520	7,571	(c)	295	(c)
1945-46 ..	68	3,787	8,269	(c)	325	(c)
WESTERN AUSTRALIA.						
1941-42 ..	268	9,337	21,938	(c)	516	548
1942-43 ..	262	8,840	24,201	(c)	582	554
1943-44 ..	270	8,080	24,415	(c)	594	586
1944-45 ..	260	8,050	25,180	(c)	611	634
1945-46 ..	269	8,514	26,396	218	626	671

(a) Metropolitan and Newcastle Transport Districts only. (b) Metropolitan area only. (c) Not available.

E. FERRY (PASSENGER) SERVICES.

1. *General.*—In New South Wales ferry services have been established by private companies to transport passengers in the ports of Sydney and Newcastle. In Western Australia services are operated on the Swan River at Perth under both Government and private control. Passenger ferries in Tasmania are under both Government and private control and operate on the Derwent River at Hobart and also at Devonport. Inextensive services operate in the States of Victoria and Queensland, but no ferry services are in operation in South Australia.

2. *Summary of Operations.*—The following statement gives a summary of operations of ferry passenger services in New South Wales, Western Australia and Tasmania during the years 1942-43 to 1945-46 compared with the year 1938-39. Particulars of passengers carried on vehicular ferries are not included.

FERRY (PASSENGER) SERVICES (Exclusive of Vehicular Ferries).

Year.	Vessels.		Passenger Accommodation.	Passenger Journeys.	Gross Revenue.	Persons Employed.	
	No.	No.	'ooo.	£	No.		
NEW SOUTH WALES—SYDNEY AND NEWCASTLE.							
1938-39	54	38,971	27,864	418,500	(a) 830
1942-43	51	29,487	33,387	506,255	670
1943-44	45	28,809	34,588	540,513	730
1944-45	47	29,369	36,673	533,853	586
1945-46	46	28,551	35,737	518,867	441
WESTERN AUSTRALIA—PERTH.							
1938-39	6	880	1,184	11,001	25
1942-43	7	1,030	1,452	14,506	26
1943-44	7	1,022	1,522	14,655	25
1944-45	7	1,022	1,475	15,284	25
1945-46	7	1,022	1,443	13,739	25
TASMANIA.							
1945-46 (b)	8	856	953	23,369	28

(a) Includes administrative staff for years prior to 1944-45.

(b) Particulars are not available for earlier years.

F. MOTOR VEHICLES.

1. Motor Industry.—Although motor cars have not hitherto been entirely manufactured in Australia the capital invested in assembling and body-building plants is considerable. The importance of the industry is shown by the following figures which relate to the local manufacture of motor bodies and the importation of motor cars, fuel and tyres during 1938-39 and the four years ended 1945-46.

MOTOR VEHICLES, ETC. : LOCAL MANUFACTURE AND IMPORTS, AUSTRALIA.

Particulars.	Unit.	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
Motor bodies built ..	No.	79,436	44,286	29,309	22,805	19,473
	£A.	6,421,142	4,652,771	2,582,912	2,530,043	2,356,778
Imports—						
Motor bodies ..	No.	532	270	694	6	223
	£A.	70,943	71,405	66,175	1,423	37,410
Chassis ..	No.	76,094	14,547	9,186	6,660	10,113
	£A.	8,037,228	4,456,808	3,186,885	3,464,820	2,064,478
Chassis and motor parts ..	£A.	1,199,628	6,919,250	12,002,864	7,717,761	6,286,013
Crude petroleum ..	Mill. gal.	54	..	1	..	16
	£A.	562,222	5,524	5,332	3,074	251,804
Petroleum spirit ..	Mill. gal.	345	347	372	287	371
	£A.	6,525,087	10,627,243	12,444,666	9,306,299	9,880,393
Pneumatic tyres and tubes ..	lb.	322,764	559,806	126,269	299,022	1,376,916
	£A.	35,188	243,734	40,969	40,247	206,917

2. **Registration.**—The arrangements for the registration of motor vehicles and the licensing of drivers and riders thereof are not uniform throughout Australia. Methods of registration, licence fees payable, etc., in each State are referred to in Official Year Book No. 116, pp. 337-40, and later issues.

3. **Public Vehicles.**—In all the capital cities of the States and in many of the provincial centres taxi-cabs and other vehicles ply for hire under licence granted either by the Commissioner of Police or the Local Government authority concerned. As most of these vehicles are independently controlled by individuals or small companies, it has not been possible to obtain complete data in respect of their operations.

4. **Motor Omnibuses.**—In both urban and provincial centres motor omnibus traffic has assumed considerable proportions during recent years, and has had a marked effect on railway and tramway services. The constitution of Boards empowered to allocate the routes over which omnibuses may operate arose from the belief that the economic waste, resulting from duplication by running services parallel with or contiguous to existing railway and tramway systems, is thus avoided. In some States the railway and tramway systems run motor services complementary to their main services to meet the competition of private enterprise and to endeavour to protect the existing transport utilities provided by public bodies. In addition, there has been a considerable replacement, during the last few years, of existing tramway services by trolley-bus and motor-bus services. (See Section D.)

5. **Motor Vehicles on the Register, etc.**—(i) Year 1945-46. Particulars of the registration of motor vehicles, licences issued and revenue received for 1945-46 are contained in the following table. A graph showing motor vehicle registrations since the year 1920 may be found on p. 158.

MOTOR VEHICLES : REGISTRATIONS AND REVENUE, 1945-46.

(Excluding Defence Service Vehicles.)

State or Territory.	Motor Vehicles Registered at 30th June, 1946. (a)					Drivers' and Riders' Licences in force at 30th June, 1946.	Gross Revenue derived from—			
	Motor Cars. (b)	Commercial Vehicles (c)	Motor Cycles.	Total.	Per 1,000 of Population at 30th June, 1946.		Vehicle Registrations and Motor Tax.	Drivers' and Riders', etc. Licences.	Other Sources.	Total.
	No.	No.	No.	No.	No.	No.	£	£	£	£
N. S. Wales ..	192,335	98,245	20,492	311,072	105.62	518,644	2,278,547	267,446	99,726	2,645,719
Victoria ..	146,605	102,196	23,249	272,050	134.30	401,610	1,671,996	100,413	107,351	1,879,760
Queensland ..	71,003	63,694	8,627	143,324	131.56	188,564	808,748	77,174	86,371	972,293
South Australia ..	61,937	28,768	10,110	100,815	158.77	138,706	577,414	63,436	16,037	656,887
Western Aust.	31,408	28,668	6,799	66,875	135.73	89,141	327,188	29,007	40,692	396,887
Tasmania ..	17,356	7,831	3,200	28,387	112.64	34,932	202,333	17,466	28,485	248,284
Northern Terr.	337	3,023	103	3,463	328.09	2,553	5,564	952	..	6,516
Aust. Cap. Terr.	1,634	704	121	2,459	154.96	3,890	11,054	1,834	70	12,958
Australia ..	522,615	333,129	72,701	928,445	124.35	1,378,040	5,882,844	557,728	378,732	6,819,304

(a) Excludes Trailers (38,313), Road Tractors, etc. (3,933), and Dealers' Plates (2,237).
 (b) Includes Taxis and Hire Cars. (c) Includes Lorries, Vans, Buses and Utility Trucks.
 (d) Includes 55,981 vehicles registered as primary producers.

(ii) *Years 1938-39 to 1945-46.* The following table shows the number of vehicles registered, licences issued, and revenue received therefrom during each of the years 1942-43 to 1945-46 in comparison with 1938-39 :—

MOTOR VEHICLES : REGISTRATIONS AND REVENUE, AUSTRALIA.

(Excludes Defence Service Vehicles.)

Year.	Motor Vehicles Registered at 30th June.					Drivers' and Riders' Licences in force at 30th June.	Gross Revenue derived from—			
	Motor Cars.	Commercial Vehicles. (a)	Motor Cycles.	Total.	Per 1,000 of Population at 30th June.		Vehicle Registrations and Motor Tax.	Drivers' and Riders', etc., Licences.	Other Sources.	Total.
	No.	No.	No.	No.	No.		£	£	£	£
1938-39	562,271	258,025	79,237	899,533	129.09	1,238,497	6,318,435	508,387	257,652	7,084,474
1942-43	471,742	255,933	48,321	775,996	107.25	1,185,398	4,982,634	439,509	267,416	5,689,559
1943-44	493,391	274,269	52,560	820,220	112.20	1,232,442	5,232,772	451,156	273,700	5,957,628
1944-45	505,782	290,961	57,239	853,982	115.52	1,180,589	5,354,624	484,376	300,435	6,139,435
1945-46	522,615	333,129	72,701	928,445	124.35	1,378,040	5,882,844	557,728	378,732	6,819,304

(a) Includes primary producers' vehicles, Victoria.

(iii) *Relation to Population.* The table hereunder gives the number of vehicles (excluding motor cycles) registered per 1,000 of population in each State at 31st December, 1921, and at 30th June for each of the years 1939 and 1943 to 1946 :—

MOTOR VEHICLES (EXCLUDING MOTOR CYCLES) REGISTERED PER 1,000 OF POPULATION.

(Excludes Defence Service Vehicles.)

Year.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.	
31st Dec., 1921	..	15	16	8	24	12	13	(a)	..	15
30th June, 1939	..	107	125	118	137	133	96	218	174	118
„ 1943	..	87	110	105	125	108	88	117	133	101
„ 1944	..	91	114	112	131	110	94	167	128	105
„ 1945	..	93	117	114	134	112	97	235	142	108
„ 1946	..	99	123	124	143	122	100	318	147	115

(a) Not available.

(iv) *Revenue per Motor Vehicle.* The following table gives the average revenue per vehicle (excluding motor cycles) received in respect of registration and motor tax in the several States for the year 1938-39 and for each year from 1942-43 to 1945-46. In some States the revenue from motor tax on cycles is not separately recorded. In these cases an amount based on the flat rate provided for cycles in the registration acts has been deducted from the total revenue received, and the average amounts shown must therefore be regarded as approximate only. Registration fees and motor taxes were reduced, during the year 1941-42, in the States of New South Wales, Victoria and Western Australia. In South Australia the reduction was made in the last half of

1940-41. The reduction was generally 25 per cent., except in the case of New South Wales, where it was 20 per cent. In July, 1942, Australian Capital Territory fees were reduced by 15 per cent.

AVERAGE REVENUE PER VEHICLE FROM REGISTRATION FEES AND MOTOR TAX (EXCLUDING MOTOR CYCLES).

State or Territory.	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
New South Wales ..	7 19 10	7 18 10	7 16 6	7 13 8	7 15 7
Victoria ..	7 6 0	6 3 8	6 4 7	6 7 8	6 13 6
Queensland ..	6 15 11	5 14 11	5 15 1	5 14 9	5 19 1
South Australia ..	7 9 10	6 6 4	6 2 3	6 4 2	6 6 8
Western Australia ..	6 6 0	5 17 8	6 0 5	5 9 5	5 8 1
Tasmania ..	6 13 3	7 12 11	7 13 10	7 18 5	7 19 6
Northern Territory ..	1 11 0	1 11 8	1 1 4	0 16 10	1 12 9
Aust. Cap. Territory	5 15 2	5 9 10	5 7 5	4 14 7	4 14 1
Australia ..	7 7 9	6 14 10	6 14 0	6 13 4	6 16 6

6. New Vehicles Registered.—(i) Year 1945-46. The following table gives the number of new vehicles registered in each State during 1945-46 :—

NEW MOTOR VEHICLES REGISTERED, 1945-46.
(Excludes Defence Service Vehicles.)

Vehicles.	N.S.W.	Vic.	Q'land.	S.A.(b)	W.A.	Tas.	A.C.T.	Total. (b)
Motor Cars ..	526	1,208	82	160	100	43	4	2,123
Commercial Vehicles, etc. . .	3,288	(a)2,329	1,529	727	456	351	6	8,686
Motor Cycles ..	681	378	155	396	270	73	..	1,953
Total ..	4,495	3,915	1,766	1,283	826	467	10	12,762

(a) Includes vehicles registered as primary producers' vehicles. (b) Excludes Northern Territory.

(ii) Years 1938-39 and 1942-43 to 1945-46. Particulars of the number of new vehicles registered in Australia during the years 1938-39 and 1942-43 to 1945-46 are shown in the following table :—

NEW MOTOR VEHICLES REGISTERED : AUSTRALIA.(a)
(Excludes Defence Service Vehicles.)

Vehicles.	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
Motor cars ..	54,107	2,360	825	899	2,123
Commercial vehicles, etc. (b)	24,927	3,084	12,635	7,654	8,686
Motor cycles ..	7,370	389	340	411	1,953
Total ..	86,404	5,833	13,800	8,964	12,762

(a) Excludes Northern Territory. (b) Includes vehicles registered as primary producers' vehicles, Victoria.

7. World Motor Vehicle Statistics, 1947.—The result of the 1947 World Motor Census, conducted by the "American Automobile" magazine, from which the following particulars have been extracted, shows that there were 44,887,058 motor cars, trucks, and buses registered in various countries of the world at 1st January, 1947. This shows an increase of 17.3 per cent. on the figure for the previous year, 38,249,581, and is the highest figure attained to that date.

The following table shows the numbers of motor vehicles registered in each continent at 1st January, 1947 :—

MOTOR VEHICLES : WORLD REGISTRATIONS AT 1st JANUARY, 1947.

Continent, etc.	Total Automobiles.	Motor Cars.(a)	Motor Trucks and Buses.(a)
Africa	608,900	432,454	163,767
America (exclusive of United States of America).. .. .	2,792,710	1,918,936	817,742
United States of America	33,233,975	27,496,096	5,737,879
Asia	421,938	201,665	191,898
Europe	6,580,951	3,711,482	2,815,879
Oceania	1,248,584	800,943	445,619
Total	44,887,058	34,561,576	10,172,784

(a) Not complete for all territories.

The next table gives particulars of the numbers of motor vehicles registered in various countries, together with their approximate populations for the purposes of comparison :—

COMPARATIVE MOTOR VEHICLE STATISTICS, 1st JANUARY, 1947.

Country.	Approximate Population in Millions.	Motor Cars, Trucks and Buses.
Australia	8	901,102
Argentina	16	285,610
Canada	12	1,587,795
France	40	1,300,000
Germany	66	142,527
Great Britain	48	2,448,065
India	311	170,000
Italy	46	205,000
Japanese Empire	75	47,000
New Zealand	2	287,398
Union of South Africa	2	354,740
United States of America	141	33,233,975

The foregoing figures are in some cases approximations based on estimates furnished by Trade Commissioners or representative motor trade organizations in the several countries, and in other cases are incomplete.

8. **Petrol Rationing.**—Petrol rationing was first enforced in Australia in October, 1940, a little more than twelve months after the commencement of the 1939-45 War. No very drastic cuts in consumption were made for some time, but, commencing in April, 1941, when the replenishment of stocks from overseas supply sources was becoming increasingly difficult and uncertain, progressive reductions in the monthly allowances to civilian users were made, the basic ration being finally reduced to the equivalent of only 800 miles of running per annum. The period of severest rationing lasted from late in 1941 until towards the end of 1944, non-military consumption during these three years or thereabouts being at a rate not very much in excess of one-third of the estimated pre-war rate of 30 million gallons per month.

With the improvement in the war situation in 1944, it was found possible, without making any specific amendment of the rationing schedules, to do something in the direction of granting claims for additional allowances of petrol in individual cases where circumstances appeared to justify this course and to relax to some extent the very heavy pressure which had been applied during the critical years of the war to enforce the use of producer gas units.

The first general increase in the ration scale was made in September, 1945, following the Japanese surrender, the allowances to private motorists and primary producers being increased by 25 per cent. A further all-round increase of 25 per cent. to all classes of users was made a month later, bringing the private motorist's allowance to 120 miles of running per month.

As essential users of motor spirit were already receiving practically their full requirements, such further liberalizing of the monthly allowances as became possible in the post-war period was mainly for the benefit of private motorists. By successive stages the monthly allowance for this class increased from 120 miles of running per month as at the end of 1945, to 270 miles as from December, 1946. An increase from 120 miles to 180 miles per month had been brought into effect as from February, 1946, with a further increase to 240 miles as from July, 1946. At the same time the rations of holders of private-plus-business licences and others of a like character were increased to an extent sufficient to avoid any anomaly as between such classes and the purely private motorist.

There was, perhaps, a good deal of justification for the popular expectation, following the cessation of hostilities in August, 1945, that, once the inevitable settling-down period had passed, and the supply lines had been restored to something approaching the pre-war normal, the end of petrol rationing would be in sight. Many factors, some of them unforeseen at the time and others entirely beyond Australian control or capacity to influence, conspired to postpone the date when war-time controls affecting petrol could be entirely removed; Government action in this matter was accordingly directed to the further easing of restrictions and removal of anomalies and to ensuring that the supplies made available from overseas were distributed equitably and to the best advantage. Amongst other things, it was possible, with the ending of the war in Europe, to cease to enforce the use of producer gas units, with the result that, by the end of 1946, producer gas, which had played so valuable a part in reducing the civilian demand on imported motor spirit in the more difficult days, had practically ceased to be used as a substitute for liquid fuels.

Viewed on a world basis, i.e., sterling and dollar sources, the supply of petroleum products was, in general, sufficient in relation to world demands to have enabled petrol rationing to be lifted at the end of 1945, had this been the only consideration to be taken into account. The sterling-area production of motor spirit and the availability of sterling tankers were, however, not sufficient at that time to meet the unrationed demands of the sterling area, and imports into that area of large supplies of dollar-area oil in dollar tankers would have been necessary to enable restrictions on consumption to be completely removed.

The whole question of petrol rationing and supplies was reviewed by the Government from time to time between the end of 1945 and May, 1947. Partly because of industrial troubles which seriously affected railway and tramway services in some of the States in the latter part of 1946 and in the earlier months of 1947 (necessitating at times the transport by road of great quantities of goods normally carried by the railways and the authorization of special issues of petrol to a large number of road users), the monthly consumption of motor spirit rose to between 31 million gallons and 34 million gallons on several occasions between September, 1946, and March, 1947. This led to a decision by the Commonwealth Government, in March, 1947, after reviewing the supply position with the Government of the United Kingdom, to continue petrol rationing for an indefinite period and to administer the rationing plan somewhat more rigidly than had been the case for some time past. In reaching this decision, the Government was influenced, as on earlier occasions when the question had been under consideration, by the fact that, although Australia was still receiving almost the whole of its petrol supplies from the sterling area around the Persian Gulf, because the shortest tanker haul was

thereby involved, production in that region was not sufficient to meet the demands of the whole sterling area, the effect of which was that the United Kingdom was under the necessity to draw its supplies largely from dollar sources—on the tanker short-haul principle. Larger allocations to Australia from the Persian Gulf to meet the steadily increasing consumption in Australia would necessarily have compelled Great Britain herself to draw more heavily on dollar supplies of petrol, thus aggravating the seriously deteriorating dollar-funds position. In the light of these facts and of the desire of the Government of the United Kingdom to have Australia's continued co-operation in this respect, the Commonwealth Government had no alternative but to maintain and tighten up the rationing system for the time being, especially in view of the need that still existed to charter a large number of American tankers each month (requiring payment of freight in dollars) for the carriage of sterling petrol. A further factor taken into account was that world prices of petrol were increasing, thus adding to the drain on the dollar funds needed to pay for that portion of the Empire's petrol requirements which had to be drawn from the dollar area. The need to conserve dollars became more acute during the latter part of 1947, with the result that an average overall reduction of approximately ten per cent. in the petrol consumption of all users operated from 1st October, 1947, followed by a further reduction of ten per cent. from 1st January, 1948. The current position is that essential transport is now, generally speaking, receiving most of its requirements of petrol, although the private motorist is still receiving less than his pre-war usage.

A more detailed account of the operation of petrol rationing up to February, 1946, appears in Official Year Book No. 36, pp. 160-3.

9. **Control of Tyres, Spare Parts and Mechanical Services.**—The war-time control of tyres, spare parts and mechanical services which was referred to in Official Year Book No. 36, page 163, has now been abolished.

G. TRAFFIC ACCIDENTS.

1. **General.**—The practice of reporting accidents occurring in public thoroughfares is not uniform throughout Australia. In some States the reporting of minor accidents has not been enforced, while other States require that all accidents be reported. Hence the figures for each State are not entirely comparable with regard to the number of accidents, and to a lesser extent with regard to the number of persons injured.

2. **Total Accidents Registered.**—(i) *Year 1945-46.* The following table gives particulars of the number of persons killed and injured in accidents (known to the police) which occurred in public thoroughfares during 1945-46:—

ACCIDENTS (KNOWN TO THE POLICE) WHICH OCCURRED IN PUBLIC THOROUGHFARES: PERSONS KILLED AND INJURED, 1945-46.

State or Territory.	Accidents.	Persons Killed.			Persons Injured.		
		Number.	Per 1,000 of Mean Population.	Per 100 Motor Vehicles Registered.	Number.	Per 1,000 of Mean Population.	Per 100 Motor Vehicles Registered.
New South Wales	10,565	483	0.16	0.16	7,342	2.50	2.36
Victoria ..	11,171	336	0.17	0.12	6,202	3.08	2.28
Queensland ..	7,233	169	0.16	0.12	3,656	3.37	2.55
South Australia ..	7,181	97	0.15	0.10	2,333	3.70	2.31
Western Australia	4,310	127	0.26	0.19	756	1.54	1.13
Tasmania ..	3,067	58	0.23	0.20	799	3.19	2.81
Aus. Cap. Territory	83	..	..	..	26	1.68	1.06
Total ..	43,610	1,270	0.17	0.14	21,114	2.85	2.27

The ages of the persons killed and injured are given below :—

AGES OF PERSONS KILLED OR INJURED, 1945-46.

State or Territory.	Under 10 years.		10 to 59 years.		60 years and over.		Age not known.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
N. S. Wales ..	51	728	329	5,869	103	745	..	..	483	7,342
Victoria ..	16	584	235	4,800	82	625	3	193	336	6,202
Queensland ..	(a) 21	(a) 490	(b) 122	b 2,745	26	366	..	55	169	3,656
South Aust. ...	7	228	67	1,843	23	262	..	..	97	2,333
Western Aust.	(c) 13	(c) 101	(d) 87	(d) 602	(e) 27	(e) 53	..	..	127	756
Tasmania ..	7	73	(f) 39	(f) 681	(e) 12	(c) 45	..	..	58	799
Aus. Cap. Terr.	..	..	..	23	..	..	..	3	..	26
Total ..	115	2,204	879	16,563	273	2,096	3	251	1,270	21,114

(a) Under 15. (b) Fifteen to 59. (c) Under 16. (d) Sixteen to 60. (e) Over 60.
 (f) Ten to 60.

(ii) *Years 1938-39 to 1945-46.* Approximate figures relating to the persons killed and injured in traffic accidents in Australia during the years 1938-39 to 1945-46 are given hereunder :—

ACCIDENTS (KNOWN TO THE POLICE) WHICH OCCURRED IN PUBLIC THOROUGHFARES : PERSONS KILLED AND INJURED, AUSTRALIA.

Particulars .	1938-39.	1939-40.	1940-41.	1941-42.	1942-43.	1943-44.	1944-45.	1945-46.
Persons killed ..	1,433	1,560	1,298	1,297	1,340	1,089	1,011	1,270
„ injured ..	25,653	26,142	23,340	17,529	16,236	14,785	15,643	21,114

For further particulars of Traffic Accidents see *Transport and Communication Bulletin* No. 37.

H. AVIATION.

1. **Historical.**—A short review of the progress of civil aviation in Australia up to the date of foundation of a Civil Aviation Administration appears in Official Year Book No. 16, pp. 334-5.

2. **Foundation and Administration of Civil Aviation.**—A brief account of the foundation and objects of this Administration will be found in Official Year Book No. 19, p. 299. In 1936 the organization was changed and the responsibility of regulating and controlling civil aviation in Australia was entrusted to a Board, consisting of four members and a secretary. The Board was responsible to the Minister for Defence and continued to function as a unit of the Defence Department organization until November, 1938. In January, 1939, the Civil Aviation Board was abolished and the Civil Aviation Administration was made a separate Department under the Minister for Civil Aviation. The permanent Head of the Department is the Director-General of Civil Aviation.

The broad principles of the operations of the Administration of Civil Aviation are defined by Acts of Parliament and amplified by Regulations under the Acts. The more important relevant Acts and Regulations are (a) the Air Navigation Act and Regulations which prescribe the rules for the control of aircraft and air navigation; (b) the Carriage by Air Act which gives effect to the International Convention for the unification of certain rules relating to International Carriage by Air; and (c) the Quarantine (Air Navigation) Regulations which give effect to the International Sanitary Convention for Aerial Navigation.

The principal functions of the Administration are (a) the safety of civil flying; (b) the licensing of pilots, ground engineers, navigators, and radio operators together with the supervision of all such work; (c) the supervision of operations and licensing of airline companies for the carriage of mails, passengers, and freight; (d) the making of contracts and payments of subsidies and payments for the carriage of mails; (e) the construction and maintenance of aerodromes and seaplane bases and works in connexion therewith; (f) the provision, operation, and maintenance of aeradio stations throughout Australia and Territories; (g) the supervision of aircraft maintenance and aircraft design; (h) the promotion of civil flying and training of pilots and ground staff; and (i) liaison with international civil aviation organizations.

The organization is controlled from the head office in Melbourne, which directs the policy, planning, finance, and developmental aspects, and from out-stations throughout Australia and Papua-New Guinea at which are stationed the staff supervising aeradio, flight control, and maintenance.

A form of regional organization is under consideration by which a policy of decentralization will enable activities to be effected by a greater measure of local administrative control. In addition, certain field work could be undertaken by the proposed regional staff.

3. International Activity.—(i) *The Provisional International Civil Aviation Organization (PICAO)*. Tremendous impetus was given to civil aviation in the international sphere by the International Civil Aviation Conference convened at Chicago by the United States of America during November and December, 1944, which was attended by 52 nations.

As a result of the deliberations of this Conference the following instruments were formulated:—(a) Interim Agreement on International Civil Aviation; (b) Convention on International Civil Aviation; (c) International Air Services Transit Agreement (conferring freedoms 1 and 2); (d) International Air Transport Agreement (conferring freedoms 1, 2, 3, 4 and 5).

The five freedoms in each other's territories to be granted to signatory States of the various Agreements were defined as—(a) the privilege to fly across its territory without landing; (b) the privilege to land for non-traffic purposes; (c) the privilege of disembarking passengers and unloading mail and cargo taken on in the territory of the State whose nationality the aircraft possesses; (d) the privilege of embarking passengers and loading mail and cargo destined for the territory of the State whose nationality the aircraft possesses; (e) the privilege of embarking passengers and loading mails and cargo destined for the territory of any other contracting State, and the privilege of disembarking passengers or unloading mails and cargo coming from any such territory.

By June, 1946, when the Interim Assembly met, twenty-eight nations had signed the Transit Agreement(c), but only sixteen had signed the Transport Agreement (d). Since then, four signatory states to the latter agreement have denounced their acceptance of it. Lacking a multilateral agreement, commercial rights in civil aviation are regulated mainly by bilateral pacts. Efforts are still being made to develop a multilateral agreement.

Under the Interim Agreement (accepted by 46 nations including Australia up to 30th January, 1946) which was designed to cover the period that would elapse before the Convention on International Civil Aviation was ratified by the minimum number of 26 States necessary to make it effective, a Provisional International Civil Aviation Organization was set up. This provisional organization consisted broadly of an Interim Assembly of all member States meeting annually and an Interim Council of 21 members on which Australia was represented, presided over by a President.

The only meeting of the Assembly of PICAQ was convened at Montreal, Canada (the permanent seat of the organization) on 21st May, 1946, and Australia was represented by a strong delegation.

In the relatively short period of its existence PICAQ made rapid strides in the investigation of many complex economic and technical problems facing international civil aviation. It planned for the many facilities and services required for safe international flight, and emphasized making arrangements to provide adequate air navigation facilities and to set up standards of operation and safety. It held Air Navigation Meetings in various areas of the world (including Melbourne, Victoria)—(1) to determine, within each region, the air navigation facilities available, and those required, for international civil air transport; (2) to develop regional operating procedures for air crew and ground personnel; and (3) to recommend arrangements to collect and distribute data necessary for navigation in the region. ICAQ will continue these meetings. At the request of PICAQ, in September and October, 1946, the Governments of the United Kingdom, the United States of America and Australia demonstrated their latest radio communications and air navigation aids. This enabled delegates and observers to make recommendations to the Council for the progressive standardization of equipment. PICAQ also evolved a plan to simplify and standardize customs, immigration, public health and other formalities.

(ii) *The International Civil Aviation Organization (ICAO). (a) Formation, Aims, Constitution, Functions, etc.* By 5th March, 1947, the necessary twenty-six ratifications of the Convention on International Civil Aviation had been received. By the time ICAQ had come into legal being—4th April, 1947—nine more States had ratified the convention. Since then there have been further ratifications.

The aims and objectives of the new organization, as detailed in the Final Act of the Chicago Conference, are :—

“ To develop the principles and techniques of international air navigation and to foster the planning and development of international air transport so as to ensure the safe and orderly growth of international civil aviation throughout the world; to encourage the arts of aircraft design and operation for peaceful purposes; to encourage the development of airways, airports, and air navigation facilities for international civil aviation; to meet the needs of the peoples of the world for safe, regular and efficient air transport; to prevent economic waste caused by unreasonable competition; to ensure that the rights of Contracting States are fully respected, and that every Contracting State has a fair opportunity to operate international airlines; to avoid discrimination between Contracting States; to promote safety of flight in international air transportation; to promote generally the development of all aspects of international civil aeronautics.”

ICAO consists of a legislative body (the Assembly) and an executive body (the Council). The Council's President is a salaried official and acts as its permanent representative. Functions of the Council include provision for the establishment of subsidiary working groups, including an Air Transport Committee and an Air Navigation Commission; the supervision and co-ordination of the work of the Council's principal committees; the consideration and transmission of their reports, together with the Council's own findings, to Member States; the making of recommendations to Member States; and the submission of a report to the Assembly. It must act as a tribunal to settle certain disputes, if ICAQ's intervention is requested by one of the parties concerned.

The expenses of ICAO are borne by Member States in accordance with a set scale of contributions.

ICAO may, under certain conditions, provide technical and financial aid to Member States for the establishment, operation and maintenance of the aerodromes and navigational facilities required for the safe, regular, efficient and economic operation of international air services.

(b) *First Assembly Meeting.* The first Assembly meeting of ICAO extended from 6th to 27th May, 1947. It was held in Montreal, Canada, the permanent seat of the organization. Thirty-six contracting States, eleven non-contracting States and seven international organizations took part. The Honorable A. S. Drakeford (Australia) was elected President of the Assembly, which met nine times in plenary session, the remainder of its time being spent in commissions.

The plenary sessions were devoted to addresses of welcome, statements of national policy, the election of office-bearers, the establishment of the six commissions, the presentation of reports of the Interim Council and of the Air Transport Committee and the consideration of reports of the commissions, the election of the ICAO Council, etc. The Council has twenty-one members: Belgium, Brazil, Canada, France, Mexico, the Netherlands, the United Kingdom and the United States of America in Category A ("States of chief importance in air transport"); Argentina, Australia, China, Egypt, India, Ireland and Portugal in Category B ("States not otherwise included which make the largest contribution to the facilities for international civil air navigation"); and Chile, Czechoslovakia, Iraq, Peru, Sweden and Turkey in Category C ("States not otherwise included whose designation will ensure that all major geographical areas of the world are represented on the Council").

Separate commissions dealt with each of the following subjects:—(1) Constitutional and general policy questions; (2) technical questions; (3) economic questions; (4) legal questions; (5) administrative and financial questions; and (6) financial and technical aid through ICAO.

(iii) *The International Commission for Air Navigation (ICAN).* ICAN, which was formulated in Paris in 1919 and of which Australia is a member, was the corner stone upon which the Air Navigation Regulations were built. In the terms of the Convention on International Civil Aviation formulated at Chicago, each contracting State undertook, immediately upon the coming into force of the Convention, to give notice of denunciation of ICAN, this organization to be replaced by ICAO as the co-ordinating body in international air navigation.

(iv) *British Commonwealth Talks—The Commonwealth Air Transport Council (CATC) and the South Pacific Air Transport Council (SPATC).* Immediately before and after the Chicago Conference on International Civil Aviation (see above), conversations in which Australia took part, affecting civil aviation in British Commonwealth countries, were held at Montreal and also at London. Out of these discussions came the decision to establish a Commonwealth Air Transport Council. This Council is representative of United Kingdom, Canada, Australia, New Zealand, South Africa, India, Newfoundland, Southern Rhodesia and the Colonial Empire and Eire. Its functions are—(a) to keep under review the progress and development of Commonwealth Civil Air Communications; (b) to serve as a medium for exchange of views and information between the Commonwealth Countries on Civil Air Transport matters; (c) to consider and advise on such civil aviation matters as any Commonwealth Government may desire to refer to the Council.

CATC held its first meeting in London in July, 1945. As a result of the meeting, the technical body known as CERCA (Commonwealth and Empire Conference on Radio for Civil Aviation) and a newly formed organization CANGO (Committee on Air Navigation and Ground Organization) were brought under the aegis of CATC. Additionally, of particular Australian interest, it was agreed (a) that Qantas Empire-

Airways Ltd. and British Overseas Airways Corporation would be invited to operate parallel through services between United Kingdom and Australia via India; (b) that a joint Australian-New Zealand-United Kingdom organization be established for operating, in parallel with a Canadian organization, the Pacific Trunk Route; and (c) that consideration be given to the formation of a South Pacific Air Transport Council to deal with problems peculiar to the area.

In furtherance of the CATC meeting a conference on civil aviation problems affecting Australia, New Zealand and United Kingdom in the South Pacific region was held at Wellington, New Zealand, in February, 1946, as a result of which the following main recommendations were made:—(a) that there should be established an advisory body to be known as the South Pacific Air Transport Council open to the following membership—United Kingdom, Canada, Australia, New Zealand, Fiji and the Western Pacific High Commission; and (b) that there should be established and registered forthwith in Australia a tripartite organization to be known as British Commonwealth Pacific Airlines for the operation of trans-Pacific trunk services between Australia and North America and between New Zealand and North America in parallel partnership with the designated airline of Canada.

At its first meeting in Canberra in December, 1946, SPATC approved the draft directive of the Governments of the United Kingdom, Australia and New Zealand to B.C.P.A. Ltd. to conduct the trans-Pacific air service. It also recommended the setting-up of two standing committees to supervise the running of the trans-Pacific and trans-Tasman services, and proposed certain changes to the draft contract under which Australian National Airways had agreed to operate an interim trans-Pacific service for B.C.P.A. Ltd.

(v) *Oversea Air Service. (a) Trans-Pacific Services.* In accordance with the decisions of the Wellington Conference, British Commonwealth Pacific Airlines Ltd. was registered in Sydney on 24th June, 1946, as a limited company with a nominal capital of £1,000,000 in proportionate shares of—Australia, 50 per cent.; New Zealand, 30 per cent. and United Kingdom, 20 per cent. Following an agreement by the Canadian and Australian Governments to operate air services between Sydney and Vancouver, B.C.P.A. Ltd. began operations on 15th September, 1946, with an interim service. At first it was permitted to make only non-traffic stops in the United States of America, but under the Air Transport Agreement between Australia and the United States, signed on 3rd December, 1946, it can pick up and discharge international passengers, cargo and mail at all points on the Sydney-Vancouver route. In April, 1947, a fortnightly service was commenced between Auckland and Vancouver.

Pan-American Airways began operating a weekly San Francisco-Sydney air service in February, 1947. It also operates a fortnightly service to Auckland.

(b) *Australia-United Kingdom Air Service.* This service was suspended during the early period of the war. However, in order to meet the minimum needs for carriage of mails and priority passengers, a service by Catalina, and later, Liberator aircraft was established in June, 1944, by the United Kingdom Government via the Indian Ocean from Perth to Ceylon, where connexion was made with other services to the United Kingdom. Ground facilities were provided by the Commonwealth, and the net revenue received from mails by Australia was contributed towards the cost of the service. The service was operated by Qantas Empire Airways Ltd. under contract to the British Overseas Airways Corporation. In June, 1945, the terminal of the service was transferred to Sydney.

As from 12th May, 1946, in accordance with an agreement reached between Australia and the United Kingdom, a parallel service between the two countries was provided for, although the airlines designated to maintain the service—British Overseas Airways Corporation and Qantas Empire Airways Ltd.—were not at this period operating over the whole of the route. Payments were made by the two Governments to their respective operators on an agreed basis and any deficit on the combined operations was to be shared in proportion to the frequency of their own services—at this time equally. Three Lancastrian land plane and two Hythe flying boat trips weekly, in each direction, were

being flown at 30th June, 1946. On 1st December, 1947, the Lancastrian land planes were replaced by Constellation planes and the Lancastrian planes were utilized for freight carrying purposes. In practice, Qantas Empire Airways Ltd. operated the sections between Karachi and Singapore of the Lancastrian and Hythe routes respectively, whilst British Overseas Airways Corporation operated west of those points.

(c) *Dutch Air Service to Australia.* The air service from Batavia to Sydney via Darwin, operated by the K.N.I.L.M. Company, ceased during the war years and has not been resumed.

(d) *Trans-Tasman Air Service.* A flying boat service between Sydney and Auckland was inaugurated in April, 1940, by Tasman Empire Airways Ltd., which was established under an agreement between the Governments of New Zealand, Australia and the United Kingdom. The company designated as the Australian shareholder was Qantas Empire Airways Ltd., and the services were operated under the control of the Tasman Air Commission, which comprises representatives of the three interested Governments. At the commencement of the service, the frequency was once weekly but increases were made, from time to time, and nine return trips per fortnight were being operated at 30th June, 1946.

(e) *Air Services in New Guinea.* The civil air services in New Guinea were interrupted by the advance of the Japanese during the early period of the South-West Pacific war. In 1945, Qantas Empire Airways Ltd. acquired the aviation interests of W. R. Carpenter & Co. Ltd. and resumed the operations of the service from Sydney to New Guinea. The temporary northern terminal of the service is Lae.

(f) *Air Service to Japan.* On 16th December, 1947 Qantas Empire Airways Ltd. commenced an air service to Japan, flying by way of Melbourne, Darwin and Manila (Philippine Islands). The service is under charter to the Royal Australian Air Force and replaces a Royal Australian Air Force courier service which had operated since the end of the war. The Lancastrian service was weekly until 2nd January, 1948 and thereafter twice weekly.

4. **Commonwealth Government Purchase of Qantas.**—The Qantas Empire Airways Agreement Act 1946 authorized the Commonwealth Government to purchase the United Kingdom Government's interest (in the form of the British Overseas Airways Corporation's shares) in Qantas Empire Airways Ltd. This involved the purchase of 261,500 fully paid-up £1 shares. The total paid-up capital of Qantas Empire Airways Ltd. was £523,000. On 3rd July, 1947, the sale to the Commonwealth Government of holdings in Qantas Empire Airways Ltd. by shareholders in Queensland and Northern Territory Aerial Services Ltd. was ratified in Brisbane. Qantas Empire Airways is now completely owned by the Commonwealth Government. All other main Empire airway units are owned by their respective Governments or groups of Governments.

5. **Regular Air Services within Australia.**—Since 1920 the grant of financial assistance for the establishment and maintenance of regular air transport services has been a part of the policy of the various Governments towards the development of civil aviation in Australia. On 30th June, 1946, nine companies were operating regular services within Australia under contracts with the Department of Civil Aviation.

During the war years, operations of the airline companies were devoted primarily to national purposes. A large number of aircraft was requisitioned for defence use, and thus was removed entirely from the control of the companies. Other aircraft were operated by the airline companies for defence purposes, including charter and reconnaissance duties in combat areas. As a result the regular air services were, for a long period, operated on a skeleton basis only. Owing to the demand for air travel for national purposes, a priority system, administered by the Department of Civil Aviation, was introduced to organize the flow of air traffic.

Towards the end of hostilities, the position was eased by the return of a number of aircraft to the airline companies and, also, by the acquisition of twelve Douglas aircraft by the Commonwealth Government under Lend-Lease. These military aircraft were converted to Douglas DC3 standard and hired by airline companies for use on regular air services.

An interesting development, during the period under review, has been the decision of the Australian National Airways Pty. Ltd., and later, of Guinea Airways Ltd. (on its Adelaide-Darwin service), Aircrafts Pty. Ltd. and Qantas Empire Airways Ltd. (on its major internal services and the Sydney-Lae service) to operate without direct Government subsidy. In accordance with the amount of mail carried, these companies receive payment at agreed rates. The contract with Guinea Airways Ltd. provides at a rate per pound for mails carried from the terminals of the service. Other companies are paid on a pound-mile basis.

In August, 1945, the Commonwealth Government established by Act of Parliament the Australian National Airlines Commission, a Government instrumentality authorized to operate interstate air services. The Act contained provisions to prevent competition with the Government airlines, but the High Court declared these provisions invalid. The Commission commenced operations on 9th September, 1946, with an interim service between Melbourne and Sydney. The operating body is Trans-Australia Airlines.

The following operators of regular air services appearing in Official Year Book No. 32 have ceased their airline activities :—Air Taxis Pty. Ltd., Adastral Airways Ltd., Airlines of Australia Ltd. (acquired by Australian National Airways Pty. Ltd.), W. R. Carpenter & Co. Ltd. (aviation interests acquired by Qantas Empire Airways Ltd.), North-Western Airlines Ltd., South Queensland Airways Ltd., and Victorian and Interstate Airways Pty. Ltd.

Extensive changes have been made in the network of internal Australian services since the issue of Official Year Book No. 32. Details of the services in operation as at 30th June, 1947, were as follows :—

Operating Companies and Services.	Route Mileage.	Aircraft Used.	Frequency (Return Trips unless otherwise indicated).
Trans-Australia Airlines—			
Melbourne-Sydney ..	460	DC3, DC4 ..	7 daily
Sydney-Brisbane ..	472	DC3, DC4 ..	4 daily
Sydney-Adelaide ..	749	DC3 ..	1 daily
Melbourne-Hobart ..	381	DC3 ..	2 daily
Melbourne-Launceston ..	291	DC3 ..	2 daily
Adelaide-Perth ..	1,415	DC4 ..	1 daily
Melbourne-Adelaide ..	405	DC3, DC4 ..	3 daily
Australian National Airways Pty. Ltd.—			
Adelaide-Perth ..	1,415	DC3, C47 ..	9 weekly
Brisbane-Rockhampton ..	330	DC3 ..	4 daily
Cairns-Burketown ..	449	DH89 ..	1 weekly
Cairns-Cooktown ..	104	DH89 ..	4 weekly
Cooktown-Horn Island ..	423	DH89 ..	1 weekly
Melbourne-Adelaide ..	405	DC3, DC4 ..	11 weekly
Melbourne-Broken Hill ..	447	DC3 ..	1 daily
Melbourne-Hobart ..	381	DC3 ..	3 daily plus 3 freighters weekly
Melbourne - Kerang - Swan Hill	181	DC3 ..	3 weekly
Melbourne-Launceston ..	291	DC3 ..	3 daily
Melbourne-Perth (direct) ..	1,819	DC4 ..	3 weekly
Melbourne-Sydney ..	460	DC3, DC4 ..	9 daily, plus 2 freighters weekly
Melbourne-Launceston via King Island	368	DC3 ..	6 weekly
Launceston-Flinders Island	108	DC3 ..	3 weekly

Operating Companies and Services.	Route Mileage.	Aircraft Used.	Frequency (Return Trips unless otherwise indicated).
Melbourne-Wynyard ..	230	DC3	6 weekly
Normanton-Koolatah-Normanton	377	DH89	1 round trip weekly
Perth-Kalgoorlie ..	335	DC2	5 weekly
Rockhampton-Townsville ..	373	DC3	4 daily
Sydney-Adelaide ..	749	DC3	2 daily
Sydney-Brisbane ..	472	DC3	5 daily, plus 2 freighters weekly
Sydney-Canberra ..	148	DC3	1 daily
Townsville-Cairns ..	177	DC3	2 daily
Qantas Empire Airways Ltd.—			
Brisbane-Charleville ..	425	LH10	1 weekly
Brisbane-Darwin ..	1,856	DC3	2 weekly
Brisbane-Winton ..	781	DC3	1 weekly
Brisbane-Mount Isa ..	1,046	DC3	1 weekly
Brisbane-Roma ..	267	LH10	1 weekly
Cloncurry-Normanton ..	212	DH83	1 weekly
Sydney-Rabaul ..	2,509	DC3	3 weekly
Guinea Airways Ltd.—			
Adelaide-Darwin ..	1,661	DC3	3 weekly
Adelaide-Port Lincoln ..	158	DC3	5 weekly
Adelaide-Kingscote ..	88	DC3	4 weekly
Adelaide-Cowell-Cleve ..	294	DC3	3 round trips weekly
Adelaide-Whyalla-Port Pirie	146	DC3	6 weekly
Adelaide-Broken Hill-Renmark	283	DC3	3 weekly
Aircrafts Pty. Ltd.—			
Brisbane-Kingaroy ..	102	DH84	4 weekly
Brisbane-Thangool ..	263	DH84	2 weekly
Brisbane-Rockhampton ..	349	DH84, LH18 ..	7 weekly, plus freighter Sunday only
Brisbane-Bundaberg ..	193	DH84, LH18 ..	6 weekly
Kingaroy-Wondai ..	17	DH84	4 weekly
Airlines (W.A.) Ltd.—			
Perth-Albany ..	239	DH89, DH90 ..	4 weekly
Perth-Busselton ..	124	DH89, DH90 ..	1 weekly
Perth - Wiluna - Kalgoorlie-Perth	1,185	DH89, DH90, DH104	2 round trips weekly
Perth-Mount Magnet - Wiluna	521	DH89, DH90, DH104	1 weekly
Perth - Esperance - Kalgoorlie-Perth	1,014	DH89, DH90, DH104	2 round trips weekly
Perth - Port Hedland - Perth	1,849	DH89, DH90 ..	2 round trips weekly
Perth-Rottnest Island ..	22	DH89, DH90 ..	10 weekly
Perth-Wittenoon Gorge ..	701	DH89, DH90 ..	1 weekly
Perth-Meekatharra ..	438	DH89, DH90 ..	1 weekly
Ansett Airways Pty. Ltd.—			
Melbourne-Hamilton ..	158	LH10	6 weekly
Melbourne-Mount Gambier-Adelaide	457	DC3	1 daily
Melbourne-Hobart ..	381	DC3	1 daily
Melbourne-Sydney ..	486	DC3	1 daily

Operating Companies and Services.	Route Mileage.	Aircraft Used.	Frequency (Return Trips unless otherwise indicated).
MacRobertson-Miller Aviation Co. Ltd.—			
Perth-Broome	1,296	DC3	1 weekly
Perth-Carnarvon	508	DC3	1 weekly
Perth-Geraldton	230	Anson	1 weekly
Perth-Hedland (Coastal) ..	1,015	Anson	1 weekly
Perth-Derby	1,420	C47, LH10	3 fortnightly
	1,358		
Perth-Katherine	2,405	LH10	1 fortnightly
Perth-Darwin	1,970	DC3	1 weekly
Derby-Kimberley Stations	928	LH10	1 fortnightly
Broome-Kimberley Stations	1,024	Anson	1 round trip weekly
Butler Air Transport Pty. Ltd.—			
Sydney-Charleville	669	DC3	2 weekly
Sydney-Dubbo	192	DC3	1 daily
Sydney-Coonamble	310	DH84	3 weekly
Sydney-Bega	209	DH84	6 weekly
Sydney-Pokolbin	101	DH84	6 weekly
Sydney-Tooraweenah	218	DC3	4 weekly
Bourke-Tooraweenah	242	DH84	4 weekly
Sydney-Bathurst	96	DC3	6 weekly
Sydney-Evans Head	360	DC3	1 daily
Sydney-Parkes	180	DC3	6 weekly
Connellan Airways—			
Alice Springs-Mount Irwin	493	DH90, DH84	1 round trip fortnightly
Alice Springs-Huckitta	342	DH90, DH84	1 round trip fortnightly
Alice Springs-Borooloola ..	2,022	DH90, DH84	1 round trip fortnightly
Alice Springs-Wyndham	2,605	DH90, DH84	1 round trip fortnightly
East-West Airlines—			
Tamworth-Sydney	199	Anson	3 weekly
Interstate Air Service Pty. Ltd.—			
Sydney-Jervis Bay	86	Anson	3 weekly
New England Airways—			
Sydney-Coff's Harbour	274	Anson	5 weekly
Sydney-Casino	374	Anson	3 weekly

6. Air Ambulance Services.—A brief statement of the foundation and objects of the Air Ambulance Services will be found in Official Year Book No. 32, pp. 145 and 146.

Air Ambulance Services were maintained during the war years by the Flying Doctor Services of Australia and the Bush Church Aid Society. The medical base at Wyndham, which was removed during the period of the war years to Hall's Creek, was re-established at Wyndham, but there being no civil air ambulance available at Wyndham, the co-operation of either MacRobertson-Miller Aviation Co. Ltd., Connellan Airways, or the Royal Australian Air Force is sought whenever transport of a patient is necessary.

During the period under review, the annual grant of £7,500 made by the Commonwealth Government, on the recommendation of a Departmental Committee comprising representatives of the Department of Health, Postmaster-General and Civil Aviation, was maintained.

7. *Training of Air Pilots.*—(i) *Subsidized Aero Clubs.* A brief statement of the pre-war policy of the Commonwealth Government regarding assistance to Aero Clubs was given in Official Year Book No. 32, p. 146.

During the war years, the facilities of all subsidized Aero Clubs, with the exception of Broken Hill and Spencer's Gulf, were used by the Royal Australian Air Force for training purposes. The payment of subsidies to all Clubs, with the exception of the abovementioned Clubs, was discontinued during this period.

Towards the end of 1945, financial assistance to the Aero Clubs by the Government was resumed. The basis of payment is £25 for each 50 hours flown by each club aircraft with a maximum of £100 per aircraft per annum. In addition, a bonus of £50 and £10 is granted for each private pilot's licence issued and each pilot's licence renewed respectively. Bonuses of £60 and £12 10s. respectively where club members were trained at centres other than club head-quarters are paid also.

The Royal Aero Club of New South Wales, Royal Victorian Aero Club, Royal Queensland Aero Club, Royal Aero Club of South Australia, Royal Aero Club of Western Australia, Tasmanian Aero Club, Newcastle Aero Club and Broken Hill Aero Club are in receipt of assistance.

(ii) *Unsubsidized Aero Clubs.* These organizations ceased their activities during the war years. By 30th June, 1946, however, a number had resumed training activities subject to the limits imposed by the Liquid Fuel Restrictions.

8. *Gliding.*—The subsidy which was granted by the Government to the gliding clubs was discontinued during the war years and has not been renewed.

9. *Airways Engineering.*—On the Australian mainland and in New Guinea an extensive network of radio communication and navigation stations has been established which completely encircles and crosses the continent and extends through New Guinea and Papua to Rabaul in New Britain. In the international sphere radio communication and navigation facilities are provided for aircraft entering Australia at Darwin and Sydney. The facilities now in use comprise—51 Aeradio Stations, 17 V.H.F. Radio Ranges, 43 Homers, 31 MF/DF Stations, 2 HF/DF Stations, 13 Radio-equipped Control Towers, and 4 Radio-equipped Control Launches.

There is published monthly by the Department of Civil Aviation a handbook entitled "ANFAC" in which are shown details of all communication and navigation aids available for aircraft flying in Australia and the South Pacific.

On the principal air routes high frequency radio range beacons provide a beam path for guidance of aircraft and at most stations radio homing beacons are installed for use in conjunction with the direction finding apparatus (radio compass) carried in the aircraft. These airway navigation facilities are backed up by a network of medium and high frequency direction finding stations, and to assist in the control of traffic using the busier airports ground radar stations are provided. In course of provision is an extensive network of V.H.F. 4-course radio range installations which will provide a more efficient "flying beam" service. These stations will be progressively modified to provide an omni-directional beam service, that is, one defining an infinite number of radial courses leading to the station location.

At all the principal airports, electrically operated runway lighting systems have been installed to define runways to be used for night landings. These installations are being extended both in scope and location. The later equipments, now being installed, have

the lighting fittings flush with the runway surface thus eliminating possible obstruction to aircraft and the light output is being directionally focussed to provide greater range of visibility in the desired direction.

10. **Air Traffic Control.**—With increasing aircraft traffic density at the principal aerodromes and on the main air routes a system of Air Traffic Control has been implemented to assist towards achieving safety of flight. The main services of the Air Traffic Control System are the Aerodrome Control Service and the Flight Control Service.

The Aerodrome Control Service operates from a specially constructed tower from which the entire aerodrome can be viewed. The aim of this service is to provide an orderly and safe system of arrivals and departures of aircraft to and from aerodromes. Radio communication equipment is provided in the control tower for communication with aircraft on the aerodrome and within the limited area of aerodrome control. The Flight Control Service is provided at the main aerodromes. Aircraft captains in co-operation with Flight Control Officers formulate flight plans and at regular intervals during flight, by means of radio communication with the aircraft, the Flight Control Service is able to determine at any time the estimated positions of all aircraft within the various areas of control. A Flight Control Centre is responsible for the supervision of all aerodrome controls within its area, the provision of a Flight Information Service and for initiating search and rescue procedures. The Flight Information Service provides air crews with complete information regarding the aerodromes and navigational and communication aids which may be used on any particular flight. Search and rescue assistance is provided mainly by the R.A.A.F.

11. **Meteorological Aids to Civil Aviation.**—Meteorological information and service are provided by the Meteorological Branch of the Commonwealth Department of the Interior.

12. **Airports and Landing Grounds.**—An account of the airports and landing grounds controlled and maintained by the Commonwealth Government will be found in Official Year Book No. 32, p. 148.

During the war period large numbers of aerodromes and landing grounds were constructed and maintained for defence purposes. These aerodromes were mainly established at great distance from the centres of population and were not suitable for future civil aviation use. Those which can satisfactorily serve existing communities were taken over from the Royal Australian Air Force as they became surplus to requirements. To the 30th June, 1946, 35 such aerodromes had been transferred, and, in the future, a considerable number estimated to be valued at £7,000,000 will be taken over and directly controlled and maintained for civil aviation needs.

In order to bring landing grounds owned by municipal bodies or private persons to the required standards, technical assistance is provided by the Commonwealth Government for the planning of extensions or developments.

At the 30th June, 1946, there were 96 Government landing grounds, 73 emergency landing grounds, and 230 licensed public aerodromes within Australia.

13. **Construction of New Airports.**—During the war period improvements and developmental work were necessarily restricted to those airports and landing grounds required for defence purposes.

With the cessation of hostilities important developments were immediately planned for airports and landing grounds in Australia and New Guinea. With a view to the segregation of private and Aero Club flying from that of the regular transport services,

the development of two airports is planned for each mainland capital city. In this manner congestion at major airports will be greatly reduced. Details of this scheme are as follows :—

Capital City.	Major Airport.	Minor Airport.
Sydney	Mascot	Bankstown
Brisbane	Eagle Farm	Archerfield
Adelaide	West Torrens	Parafield
Perth	Guildford	Maylands
Melbourne	Essendon	Site to be selected

Kingsford Smith Airport. After comprehensive investigation of all possible sites near Sydney, approval has been granted by the Government for the development of the existing Kingsford Smith Airport at Mascot to a combined land and water airport, conforming with international standards. The master plan of the aerodrome provides for four pairs of parallel runways, the longest being 10,000 feet and others between 5,000 and 8,000 feet complete with taxi strips, aircraft aprons, and parking facilities. The estimated cost of the first stage of the development programme is £5,000,000 and entails the diversion of Cook's river. The work proposed will extend over a period of from four to five years.

Essendon Airport. The first stage towards the development of a major airport at Essendon was nearing completion on 30th June, 1946. This stage consisted of the construction of a concrete runway 4,800 feet in length complete with taxiways and apron estimated to cost £300,000. Later stages of development will be carried out over the next four or five years.

14. **Aircraft Parts and Materials.**—The production of aircraft components and materials in Australia has increased considerably during recent years, so that most aircraft requirements can now be met by local production. One hundred and twenty-eight firms and organizations are authorized by the Department of Civil Aviation to issue release notes with their aircraft products, certifying that they have been manufactured to designs and specifications approved by the Department of Civil Aviation. There are 48 distributors and agents approved by the Department of Civil Aviation who engage in the distribution of aircraft parts and materials, certifying their goods as being in conformity with approved specifications.

15. **Aircraft Maintenance, Certificates of Repair.**—All aircraft maintenance repair and overhaul is now carried out under the supervision of a works inspection section or licensed ground engineer, in workshops approved by the Department of Civil Aviation. Sixty-nine of these workshops are authorized to issue certificates of repair which serve as evidence to the licensed ground engineer responsible for the fitment of the part that the work so covered has been done in an authorized workshop by competent tradesmen and has been subjected to proper inspection. Such specialized work as the overhaul of instruments, electrical equipment, propellers, aeronautical pumps, and carburettors is carried out by these approved workshops.

16. **Test and Examination of Aircraft Parts and Materials.**—A number of laboratories has now been approved by the Department of Civil Aviation and is authorized to issue laboratory reports covering the physical test, chemical analysis, radiological and metallurgical examination of materials and parts used in connexion with the civil aircraft industry.

17. **Statistical Summary.**—The collection and compilation of aircraft statistics were undertaken by this Bureau as from 1st July, 1922. The following table gives a summary of operations for the year 1938–39 and the four years ended 30th June, 1946. Figures shown include particulars of Qantas Overseas Airways, but exclude particulars of the Trans-Tasman service. They exclude, as far as possible, the operations of aircraft chartered for defence purposes.

CIVIL AVIATION IN AUSTRALIA : SUMMARY.

Particulars.	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
Registered aircraft owners (a) No.	149	119	116	125	182
Registered aircraft (a) .. "	296	187	185	206	349
Licensed pilots—(a)					
Private "	1,096	171	159	215	320
Commercial "	346	233	305	428	1,019
Licensed navigators (a) ..	59	61	96	125	223
Licensed aircraft radio telegraph operators (a) .. No.	75	69	111	160	401
Licensed aircraft radio telephone operators (a) .. No.		53	64	140	238
Licensed ground engineers (a) ..	525	924	1,039	1,122	1,220
Aerodromes—(a)					
Government "	71	69	69	77	96
Public "	213	207	206	230	230
Government emergency grounds .. No.	147	96	78	83	73
Hours flown "	121,935	58,185	84,274	111,122	152,140
Approx. mileage miles '000	14,099	7,517	10,082	14,992	21,538
Passengers carried—					
Paying No.	123,566	130,878	232,161	337,195	515,347
Non-paying "	24,353	2,647	3,614	4,875	6,810
Total "	147,919	133,525	235,775	342,070	522,157
Freight carried Tons	774.6	922.3	1,398.2	2,123.2	4,580.3
Mails, gross weight carried—					
Internal "	(b) 64.3	(b) 655.8	b 1,088.4	b 1,252.7	831.2
Oversea "	265.6	85.3	168.3	198.2	406.7
Total "	329.9	741.1	1,256.7	1,450.9	1,237.9
Accidents—					
Persons—killed .. No.	38	4	1	26	44
injured "	15	3	1	10	1

(a) At 30th June.

(b) Net weight.

Separate particulars of flying by Tasman Empire Airways over the Trans-Tasman route and by Qantas Empire Airways over the Indian Ocean and Singapore routes are shown below :—

CIVIL AVIATION : OVERSEA SERVICES.

Particulars.	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
Tasman Empire Airways					
Trans-Tasman Service—					
Hours flown .. No.	(a) {	1,272	1,818	2,864	3,278
Miles flown .. "		192,960	278,720	446,220	511,880
Passengers carried .. "		2,183	3,579	5,772	6,041
Freight carried .. Tons		12.9	20.1	29.6	31.8
Mails carried .. "		44.1	43.5	75.2	98.2
Qantas Empire Airways—					
Hours flown .. No.	4,903	(b) {	5,042	8,105	15,168
Miles flown .. "	718,288		643,588	1,254,518	3,112,647
Passengers carried .. "	1,112		546	1,868	4,305
Freight carried .. Tons	46.4		9.0	38.6	85.2
Mail carried "	257.2		39.3	160.9	287.4

(a) Service inaugurated with first trip on 30th April, 1940.

(b) Service suspended.

18. *New Guinea Activities.*—Previous issues give particulars of the development of civil aviation in New Guinea, and of the operating companies at the outbreak of war with Japan.

The following table gives a summary of operations for the four years ended 30th June, 1941, and for the three months ended September, 1941.

CIVIL AVIATION IN TERRITORY OF NEW GUINEA : SUMMARY.

Particulars.	1937-38.	1938-39.	1939-40.	1940-41.	1941-42. (c)
Registered aircraft owners (a) No.	10	10	9	11	1
Registered aircraft (a) .. "	40	47	43	41	3
Licensed pilots—(a)					
Private "	12	13	(b)	5	..
Commercial "	24	23	(b)	16	..
Licensed navigators (a) .. "	2	3	(b)	4	..
Licensed aircraft radio operators (a) No.	..	1	1	2	..
Licensed ground engineers (a) .. "	37	46	(b)	37	6
Aerodromes—(a)					
Government "	21	24	30	40	..
Public "	19	19	23	18	..
Government emergency landing grounds No.	6	11	13	17	..
Hours flown "	15,445	15,626	13,814	11,965	2,508
Approx. mileage miles '000	1,560	1,456	1,254	1,095	216
Passengers carried—					
Paying No.	12,247	12,909	15,433	12,995	2,919
Non-paying "	1,017	1,569	1,551	993	194
Total "	13,264	14,478	16,984	13,988	3,113
Freight carried lb. '000	25,574	27,064	23,500	19,855	4,124
Mails carried " " "	167	163	147	101	21
Accidents—					
Persons—killed No.	1	..	8	2	..
injured "	1	1	1	1	..

(a) At 30th June.
not available.

(b) Not available.

(c) July to September, 1941 only. Further particulars

I. POSTS, TELEGRAPHS AND TELEPHONES.

§ 1. General.

1. *The Commonwealth Postal Department.*—Under the provisions of the Commonwealth Post and Telegraph Act 1901, the Commonwealth Postal Department was placed under the control of the Postmaster-General, being a responsible Minister. The Director-General of Posts and Telegraphs controls the Department under the Postmaster-General, whilst the principal officer in each State is the Deputy-Director of Posts and Telegraphs.

The considerable expansion of postal business of all kinds is reflected in the gross revenue of the Department which in 1945-46 was 64 per cent. greater than in 1938-39.

2. *Postal Facilities.*—(i) *Relation to Area and Population.* The following statement shows the number of post offices, the area in square miles and the number of inhabitants to each post office (including non-official offices) in each State and in Australia at 30th June, 1946. In order to judge clearly the relative postal facilities provided in each State, the area of country to each office as well as the number of inhabitants per office should be taken into account. In this and all succeeding tables the returns given for South Australia include those for the Northern Territory, and the returns for the Australian Capital Territory are included in those for New South Wales.

POSTAL FACILITIES : RELATION TO AREA AND POPULATION,
AT 30th JUNE, 1946.

State.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Aust.
Number of post offices (a) ..	2,490	2,484	1,222	815	599	504	8,114
Number of square miles of territory to each office in State ..	124	35	549	1,109	1,629	52	367
Number of inhabitants to each office	1,189	815	892	792	823	500	920
Number of inhabitants per 100 square miles ..	954	2,305	162	71	50	961	251

(a) Includes "official," "semi-official," and "non-official" offices.

The foregoing table does not include "telephone" offices at which there is no postal business.

(ii) *Number of Offices.* The following table shows the number of post offices in each State for the years 1924, 1934, 1944 and 1946.

NUMBER OF POST OFFICES.

State.	At 30th June—							
	1924.		1934.		1944.		1946.	
	Official and Semi-Official.	Non-Official.	Official and Semi-Official.	Non-Official.	Official and Semi-Official.	Non-Official.	Official and Semi-Official.	Non-Official.
New South Wales ..	460	2,183	436	2,013	468	2,027	462	2,028
Victoria ..	273	2,399	275	2,271	302	2,226	291	2,193
Queensland ..	215	1,044	186	1,016	216	1,026	201	1,021
South Australia ..	143	662	144	628	152	647	153	662
Western Australia ..	137	709	124	449	135	470	133	466
Tasmania ..	47	495	42	466	46	462	45	459
Australia ..	1,275	7,492	1,207	6,843	1,319	6,858	1,285	6,829

(iii) *Employees and Mail Contractors.* The number of employees and mail contractors in the Central Office and in each of the States at specified dates is given in the following table :—

POSTAL EMPLOYEES AND MAIL CONTRACTORS.

State.	At 30th June—							
	1924.		1934.		1944.		1946.	
	Em- ployees.	Mail Con- tractors.	Em- ployees.	Mail Con- tractors.	Em- ployees.	Mail Con- tractors.	Em- ployees.	Mail Con- tractors.
Central Office ..	100	..	202	..	579	..	538	..
New South Wales ..	13,947	1,791	13,220	1,953	22,171	2,537	23,488	2,511
Victoria ..	10,279	1,133	9,979	1,070	17,563	1,680	18,583	1,802
Queensland ..	6,220	819	4,908	1,209	8,830	1,355	9,362	1,535
South Australia ..	4,014	354	3,280	301	5,166	542	5,424	545
Western Australia..	2,450	382	2,629	342	4,356	350	4,308	329
Tasmania ..	1,582	206	1,391	242	1,930	213	2,191	242
Australia ..	38,592	4,685	35,609	5,117	60,595	6,677	63,894	6,964

3. *Gross Revenue, Branches—Postmaster-General's Department.* The gross revenue (actual collections) in respect of each branch of the Department during each of the years 1942-43 to 1945-46 in comparison with 1938-39 is shown in the table hereunder :—

POSTMASTER-GENERAL'S DEPARTMENT : GROSS REVENUE.

Branch and Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
Postal—	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.
1938-39 ..	3,048	2,042	1,067	552	502	211	7,422
1942-43 ..	3,936	2,761	1,686	900	657	262	10,202
1943-44 ..	4,047	3,062	2,031	1,001	720	302	11,163
1944-45 ..	4,222	3,195	2,259	1,021	736	321	11,754
1945-46 ..	4,454	3,425	1,935	930	790	344	11,878
Telegraph—							
1938-39 ..	502	341	234	118	139	38	1,372
1942-43 ..	874	959	540	216	233	38	2,860
1943-44 ..	962	949	724	251	221	41	3,148
1944-45 ..	1,030	1,022	639	223	225	47	3,186
1945-46 ..	1,173	901	738	216	234	59	3,321
Wireless—							
1938-39 ..	198	152	59	53	36	18	516
1942-43 ..	243	187	78	65	43	22	638
1943-44 ..	249	189	79	67	42	23	649
1944-45 ..	253	193	81	68	44	22	661
1945-46 ..	250	200	83	70	46	23	672
Telephone—							
1938-39 ..	3,261	2,352	1,098	696	431	202	8,040
1942-43 ..	4,129	3,243	1,454	969	610	286	10,691
1943-44 ..	4,645	3,434	1,699	988	656	298	11,720
1944-45 ..	4,825	3,620	1,805	1,031	677	313	12,271
1945-46 ..	5,003	3,793	1,838	1,052	661	327	12,584
All Branches—							
1938-39 ..	7,009	4,887	2,458	1,419	1,108	469	17,350
1942-43 ..	9,182	7,150	3,758	2,150	1,543	608	24,391
1943-44 ..	9,903	7,634	4,533	2,307	1,639	664	26,680
1944-45 ..	10,330	8,030	4,784	2,343	1,682	703	27,872
1945-46 ..	10,880	8,229	4,594	2,268	1,731	753	28,455
Total revenue per capita—	£	£	£	£	£	£	£
1938-39 ..	2.55	2.61	2.44	2.36	2.37	1.97	2.50
1942-43 ..	3.21	3.64	3.61	3.47	3.23	2.52	3.39
1943-44 ..	3.43	3.85	4.30	3.68	3.43	2.72	3.67
1944-45 ..	3.54	4.02	4.48	3.70	3.47	2.85	3.79
1945-46 ..	3.69	4.08	4.24	3.54	3.53	3.01	3.83

Compared with the corresponding figures for the previous year, an increase of 2.1 per cent. is shown in the gross revenue earned for the year 1945-46. Increases in the several branches were as follows:—Postal 1.1 per cent., Telegraph 4.2 per cent., Telephone 2.5 per cent. and Wireless 1.3 per cent.

The gross revenue in 1945-46 was 64.0 per cent. higher than in the last complete pre-war year, 1938-39, the corresponding percentage increases for the several branches being as follows:—Postal 60.0, Telegraph 142.1, Wireless 30.2, and Telephone 56.5.

4. Expenditure, Postmaster-General's Department.—(i) *Distribution.* The following table shows, as far as possible, the distribution of actual expenditure on various items in each State during the year ended 30th June, 1946. The table must not be regarded as a statement of the working expenses of the Department, since items relating to new works, interest, etc., are included therein.

POSTMASTER-GENERAL'S DEPARTMENT : DISTRIBUTION OF EXPENDITURE, 1945-46.

Particulars.	Central Office.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Aust.
	£'000.	£'000.	£'000.	£'000	£'000.	£'000.	£'000.	£'000.
Expenditure from Ordinary Votes—								
Salaries and payments in the nature of salary ..	85	4,137	2,745	1,523	870	642	329	10,331
General expenses ..	5	296	206	97	66	39	16	725
Stores and material ..	3	192	436	82	46	32	18	809
Mail services ..	(a)1,527	598	408	325	115	101	49	3,123
Engineering services (other than New Works) ..	160	2,072	1,626	847	434	388	203	5,730
Other services ..	123	..	..	..	..	..	..	123
Total ..	1,903	7,295	5,421	2,874	1,531	1,202	615	20,841
Rent, repairs, maintenance, fittings, etc. ..	..	51	66	28	17	13	6	181
Proportion of audit expenses ..	..	5	4	2	1	1	..	13
Other expenditure ..	..	8	10	..	..	16	..	34
New Works (b)—								
Telegraph, telephone and wireless ..	9	1,633	1,028	519	253	198	158	3,798
New Buildings, etc. ..	..	129	128	89	51	27	13	437
Other expenditure not allocated to States ..	(c) 3,706	..	..	..	..	..	..	3,706
Grand Total ..	(d)5,618	9,121	6,657	3,512	1,853	1,457	792	29,010

(a) Expenditure on air-mail services etc. (b) Includes expenditure from loan. (c) Particulars of apportionment to States not available. (d) Includes expenditure not apportioned to States.

A similar table for the year 1944-45 is contained in the *Transport and Communication Bulletin* No. 36, p. 50.

(ii) *Total 1938-39, 1942-43 to 1945-46.* The next table gives the actual payments made as shown by records kept for Treasury purposes in respect of the Postmaster-General's Department, for each of the years 1942-43 to 1945-46 compared with the year 1938-39:—

POSTMASTER-GENERAL'S DEPARTMENT : EXPENDITURE.

—	1938-39	1942-43.	1943-44.	1944-45.	1945-46.
	£'000.	£'000.	£'000.	£'000.	£'000.
Total expenditure ..	18,874	22,841	25,415	27,389	29,010

The total expenditure increased by 5.9 per cent. during 1945-46 and was 53.7 per cent. higher in 1945-46 than in 1938-39.

5. Profit or Loss, Postmaster-General's Department.—(i) *States, 1945-46.* The foregoing statements of gross revenue and expenditure represents actual collections and payments made and cannot be taken to represent the actual results of the working of the Department for the year. The net results for each branch in the several States, after providing for working expenses, depreciation and interest charges, including exchange, were as follows :—

POSTMASTER-GENERAL'S DEPARTMENT : PROFIT OR LOSS, 1945-46.

Branch.	Profit or Loss.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Aust.
		£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.
Postal ..	{ Profit ..	924	722	263	161	121	77	2,268
	{ Loss ..	..	..	..	..	..	..	..
Telegraph ..	{ Profit ..	344	195	302	74	70	11	996
	{ Loss ..	..	..	..	..	..	..	..
Wireless ..	{ Profit ..	..	..	..	9	..	..	..
	{ Loss ..	51	22	39	..	34	7	144
Telephone ..	{ Profit ..	1,416	964	436	178	71	..	3,058
	{ Loss ..	..	..	..	..	..	7	..
All Branches ..	{ Profit ..	2,633	1,859	962	422	228	74	6,178
	{ Loss ..	..	..	..	..	..	..	..

After providing for depreciation, pensions and retiring allowances and interest on capital, the year 1945-46 closed with a surplus of £6,177,624 compared with a surplus of £6,674,595 in 1944-45 and of £3,625,371 in 1938-39.

(ii) *Branches, 1938-39 and 1942-43 to 1945-46.* The following statement gives particulars of the operating results of each branch for the years 1938-39 and 1942-43 to 1945-46 :—

POSTMASTER-GENERAL'S DEPARTMENT : PROFIT OR LOSS, BRANCHES.

Year.	Branch Profits—				
	Postal.	Telegraph.	Wireless.	Telephone.	All Branches.
	£'000.	£'000.	£'000.	£'000.	£'000.
1938-39.. ..	2,105	52	76	1,392	3,625
1942-43.. ..	2,849	946	33	2,381	6,143
1943-44.. ..	2,336	952	24	3,033	6,297
1944-45.. ..	2,572	939	127	3,291	6,675
1945-46.. ..	2,268	996	144	3,058	6,178

NOTE.—Minus sign (—) represents deficit.

6. **Capital Account.**—The appended statement shows particulars of the fixed assets of the Postmaster-General's Department from 1st July, 1945 to 30th June, 1946 :—

POSTMASTER-GENERAL'S DEPARTMENT : FIXED ASSETS.

Particulars.	Net Value, 1st July, 1945.	Capital Expendi- ture, 1945-46.	Gross Value, 30th June, 1946.	Less Deprecia- tion, etc., 1945-46. (a)	Net Value, 30th June, 1946.
	£'000.	£'000.	£'000.	£'000.	£'000.
Telephone service plant (excluding trunk lines)	50,825	4,183	55,008	699	54,309
Trunk and telegraph service plant (aerial wires, conduits, and cables)	16,246	551	16,797	71	16,726
Telegraph service plant	732	119	851	30	821
Postal service plant	556	33	589	..	589
Wireless service plant	776	74	850	2	848
Sites, buildings, furniture and office equipment	12,753	482	13,235	61	13,174
Miscellaneous plant	1,757	432	2,189	116	2,073
Total	83,645	5,874	89,519	979	88,540

(a) Includes dismantled assets, depreciation written off, and assets transferred.

At 30th June, 1946, the net value of fixed assets was 35.9 per cent. greater than at 30th June, 1939 (£65,135,000).

§ 2. Posts.

1. **Postal Matters Dealt With.**—(i) *Australia.* The following table gives a summary of the postal matter dealt with in Australia during the four years 1942-43 to 1945-46 in comparison with 1938-39. Although mail matter posted in Australia for delivery therein is necessarily handled at least twice, only the number dispatched is included in the following table, which consequently gives the number of distinct articles handled :—

POSTAL MATTER DEALT WITH : AUSTRALIA.

Year.	Letters, Postcards, and Letter-cards.		Newspapers and Packets.		Parcels.		Registered Articles other than Parcels.	
	Number ('000 omitted).	Per 1,000 of Population.	Number ('000 omitted).	Per 1,000 of Population.	Number ('000 omitted).	Per 1,000 of Population.	Number ('000 omitted).	Per 1,000 of Population.

POSTED WITHIN AUSTRALIA FOR DELIVERY THEREIN.

1938-39 (a) ..	836,243	120,605	139,635	20,138	9,056	1,306	7,474	1,078
1942-43 ..	856,032	118,821	148,471	20,608	14,944	2,074	13,933	1,934
1943-44 ..	862,758	118,646	152,301	20,944	17,924	2,465	17,182	2,363
1944-45 ..	882,960	120,146	165,114	22,467	17,758	2,416	18,175	2,473
1945-46 ..	869,212	116,987	162,398	21,857	16,017	2,156	17,783	2,393

TOTAL POSTAL MATTER³ DEALT WITH.

1938-39 (a) ..	903,090	130,245	165,362	23,849	9,585	1,382	8,371	1,207
1942-43 ..	887,798	123,230	163,578	22,705	16,014	2,223	14,280	1,982
1943-44 ..	907,768	124,836	170,044	23,384	18,945	2,605	17,524	2,410
1944-45 ..	932,143	126,839	184,860	25,154	18,956	2,579	18,682	2,542
1945-46 ..	942,402	126,838	185,598	24,980	19,345	2,604	18,800	2,530

(a) Packets were included with letters.

(ii) *States.* The next table shows the postal matter dealt with in each State during the year 1945-46.

POSTAL MATTER DEALT WITH : STATES 1945-46.(a)

State.	Letters, Postcards, and Packet-cards.		Newspapers and Packets.		Parcels.		Registered Articles other than Parcels.	
	Number ('000 omitted).	Per 1,000 of Population.	Number ('000 omitted).	Per 1,000 of Population.	Number ('000 omitted).	Per 1,000 of Population.	Number ('000 omitted).	Per 1,000 of Population.
POSTED FOR DELIVERY WITHIN AUSTRALIA.								
New South Wales	338,521	114,822	71,315	24,189	6,132	2,080	7,556	2,563
Victoria ..	252,612	125,324	43,848	21,754	4,256	2,111	4,746	2,355
Queensland ..	118,275	109,108	22,926	21,149	3,026	2,791	2,686	2,478
South Australia ..	68,245	106,370	9,502	14,810	1,370	2,135	1,197	1,866
Western Australia	55,323	112,869	9,628	19,643	972	1,983	1,001	2,042
Tasmania ..	36,236	144,763	5,179	20,090	261	1,043	597	2,385
Australia ..	869,212	116,987	162,398	21,857	16,017	2,156	17,783	2,393

POSTED FOR DELIVERY OVERSEAS.

New South Wales	9,461	3,209	3,339	1,133	1,205	409	248	84
Victoria ..	7,635	3,788	3,339	1,657	900	447	52	26
Queensland ..	1,492	1,376	368	339	232	214	70	65
South Australia ..	3,574	5,571	324	505	184	287	12	19
Western Australia	1,615	3,295	834	1,702	255	520	21	43
Tasmania ..	3,137	12,532	20	80	78	312	4	16
Australia ..	26,914	3,622	8,224	1,107	2,854	384	407	55

RECEIVED FROM OVERSEAS.

New South Wales	24,600	8,344	8,082	2,741	120	41	351	119
Victoria ..	10,485	5,202	3,295	1,635	176	87	101	50
Queensland ..	6,768	6,243	1,069	986	109	101	98	90
South Australia ..	2,891	4,506	1,198	1,867	30	47	21	33
Western Australia	1,343	2,740	967	1,973	35	71	36	73
Tasmania ..	190	759	366	1,462	4	16	3	12
Australia ..	46,277	6,228	14,977	2,016	474	64	610	82

(a) See explanation in para. 1.—(1).

Comparable figures of the number of articles dealt with during 1944-45 may be found in the *Transport and Communication Bulletin* No. 37, pp. 52-55.

2. *Cash on Delivery Parcels Post.*—(i) *General.* The Postal Department undertakes, upon prepayment of a prescribed commission, to deliver registered articles sent by parcel post within Australia, or between Lord Howe Island, Norfolk Island, Nauru, the Territory

of Papua-New Guinea, or Fiji and Australia, to recover from the addressee on delivery a sum of money specified by the sender, and to remit the sum to the sender. The object of the system is to meet the requirements of persons who wish to pay at the time of receipt for articles sent to them, also to meet the requirements of traders and others who do not wish their goods to be delivered except on payment.

(ii) *Summary of Business.* The next statement gives particulars regarding the cash on delivery parcels posted in each State for the years 1942-43 to 1945-46 in comparison with 1938-39 :—

CASH ON DELIVERY PARCELS POST : SUMMARY OF BUSINESS.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Australia.
NUMBER OF PARCELS POSTED.							
	No.	No.	No.	No.	No.	No.	No.
1938-39	332,419	36,000	175,376	20,596	67,852	849	633,092
1942-43	325,967	80,241	148,600	24,000	39,900	1,363	620,071
1943-44	359,500	79,100	147,200	28,400	36,400	1,300	651,900
1944-45	377,100	72,300	159,200	37,800	41,100	1,500	689,000
1945-46	401,900	53,500	192,200	41,800	48,000	1,500	738,900

VALUE COLLECTED.

	£	£	£	£	£	£	£
1938-39	405,844	50,224	226,409	22,962	76,323	1,143	782,905
1942-43	464,996	147,796	195,351	32,070	45,458	2,636	888,307
1943-44	518,268	154,896	223,106	44,849	48,645	2,351	992,115
1944-45	521,647	146,062	260,638	52,774	55,126	2,375	1,038,622
1945-46	621,019	113,484	317,918	69,284	64,108	2,498	1,258,311

REVENUE INCLUDING POSTAGE, COMMISSION ON VALUE, REGISTRATION AND MONEY ORDER COMMISSION.

	£	£	£	£	£	£	£
1938-39	45,097	4,867	24,881	2,587	8,207	102	85,741
1942-43	41,476	12,841	19,048	2,426	4,541	161	80,493
1943-44	49,283	13,575	19,135	4,566	4,225	151	90,935
1944-45	52,526	12,654	20,400	6,010	4,750	167	96,507
1945-46	54,220	8,635	25,598	6,019	5,526	177	100,175

The number and value of parcels forwarded in New South Wales and Queensland are much higher than in any of the other States, although the system has also found favour in South Australia and Western Australia. These States have the largest areas, and consequently more people at long distances from business centres avail themselves of the cash on delivery system.

3. *Sea-borne Mail Services.*—In earlier issues of this work particulars of sea-borne mail services were included, but the insertion of the information terminated with Official Year Book No. 22.

4. Total Cost of Carriage of Mails. —During 1944-45 and 1945-46 the total amounts paid for the carriage of mails, as disclosed by the Profit and Loss Account of the Postal Branch, were as follows :—

CARRIAGE OF MAILS : TOTAL COST, 1944-45 AND 1945-46.

Year.	Inland Mails.			Coastwise Mails.	Overseas Mails.		Total.
	Road.	Railway.	Air.		Sea.	Air.	
	£	£	£	£	£	£	£
1944-45 ..	748,984	718,111	1,597,324	17,253	87,953	74,719	3,244,344
1945-46 ..	790,447	706,339	1,152,989	15,921	109,034	350,485	3,125,215

5. Transactions of the Dead Letter Offices. —The table hereunder shows the number of letters, postcards and letter-cards, and packets and circulars, including Inland, interstate and international, dealt with by the Dead Letter Offices in 1945-46 and the methods adopted in the disposal thereof :—

DEAD LETTER OFFICES : TRANSACTIONS, 1945-46.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
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LETTERS, POSTCARDS AND LETTER-CARDS.

	No.	No.	No.	No.	No.	No.	No.
Returned to writers or delivered ..	773,972	311,814	443,476	101,296	95,539	47,459	1,773,556
Destroyed in accordance with Act ..	103,517	47,666	25,892	16,508	13,155	8,107	214,845
Returned to other States or countries as unclaimed ..	36,731	16,317	12,032	2,545	5,238	3,367	76,230
Total ..	914,220	375,797	481,400	120,349	113,932	58,933	2,064,631

PACKETS AND CIRCULARS.

Returned to writers or delivered ..	109,275	71,228	183,190	5,246	525	10,884	380,348
Destroyed in accordance with Act ..	36,355	43,463	19,363	2,831	500	4,713	107,225
Returned to other States or countries as unclaimed ..	3,009	1,726	506	529	15	512	6,297
Total ..	148,639	116,417	203,059	8,606	1,040	16,109	493,870
Grand Total (letters, packets, etc) ..	1,062,859	492,214	684,459	128,955	114,972	75,042	2,558,501

During 1944-45 and 1945-46 money and valuables to the amount of £139,483 and £213,439 respectively were found in postal articles sent to the Dead Letter Office.

6. Money Orders and Postal Notes.—(i) *General.* The issue of money orders and postal notes is regulated by Sections 74-79 of the Post and Telegraph Act 1901. A money order may be issued for payment of sums up to £20 within Australia, and not

exceeding £40 (in some cases £20, and in Mauritius £10) in places abroad. A postal note, which is payable only within Australia and in Papua, cannot be issued for a larger sum than twenty shillings.

(ii) *States, 1945-46.* Particulars regarding the business transactions in each State for 1945-46 are given hereunder:—

MONEY ORDERS AND POSTAL NOTES : TRANSACTIONS, 1945-46.

State	Value of Money Orders Issued.	Value of Money Orders Paid.	Net Money Order Commission Received.	Value of Postal Notes Issued.	Poundage Received on Postal Notes.
	£'000.	£'000.	£	£'000.	£
New South Wales ..	12,227	12,597	57,860	3,579	75,498
Victoria ..	5,862	6,450	27,882	2,045	62,578
Queensland ..	4,512	4,012	21,105	1,625	19,806
South Australia ..	1,620	1,599	8,099	672	14,513
Western Australia ..	1,765	1,663	9,471	451	9,667
Tasmania ..	1,065	953	4,536	206	5,003
Australia ..	27,051	27,274	128,953	9,178	187,065

(iii) *Australia, 1938-39, 1942-43 to 1945-46.* The next table shows the number and value of money orders and postal notes issued and paid in Australia in each of the years 1942-43 to 1945-46 compared with 1938-39:—

MONEY ORDERS AND POSTAL NOTES : TRANSACTIONS, AUSTRALIA.

Year.	Money Orders.				Postal Notes.			
	Issued.		Paid.		Issued.		Paid.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
	'000.	£,000.	'000.	£'000.	'000.	£'000.	'000.	£'000.
1938-39 ..	3,239	18,349	3,254	18,548	21,942	7,926	21,966	7,934
1942-43 ..	3,798	27,712	3,802	27,744	21,263	8,936	20,982	8,778
1943-44 ..	3,609	29,945	3,627	29,987	21,865	9,432	21,793	9,453
1944-45 ..	3,545	27,020	3,427	27,123	22,727	9,554	22,562	9,493
1945-46 ..	3,508	27,051	3,530	27,274	22,614	9,178	22,622	9,228

(iv) *Classification of Money Orders Issued and Paid. (a) Money Orders Issued.* The next table shows the number and value of money orders issued during 1944-45 and 1945-46, classified according to the country where payable:—

MONEY ORDERS ISSUED : COUNTRY WHERE PAYABLE, 1944-45 AND 1945-46.

Where Issued.	Where Payable.				Total.
	Australia.	New Zealand.	United Kingdom.	Other Countries.	
1944-45.					
Australia ..	No. 3,487,268	13,694	32,851	10,846	3,544,659
	Value £ 26,882,479	31,272	77,248	28,722	27,019,721
1945-46.					
Australia ..	No. 3,447,602	14,220	34,540	11,752	3,508,114
	Value £ 26,905,166	31,469	81,607	32,324	27,050,566

(b) *Money Orders Paid.* The number and value of money orders paid during 1944-45 and 1945-46, classified according to the country where issued, are given hereunder:—

MONEY ORDERS PAID : COUNTRY OF ISSUE, 1944-45 AND 1945-46.

Where Paid.	Where Issued.				Total.
	Australia.	New Zealand.	United Kingdom.	Other Countries.	
1944-45.					
Australia	No. 3,373,666	18,179	19,906	14,835	3,426,586
	Value £ 26,849,371	39,649	133,049	100,642	27,122,711
1945-46.					
Australia	No. 3,447,916	19,519	43,014	19,927	3,530,376
	Value £ 26,791,592	44,366	273,749	164,054	27,273,761

In the tables above, money orders payable or issued in foreign countries, which have been sent from or to Australia through the General Post Office in London, are included in those payable or issued in the United Kingdom.

(v) *Postal Notes Paid.* The following table shows the number and value of postal notes paid in each State during 1944-45 and 1945-46. Particulars regarding the number and value of postal notes issued and paid in each of the last five years have been given in an earlier table.

POSTAL NOTES PAID : STATE OF ISSUE, 1944-45 AND 1945-46.

Issued in—	Postal Notes Paid in—						
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Australia.
1944-45.							
Same State No. '000	7,124	3,725	2,105	957	882	429	15,222
Value £'000	2,998	1,508	896	402	354	151	6,309
Other States No.'000	1,559	1,066	639	218	322	3,536	7,340
Value £'000	892	623	298	133	128	1,110	3,184
Total No. '000	8,683	4,791	2,744	1,175	1,204	3,965	22,562
Value £'000	3,890	2,131	1,194	535	482	1,261	9,493
1945-46.							
Same State No. '000	7,234	3,876	2,052	913	882	437	15,394
Value £'000	3,066	1,552	850	370	353	156	6,347
Other States No.'000	1,284	943	582	192	331	3,896	7,228
Value £'000	698	513	231	114	108	1,217	2,881
Total No. '000	8,518	4,819	2,634	1,105	1,213	4,333	22,622
Value £'000	3,764	2,065	1,081	484	461	1,373	9,228

§ 3. Telegraphs.

1. *General.*—(i) *Development of System.* A review of the development of the Telegraph Services in Australia appears in Official Year Book No. 15, p. 625. During the past few years substantial improvements in both the speed and grade of telegraph service throughout Australia have been effected, the entire system being subjected to intensive reorganization.

(ii) *External Circulation or Routing of Traffic.* The external circulation system of the Australian telegraph service has been considerably modified, direct communication having been established between cities and towns which formerly were served through intermediate repeating centres. The reorganization has eliminated the loss of time in transit, improved the grade of service, and led to economy as regards the labour formerly required in manual re-transmission. As a result of the reorganization there are now only four repeating centres, nineteen centres having been abolished.

(iii) *Supra-Acoustic Carrier Wave System.* This system, which permits a number of messages to be transmitted simultaneously over the one pair of wires, is in operation between Perth and Adelaide, Adelaide and Melbourne, and Melbourne and Sydney, but has been superseded in recent years, to a great extent, by voice frequency telegraph carrier wave systems.

(iv) *Voice Frequency Telegraph Carrier Wave System.* This system, which enables a number of telegraph channels to be superposed on a single telephone channel by employing frequencies from 420 to 2,460 cycles per second, was introduced between Sydney and Tamworth during 1935. Between these two points 18 duo-directional channels were provided by adopting the voice-frequency principle, equivalent to 9,360 miles of uni-directional channels. This system has been extended to all the principal interstate and intra-State routes and 737,000 miles of uni-directional voice frequency telegraph carrier wave channels are now in operation.

(v) *Direct Telegraph Communication over Great Distances.* The telegraph system in Australia provides direct communication between many places separated by great distances as indicated in the following examples:—Sydney-Perth, 2,708 miles; Perth-Wyndham, 1,933 miles; Brisbane-Thursday Island, 1,775 miles; Melbourne-Brisbane, 1,234 miles; Brisbane-Cairns, 1,056 miles; Brisbane-Cloncurry, 1,215 miles; Adelaide-Perth, 1,642 miles; Melbourne-Perth, 2,225 miles; Adelaide-Darwin, 1,940 miles; and Sydney-Adelaide, 1,066 miles. These direct channels provide a speedy service between the centres named, the average time involved in the transmission of a telegram being ten minutes.

(vi) *Machine Telegraphy.* In order to speed up transmission, machine printing telegraph systems have been introduced between capital cities and between important country centres. Murray multiplex machine apparatus is in operation between Sydney and Melbourne, Sydney and Brisbane, Sydney and Adelaide, Sydney and Perth, Sydney and Canberra, Sydney and Lismore, Sydney and Newcastle, Sydney and Wagga Wagga, Melbourne and Brisbane, Melbourne and Adelaide, Melbourne and Perth, Melbourne and Canberra, Adelaide and Perth, Brisbane and Rockhampton, and Brisbane and Townsville. These provide telegraph outlets which permit the carriage of very heavy loads with a minimum transit time. The operation of the apparatus has been steadily improved, and the system now gives a high output. Start-stop telegraph printing systems are in operation between Melbourne and Mildura, Melbourne and Hobart, Melbourne and Launceston, Sydney and Tamworth, Brisbane and Toowoomba, Brisbane and Mackay, Brisbane and Canberra, Perth and Fremantle, Perth and Kalgoorlie, Adelaide and Darwin, Hobart and Launceston, as well as between outlying centres and the large metropolitan and provincial offices.

(vii) *Phonogram Service.* Telephone subscribers may telephone telegrams for onward transmission, or have messages telephoned to them. The fee for the service is small, and the system means, in effect, that the telegraph system is brought into the home of every telephone subscriber. The number of telegrams lodged by telephone during the year ended 30th June, 1946, was 5,984,061 or 16.6 per cent. of the total lodgments, and the popularity of this service is growing.

(viii) *Radiograms within Australia.* On 1st May, 1929, the rates for radiograms between Flinders Island, Wave Hill, Brunette Downs and other places within Australia were reduced to 1½d. per word with a minimum charge of two shillings. Communication at these rates was extended to Lord Howe Island in August, 1929.

(ix) *Pedal Wireless Stations.* A number of privately operated wireless transceiver stations has been established at various centres throughout the Commonwealth, enabling telegrams to be exchanged with departmental telegraph offices. Stations sponsored by the Flying Doctor Service of Australia communicate by wireless with base stations established at Port Hedland, Cloncurry, Kalgoorlie, Broken Hill, Hall's Creek, Meekatharra and Alice Springs. Base stations which are operated by other enterprises are located at Yunta, Nonning, Port Lincoln and Wynyard. The radiogram rates of 1½d. per word with a minimum charge of two shillings apply to telegrams exchanged with these stations.

(x) *Picturegram Service.* During the year ended 30th June, 1941, 351 picturegrams were transmitted between Sydney and Melbourne, the revenue being £862. Any kind of picture or document may be accepted for transmission, the charges varying from 30s. to 67s. 6d. according to the size of the picture or document and the grade of transmission desired. This service was suspended during September, 1942, but it will be restored as soon as the necessary equipment is obtained.

(xi) *Oversea Phototelegram Service.* An oversea phototelegram service, "via Beam," was inaugurated in October, 1934, permitting the transmission in either direction of facsimiles between Sydney or Melbourne and England, of dimensions up to a maximum of ten inches by seven inches. The tariff for this service was reduced on 1st January, 1940, and the charges are now calculated at the rate of one shilling and four pence per square centimetre with a minimum charge of £10 as for 150 square centimetres.

(xii) *Ornamental Telegram Forms.* The appropriately designed telegram forms used for conveying Christmas and new year greetings increased in popularity year by year until 1942 when all ornamental telegram forms and envelopes were withdrawn. In 1940, 453,886 of these greetings telegrams were sent, an increase of 214.9 per cent. on the number (144,102) sent in 1929, the year of inception of the service.

During 1933-34 telegram forms of special design and attractive colouring in connexion with Mothers' Day messages, birthday greetings and congratulatory telegrams were placed at the disposal of the public. The popularity of these facilities is indicated by the increase in the number of Mothers' Day telegrams from 16,091 in 1934 to 84,713 in 1941. Complete statistics are not available in respect of birthday greetings and congratulatory messages, but it is estimated that the number of telegrams in these categories is approximately 750,000 annually. In 1936 two additional greeting facilities employing ornamental telegram stationery were introduced, one for the conveyance of social greetings and the other for use during Easter-tide. The number of Easter Greeting telegrams in 1935, prior to the introduction of the special form for the occasion, was 4,164. This figure increased to 23,062 in 1941. Extensive use has been made of the social telegram service, which is popular for conveying "bon voyage" greetings and for making social engagements. The decorative telegraph stationery will be re-introduced as soon as the paper supply position will permit.

In December, 1945 the embargo on Christmas, New Year and Mother's Day greeting telegrams was removed.

(xiii) *Private Wire Teleprinter and Printergram Services.* In conformity with its policy of placing at the service of the public new developments in communication, the department introduced the teleprinter service in 1933. This may be briefly defined as typewriting over electrical circuits, teleprinters being similar in performance to typewriters, except that the keyboard and distant printer are electrically connected by means of a telegraph line.

This facility combines the speed of the telegraph and the flexibility and personal touch of the telephone with the accuracy and permanency of the printed word. It affords the great advantage of direct and instantaneous communication between points within the same building or separated by distances up to thousands of miles. Communications are automatically produced at both ends exactly as sent, and information may be dispatched with the utmost privacy even in exposed situations where other means are unsuitable. It affords two-way communications at speed up to 60 words a minute.

Printergram services connecting any business premises with the local telegraph office for the transmission and reception of telegrams are also available. This saves time and labour, while providing a permanent record of each transaction.

Two hundred and sixty-four private wire services utilizing more than 100,000 uni-directional channel miles of communication links were in use at the 30th June, 1946.

Two extensive interstate teletype networks were provided during the year ended June, 1946. One was provided for a civil aviation undertaking whose network comprised a service with connecting offices of the company in all States, and the second for a press association connecting the Melbourne office of the company with the offices of similar newspapers and the broadcasting undertakings in all States.

(xiv) *Telegraph Tariffs.* Important modifications of the telegraph tariff structure were introduced on 10th June, 1940. Under the amending Post and Telegraph Rates Act 1940 ordinary telegrams between offices not more than 15 miles apart are subject to a minimum charge of 9d. for 14 words and 1d. for each additional word, irrespective of whether the telegraph offices of origin and destination are in the same State. Ordinary telegrams between offices which are more than 15 miles apart are subject to a uniform charge of 1s. as for 14 words and 1d. for each additional word, irrespective of State boundaries. Double rates are applicable to urgent telegrams. Ordinary charges, instead of double rates as previously, are applied to ordinary telegrams lodged for transmission on Sundays, Christmas Day, Good Friday or after certain hours on other days. The prescribed press rates have also been extended to telegrams containing news intended for broadcasting.

2. **Telegraph Offices—Number.**—The following table shows the number of telegraph offices in each State during the years 1944-45 and 1945-46 :—

TELEGRAPH OFFICES : NUMBER.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Australia
1945 ..	3,079	2,424	1,715	858	912	535	9,523
1946 ..	3,054	2,404	1,676	853	901	538	9,426

3. **Telegraphs and Telephones—Length of Wire.**—The following table shows for the year ended June, 1946, the combined single wire mileage for both telegraph and telephone purposes in each State. The lengths of conduits and pole routes are also shown.

TELEGRAPHS AND TELEPHONES : MILEAGES, 1945-46.

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Aust.
Cables—							
Exchange aerial, underground and submarine .. single wire miles '000	1,190	904	325	249	167	62	2,897
Trunk telephone and telegraph—Aerial and underground single wire miles '000	36	49	5	8	8	2	108
Submarine .. " " miles '000	1	(a)	(a)	(a)	(a)	(a)	1
Total .. " "	1,227	953	330	257	175	64	3,006
Conduits .. duct miles '000	7	5	2	1	1	(a)	16
Aerial wires—							
Telephone, trunk and/or telegraph purposes .. single wire miles '000	131	86	107	67	45	15	451
Exchange and non-exchange service lines .. single wire miles '000	166	126	71	69	29	19	480
Total .. " "	297	212	178	136	74	34	931
Pole routes .. total miles '000	32	19	15	16	12	4	98

(a) Less than 500.

4. Number of Telegrams Dispatched.—(i) States. The following table shows the number of telegrams dispatched in each State during 1945-46 according to the class of message transmitted :—

TELEGRAMS DISPATCHED(a) : STATES, 1945-46.

Class of Message Transmitted within Australia.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Australia.
Paid and Collect—	'000.	'000.	'000.	'000.	'000.	'000.	'000.
Ordinary ..	10,444	7,479	5,418	2,347	2,822	692	29,202
Urgent ..	1,282	530	625	159	169	41	2,806
Press ..	178	102	66	20	39	38	443
Lettergram ..	33	26	23	13	29	7	131
Radiogram ..	25	3	24	20	23	4	99
Total ..	11,962	8,140	6,156	2,559	3,082	782	32,681
Unpaid—							
Service ..	249	125	121	45	61	27	628
Meteorological ..	645	320	639	499	417	142	2,662
Total ..	894	445	760	544	478	169	3,290
Grand Total ..	12,856	8,585	6,916	3,103	3,560	951	35,971

(a) Includes radiogram traffic with islands adjacent to Australia and to ships at sea.

A comparative table for the year 1944-45 may be found in the *Transport and Communication Bulletin* No. 36, p. 58.

(ii) *Australia*. The number of telegrams dispatched to destinations within Australia during each of the years 1938-39 and 1942-43 to 1945-46 was.—

TELEGRAMS DISPATCHED : AUSTRALIA.

Telegrams.	1938-39.	1942-43.	1943-44.	1944-45	1945-46.
Number (a) .. '000	17,252	29,570	33,357	35,474	35,971

(a) See Note (a) above.

The volume of telegraph business has increased by over 108 per cent. since the year 1938-39.

§ 4. Oversea Cable and Radio Communication.

1. **First Cable Communication with the Old World.**—In earlier issues of the Official Year Book will be found a detailed account of the connexion of Australia with the Old World by means of submarine cables. (See No. 6, p. 770.)

2. **General Cable Service.**—Descriptions of the various cable services between Australia and other countries are given in Official Year Book No. 22, pp. 335-6.

3. **Merging of Cable and Wireless Interests.**—Following upon the recommendations of the Imperial Wireless and Cable Conference in London in 1928 which examined the situation that had arisen as the result of the competition of the beam wireless with the cable services, the Imperial and International Communications Limited (since renamed Cable and Wireless Ltd.) was formed and took over the operations of the Pacific Cable Board and the control of the Eastern Extension Cable Company and the Marconi Wireless Company. For further developments, leading eventually to the establishment of the Overseas Telecommunications Commission, see Section 6. Radio Telegraphy and Telephony, paragraph (iv).

4. **Oversea Cable and Radio Traffic.**—(i) *States*. The number of telegrams received from and dispatched overseas in each State during 1945-46 is given hereunder :—

INTERNATIONAL TELEGRAMS : STATES, 1945-46.

Particulars.	N.S.W.	Victoria.	Q'land	S. Aust.	W. Aust.	Tasmania	Australia.
Number received ..	571,607	296,487	65,437	34,616	46,775	8,967	1,023,889
.. dispatched	564,234	284,646	77,284	37,990	70,121	11,327	1,045,602
Total ..	1,135,841	581,133	142,721	72,606	116,896	20,294	2,069,491

(ii) *Australia*. The following table shows the number of international telegrams received from and dispatched overseas in Australia during the years 1938-39 and 1942-43 to 1945-46 :—

INTERNATIONAL TELEGRAMS : AUSTRALIA.

Particulars.	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
Number received ..	716,007	1,281,792	1,098,606	979,237	1,023,889
.. dispatched ..	745,754	1,682,940	1,363,588	1,116,050	1,045,602
Total ..	1,461,761	2,964,732	2,462,194	2,095,287	2,069,491

5. **Cable and Beam Wireless Rates.**—(i) *Ordinary Messages.* As from 25th April, 1938, the Cable and Beam Wireless rates per word for telegrams exchanged between Australia and British Empire Countries were reduced to the following levels:—Urgent, 2s. 6d.; Ordinary, 1s. 3d.; C.D.E. (5 letter code), 10d. (minimum 5 words); Deferred, 7½d.; (minimum 5 words); Daily Letter Telegram, 5d. (minimum charge 10s. 5d. as for 25 words). Where, however, the charges between Australia and certain Empire countries (e.g., New Zealand, Fiji and some Pacific Islands) were below these levels, the rates were unaltered. No change was effected in the rates for traffic exchanged between Australia and foreign countries.

The following are the ordinary rates at present operating in regard to traffic with the principal countries, other than members of the British Empire:—

INTERNATIONAL TELEGRAM RATES.

To—	Rate per Word and Route.	
	Via Cable.	Via Beam.
European Countries	2s. 6d. to 2s. 7d.	1s. 11½d. to 2s. 5½d.
Asiatic Countries	2s. 5d. to 4s. 7d.	.. .. .
Africa	2s. 6d. to 5s. 6d.	2s. 2½d. to 2s. 11d.
United States of America	2s. 1½d. to 2s. 5d.	2s. 1½d. to 2s. 5d.
Central America	3s. 2½d. to 4s. 4½d.	2s. 11½d. to 4s. 4½d.
West Indies	3s. 0d. to 5s. 1d.	2s. 8½d. to 4s. 11d.
South America	3s. 9d. to 5s. 9d.	3s. 8d. to 5s. 2½d.

(ii) *Deferred Telegrams (via Cable or Beam).* Under this system a reduction of 50 per cent. in the ordinary charge for international telegrams is made under certain conditions. Deferred telegrams are transmitted after ordinary rate telegrams and ordinary press telegrams have been disposed of.

(iii) *Daily Letter Telegrams.* The daily letter telegram service was inaugurated in September, 1923, between Australia and Great Britain and Canada, later being extended to most countries in the British Empire and in Europe, to the United States of America and to certain other places. The charges are based on one-third of the tariff per word for ordinary messages, subject to a minimum charge as for 25 words. These messages are delivered on the morning of the second day following that of lodgment.

(iv) *Night Letter Telegrams.* A night letter telegram service was introduced between Australia and New Zealand on 1st May, 1924, and was extended to Fiji on 1st December, 1924. The minimum charge for messages is fixed as for 25 words, the rates being— to New Zealand, 3s. 9d. minimum, 2d. for each additional word beyond 25; Suva, 5s. 10d. minimum, 3d. for each additional word; other places in Fiji, 7s. 4d. minimum and 4d. for each additional word. Night letter telegrams are delivered on the morning following the day of lodgment.

(v) *Oversea Press Telegrams.* The rate on ordinary press telegrams exchanged with Great Britain prior to 15th April, 1939, was 4d. per word and on deferred press 3d. per word. As from this date a uniform tariff of 2½d. a word is applied uniformly to all Empire countries except Sudan. In all cases where the reduced rate applies the deferred press service has been abolished.

(vi) *Social Greetings Telegram Service.* As from 1st May, 1939, a social greeting service was introduced between Australia and Empire points. The minimum charge for messages is 5s. for thirteen words, the indicator GLT being counted and charged

for as one word. A charge of 5d. is made for each additional word. The text of such telegrams is restricted to messages of a social and greeting character. This service replaces the special Christmas, Easter and Jewish New Year greeting telegram service previously available to Empire points. These facilities are also available, on payment of the prescribed rates, to foreign countries which admit the service.

(vii) *De-Luxe Telegram Service.* A de-luxe telegram service was established between Australia and certain of the more important oversea countries in 1937. On payment of an additional fee of sixpence per telegram, the message will be delivered to the addressee on an ornamental form enclosed in a decorative envelope. This service, which was suspended during the late war, has not yet been restored.

(viii) *Radio-telegrams.* The prohibition of radio-telegrams to and from merchant ships, which was introduced on the outbreak of the late war on security grounds, was withdrawn as from 1st January, 1946.

§ 5. Telephones.

1. Telephone Services.—(i) *Mileage in Australia.* Particulars of the total mileage of lines used exclusively for telephone purposes are not now available, but are combined with all other line mileage. A table showing the total single wire mileage used for telephone trunk and/or telegraph purposes is shown in § 3 on page 210.

(ii) *Comparison with Other Countries.* During 1945-46 the total number of telephones added to the post office system was 28,055 compared with 28,133 in 1944-45. With an average of 125 telephones per 1,000 of population, Australia continues to hold a high place amongst the countries of the world in respect of telephone density. In February, 1942, restrictions were introduced on the provision of telephone facilities, unless required by the fighting services, organizations concerned actively with public defence, security or welfare, or persons engaged in the production and distribution of vital foodstuffs.

(iii) *Trunk Line System.* Twenty-five carrier wave telephone systems were installed during 1945-46 on trunk line routes serving capital cities and important provincial centres. The number of carrier systems now in service totals 266 representing a channel mileage of 171,087.

Special attention has been given to the provision of additional trunk line facilities between the capital cities, and 25 extra channels were provided between Sydney and Melbourne, 12 between Sydney and Brisbane, 13 between Melbourne and Adelaide, and 2 between Adelaide and Perth.

New 3-channel systems were installed between the following centres, Sydney-Kempsey, Parkes-Dubbo, Melbourne-Wangaratta, Melbourne-Horsham, Brisbane-Daby, Brisbane-Bundaberg, Adelaide-Naracoorte, Adelaide-Yorketown, Adelaide-Berri, Adelaide-Whyalla, Adelaide-Mt. Gambier and Hobart-Launceston.

Satisfactory progress is being made with the installation of additional carrier units between the mainland and Tasmania, Melbourne, and Canberra and Sydney and Canberra.

(iv) *Automatic Exchanges.* The plan to convert the manual exchanges in the metropolitan networks to automatic working could not be implemented to any great extent during the year ended June, 1946, owing to interruption to deliveries of automatic exchange equipment which had been on order for long periods, the difficulties associated with the erection of new buildings to accommodate the apparatus, and the shortage of skilled man power. Consequently five only of this type of exchange were installed during the year ended June, 1946.

At the 30th June, 1946, there were 129 automatic exchanges in the metropolitan area and 160 in the country districts to which 503,518 telephones were connected representing 59 per cent. of the total number in use in Australia.

(v) *Rural Automatic Exchanges.* The establishment of automatic switching units which have been designed to meet the special needs of rural communities was also retarded by the effects mentioned above with the result that one new exchange only was provided during 1945-46.

There were 152 of these units in service at the end of June, 1946, and work is proceeding to enable many more additional exchanges to be established in the near future. Post-war plans provide for an additional 400 units to be installed in country areas.

(vi) *Summary for States.* Particulars relating to the telephone service in each State for the years ended 30th June, 1945 and 1946, compared with 1939 will be found in the following table:—

TELEPHONE SERVICES : SUMMARY.

Particulars.	Year (30th June).	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Aust.
		No.	No.	No.	No.	No.	No.	No.
Exchanges ..	1939	2,010	1,680	1,053	579	653	358	6,333
	1945	2,027	1,674	1,090	592	643	354	6,380
	1946	2,034	1,668	1,092	601	639	357	6,391
Telephone Offices (in- cluding Exchanges)	1939	3,040	2,358	1,517	829	907	509	9,160
	1945	3,106	2,398	1,565	860	909	507	9,343
	1946	3,053	2,393	1,520	889	901	501	9,257
Lines connected ..	1939	189,915	150,570	61,650	45,224	26,032	14,144	487,535
	1945	225,832	181,685	72,622	51,266	29,446	16,926	577,777
	1946	236,943	190,507	77,821	53,126	31,438	17,640	607,475
Instruments con- nected	1939	257,246	208,230	82,226	60,451	35,830	18,013	661,996
	1945	320,198	264,013	106,872	71,710	42,934	22,135	827,862
	1946	332,463	272,147	109,482	73,529	45,120	23,176	855,917
(i) Subscribers' in- struments	1939	250,511	203,668	79,293	58,512	34,380	17,098	643,462
	1945	311,851	258,058	103,012	69,481	41,147	21,153	804,702
	1946	323,965	266,021	105,656	71,257	43,322	22,163	832,384
(ii) Public tele- phones	1939	4,223	2,573	1,775	1,017	926	562	11,076
	1945	5,032	3,069	2,145	1,106	925	552	12,829
	1946	5,043	3,066	2,050	1,119	905	560	12,743
(iii) Other local in- struments	1939	2,512	1,989	1,158	922	524	353	7,458
	1945	3,315	2,886	1,715	1,123	862	430	10,331
	1946	3,455	3,060	1,776	1,153	893	453	10,790
Instruments per 100 of population	1939	9.32	11.09	8.08	10.03	7.62	7.59	9.50
	1945	10.91	13.15	9.92	11.24	8.80	8.90	11.20
	1946	11.23	13.44	10.05	11.39	9.16	9.20	11.46
Earnings	1939	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.	£'000.
	1945	3,371	2,409	1,136	709	450	209	8,284
	1946	4,999	3,685	1,869	1,050	691	320	12,614
Working expenses ..	1939	5,238	3,791	1,901	1,085	680	338	13,033
	1945	2,119	1,488	691	543	365	204	5,410
	1946	2,969	2,187	1,184	704	494	258	7,796
Percentage of working expenses on earn- ings	1939	%	%	%	%	%	%	%
	1945	62.87	61.75	60.80	76.58	81.13	97.94	65.31
	1946	59.38	59.36	63.37	67.12	71.47	80.42	61.81
	1946	62.89	64.47	67.00	71.97	78.39	90.84	66.24

Of the total telephones (855,917) in service on 30th June, 1946, 314,382 or 36.7 per cent. were connected to exchanges situated beyond the limits of the metropolitan telephone networks. The number of telephone offices, including exchanges, decreased by 88 during the year 1945-46, bringing the total in Australia to 9,257.

(vii) *Subscribers' Lines and Calling-rates.* The next table gives the number of subscribers' lines and daily calling-rate at central, suburban and country telephone exchanges in the several States for 1945-46 :—

TELEPHONES : SUBSCRIBERS' LINES AND DAILY CALLING-RATE, 1945-46.

State.	Central Exchanges.		Suburban Exchanges.		Country Exchanges.	
	Subscribers' Lines.	Average Outward Calls Daily per line.	Subscribers' Lines.	Average Outward Calls Daily per line.	Subscribers' Lines.	Average Outward Calls Daily per line.
	No.	No.	No.	No.	No.	No.
New South Wales ..	23,981	11.90	129,467	4.66	83,495	2.65
Victoria ..	13,959	9.73	109,191	3.94	60,267	1.90
Queensland ..	9,101	10.95	25,129	4.17	37,322	2.94
South Australia ..	6,635	9.64	24,360	2.90	20,307	1.76
Western Australia ..	7,179	8.45	11,783	4.51	10,802	2.20
Tasmania ..	3,971	5.57	2,510	2.89	10,533	2.50

Similar information for the year 1944-45 may be found in the *Transport and Communication Bulletin* No. 36, p. 62.

A comparison of the average daily calling-rates for each class of exchange shows that New South Wales registered the greatest number of calls per line at central and suburban exchanges and Queensland at country exchanges.

(viii) *Effective Paid Local Calls.* The numbers of effective paid local calls from subscribers and public telephones in the various States during the years ended 30th June, 1945 and 1946, appear hereunder :—

TELEPHONES : NUMBER OF EFFECTIVE PAID LOCAL CALLS.

State.	Subscribers' Calls.		Calls from Public Telephones.		Total Calls.	
	1944-45.	1945-46.	1944-45.	1945-46.	1944-45.	1945-46.
	'000.	'000.	'000.	'000.	'000.	'000.
New South Wales ..	253,605	277,060	38,111	41,447	291,716	318,507
Victoria ..	187,851	198,063	19,931	21,067	207,782	219,130
Queensland ..	79,154	80,161	11,646	11,187	90,800	91,348
South Australia ..	47,100	49,524	6,341	7,065	53,441	56,589
Western Australia ..	36,022	36,510	3,577	3,534	39,599	40,044
Tasmania ..	13,356	14,440	1,657	1,777	15,013	16,217
Australia ..	617,088	655,758	81,263	86,077	698,351	741,835

(ix) *Trunk Line Calls and Revenue.* In the next table the number of telephone trunk line calls recorded, the amount of revenue received, and the average revenue per call are shown for each of the States for the years 1944-45 and 1945-46 compared with 1938-39.

TELEPHONES : TRUNK LINE CALLS AND REVENUE.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Australia
Total Calls—	'000.	'000.	'000.	'000.	'000.	'000.	'000.
1938-39 ..	14,401	11,198	7,306	4,166	2,311	1,770	41,152
1944-45 ..	18,927	15,909	9,532	5,206	2,682	2,573	54,829
1945-46 ..	19,428	16,208	9,841	5,457	2,834	2,745	56,513
Total Revenue—	£	£	£	£	£	£	£
1938-39 ..	739,472	529,190	412,811	196,780	126,141	73,634	2,078,028
1944-45 ..	1,251,058	953,537	645,232	360,759	196,180	126,107	3,532,873
1945-46 ..	1,312,415	956,554	706,315	364,841	206,120	133,444	3,679,689
Average Revenue per call—	d.	d.	d.	d.	d.	d.	d.
1938-39 ..	12.32	11.34	13.56	11.34	13.09	9.98	12.12
1944-45 ..	15.86	14.40	16.25	16.25	17.55	11.76	15.46
1945-46 ..	16.21	14.16	17.23	16.05	17.45	11.66	15.63

The number of trunk line calls during 1945-46 increased by more than 1½ millions, or 3.1 per cent., compared with the figures for the previous year, whilst the average revenue per call increased slightly.

2. Revenue from Telephones.—Particulars regarding the revenue from telephone services are included in tables in § 1.

§ 6. Radio Telegraphy and Telephony.

1. General.—A statement in regard to the initial steps taken to establish radio telegraphy in Australia appears in Official Year Book No. 18, p. 343.

2. Wireless Licences.—(i) General. Particulars of the various types of licences appear in Official Year Book No. 34, p. 143.

The following table shows the number of each class of licence in force in each State and Territory as at 30th June, 1946:—

NUMBER OF WIRELESS LICENCES : 30th JUNE, 1946.

Station Licence.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Coast	1	1	6	1	5	3	1	..	18
Ship	74	78	13	15	2	..	..	..	182
Aircraft	7	27	12	5	6	..	..	..	57
Land	40	5	103	54	92	9	67	2	372
Broadcasting—									
National (a) ..	7	(b) 8	(b) 7	3	(b) 6	3	..	1	35
Commercial ..	35	19	19	8	10	8	..	1	100
Broadcast Listeners—									
One receiver ..	547,451	396,700	186,396	152,244	101,964	49,200	222	2,617	1,436,794
More than one receiver ..	25,656	19,085	4,790	12,253	4,565	2,792	5	140	69,286
Total	573,107	415,785	191,186	164,497	106,529	51,992	227	2,757	1,506,080
Experimental ..	..	..	..	..	..	..	..	..	..
Portable	12	2	6	6	4	..	7	16	53
Special	179	308	78	14	44	10	1	1	635
Total Issued ..	573,462	416,233	191,430	164,603	106,698	52,025	303	2,778	1,507,532

(a) Operated by Australian Broadcasting Commission.

(b) Includes Short Wave Stations—

Victoria, 3; Queensland, 1; Western Australia, 1.

(ii) *Broadcast Listeners' Licences.* The striking development of the use of the radio in Australia is illustrated by the following table, which gives the number of broadcast listeners' licences in force at 30th June, 1925, 1930, 1935, 1939, 1940 and 1943 to 1947 :—

NUMBER OF BROADCAST LISTENERS' LICENCES.

In force at 30th June—	N.S.W. (a)	Victoria.	Q'land. (b)	S. Aust. (c)	W. Aust.	Tasmania.	Australia.
1925 ..	33,719	19,243	1,061	3,118	3,417	501	61,059
1930 ..	111,080	139,887	23,263	25,671	5,715	6,032	311,648
1935 ..	278,648	236,886	67,369	76,365	41,176	20,088	720,532
1939 ..	433,029	327,579	133,217	117,307	79,262	39,392	1,129,786
1940 ..	458,155	348,158	151,110	124,891	87,764	42,182	1,212,260
1943(d) ..	552,044	390,950	177,846	151,258	97,785	49,910	1,419,793
1944 ..	560,032	409,325	180,090	155,253	99,246	50,356	1,454,302
1945 ..	570,312	412,317	184,341	160,210	102,065	50,557	1,479,802
1946 ..	575,864	415,785	191,286	164,724	106,529	51,992	1,506,180
1947 ..	679,505	499,944	228,066	180,909	121,149	61,674	1,771,247

(a) Includes Australian Capital Territory. (b) Includes Papua. (c) Includes Northern Territory. (d) Commencing in July, 1942, licences for receivers in excess of one are included.

3. *Broadcasting.*—(i) *The National Broadcasting Service.* The technical services for the National Broadcasting System are provided by the Postmaster-General's Department, and the programmes by the Australian Broadcasting Commission, a body consisting of five members, constituted under the provisions of the Australian Broadcasting Act.

At the 30th June, 1947, the National Broadcasting System of Australia comprised 37 transmitting stations as follows :—

Medium-wave Stations—

- 2FC and 2BL Sydney.
- 2NC Newcastle.
- 2NA Newcastle.
- 2CO Corowa.
- 2NR Lawrence.
- 2CR Cumnock.
- 2CY Canberra.
- 3LO and 3AR Melbourne.
- 3GI Sale.
- 3WV Dooen.
- 4QG and 4QR Brisbane.
- 4AT Atherton.
- 4QL Longreach

- 4QN Townsville.
- 4RK Rockhampton.
- 4QS Dalby.
- 5CL and 5AN Adelaide.
- 5CK Crystal Brook.
- 5DR Darwin.
- 6WF and 6VN Perth.
- 6WA Minding.
- 6GF Kalgoorlie.
- 6GN Geraldton.
- 7ZL and 7ZR Hobart.
- 7NT Kelso.
- 9PA Port Moresby.

Short-wave Stations—

- VLG, VLH and VLR Lyndhurst, Victoria.
- VLQ Brisbane, Queensland.
- VLW Perth, Western Australia.

With the exception of the short-wave stations, all transmitters operate in the medium frequency broadcast band 550 to 1,500 kilocycles per second. From the short-wave stations, using frequencies within the band 6 to 20 megacycles per second, service is given to listeners in sparsely populated parts of Australia such as the north-west of Western Australia, Northern Territory, and Northern and Central Queensland.

In addition to the short-wave stations under the National Broadcasting System the Department of Information operates three short-wave stations at Shepparton, Victoria (VLA, VLB, VLC) for oversea services only.

Programmes for country regional stations are normally relayed from the central studio of the nearest capital city, high quality programme transmission lines being used for the purpose. A number of programme channels is utilized to link national broadcasting stations in the capital cities of Australia, and frequently this system is extended to connect both the national and commercial broadcasting stations.

(ii) *Broadcast Listeners' Licences.*—(1) The general position regarding the fees payable for broadcast listeners' licences is as follows:—

	Zone 1.	Zone 2.
(a) For a single receiver possessed by a person ..	£1	14s.
(b) For receivers in excess of one possessed by a person	10s.	7s.

(2) Free licences are granted to blind persons and to schools with an enrolment of less than 50 pupils. Invalid and age pensioners who live alone or with another such pensioner are required to pay only half the ordinary fees, i.e. :—

	Zone 1.	Zone 2.
(a) For a single receiver	10s.	7s.
(b) For receivers in excess of one	5s.	3s. 6d.

Zone 1 is the area within 250 miles of a National Broadcasting Station. Zone 2 is the remainder of the Commonwealth.

The Australian Broadcasting Commission receives the amounts shown below out of the fee for each broadcast listener's licence:—

Fee.	Amount paid to Commission.
s. d.	s. d.
20 0	11 0
14 0	11 0
10 0	5 6
7 0	5 6
5 0	3 0
3 6	3 0

(iii) *Commercial Broadcasting Stations.* The services of other broadcasting stations are conducted by private enterprise under licence from the Postmaster-General. Licences are granted on conditions which ensure satisfactory alternative programmes for listeners. The fee for a broadcasting station licence is £25 per annum, plus one-half of one per centum of the gross earnings from the operations of a station which has made a profit in the year preceding. The maximum initial period of a licence is three years, and it is renewed for a period of one year at the discretion of the Postmaster-General. Licensees of these stations do not share in the listeners' licence fees, but rely for their income on revenue received from the broadcasting of advertisements and other publicity. The number of these stations in operation at 30th June, 1947, was 100 and there are other stations in prospect.

(iv) *Radio Inductive Interference.* The Postmaster-General's Department takes active measures to suppress, so far as possible, interference with broadcast reception resulting from the radiations of energy from electrical machinery and appliances. During the year 1945-46 the Department investigated 4,074 complaints of interfering noises, which, in all but a few instances, were eliminated with the co-operation of the owners of the offending equipment.

(v) *Prosecutions under the Wireless Telegraphy Act.* During the year 1945-46 1,845 persons were convicted for using unlicensed broadcast receiving equipment. The total fines and costs amounted to £4,994.

4. *Overseas Communication by Wireless.*—(i) *Beam Radio Telegraph.* The beam wireless stations provided for under the agreement between the Commonwealth Government and Amalgamated Wireless (A/asia.) Ltd. were completed early in 1927 and a direct beam radio telegraph service to England was established on 8th April, 1927. A similar service to North America was opened on 16th June, 1928, and other radio telegraph services have since been established for communication with Barbados, Ceylon, China, India and United States of America. Satisfactory communication is maintained daily over a period of hours, and the services are well patronized by the public. On the 1st October, 1946, as a result of the Overseas Telecommunication Act all external radio services operated by Amalgamated Wireless (A/asia.) Ltd. were transferred to the Overseas Telecommunication Commission (Australia). A brief outline of the operations of the Overseas Telecommunication Commission will be found in para. (iv) of this section. A comparison of the rates charged for "Beam" and Cable messages is given in Section 4. Overseas Cable and Radio Communication. Particulars of international traffic via "Beam" are given in paragraph (iii) (a) following.

(ii) *Radio Telegraph Communication in the Pacific.*—Radio telegraph services are in existence between Sydney and Manila (Philippine Islands), Noumea (New Caledonia), Port Moresby (Papua), Suva (Fiji) and China. Prior to the war with Japan, nine wireless telegraphy stations were established in New Guinea and Papua for communication with ships, while several internal point to point services were provided for use by administrative officials, gold exploration parties, missionaries and others. These services were suspended on the outbreak of hostilities in the Pacific and have not yet been restored.

(iii) *Radiotelegraphic Traffic.* (a) *International.* The following statement shows particulars of international traffic "via Beam" to and from United Kingdom and other places during the years ended 30th June, 1945 and 1946 :—

RADIO TRAFFIC : INTERNATIONAL, 1944-45 AND 1945-46.

Class of Traffic.	Number of Words Transmitted to—			Number of Words Received from—		
	United Kingdom.	Other Places.	Total.	United Kingdom.	Other Places.	Total.
Ordinary (a) ..	527,728	419,398	947,126	804,069	657,020	1,461,089
Deferred ordinary ..	1,395,143	1,071,469	2,466,612	1,803,770	1,067,685	2,871,455
Government (a) ..	60,677	155,746	216,423	108,003	487,481	595,484
Press (including deferred press) ..	1,844,519	788,093	2,632,612	10,642,743	8,690,652	19,333,395
Daily letter and greeting telegrams ..	2,117,116	2,149,029	4,266,145	3,780,893	3,664,639	7,445,532
E.F.M.(b) ..	91,732	26,730	118,462	19,429	65,170	84,599
Total 1945-46 ..	6,036,915	4,610,465	10,647,380	17,158,907	14,632,647	31,791,554
1944-45 ..	5,124,628	4,887,294	10,011,922	17,853,691	12,511,640	30,365,331

(a) Includes code telegrams. (b) Special telegrams, usually in standard phrases, for transmission to and from members of the Defence Services abroad.

(b) *Coast Stations.* Particulars of the traffic handled by the several coast stations during 1945-46 are as follows:—

RADIO TRAFFIC : COAST STATIONS, 1945-46.

State or Territory.	Particulars.				
	Total Paying Words.	Messages.			
		Paying.	Service.	Weather.	Total.
No.	No.	No.	No.	No.	
New South Wales ..	2,681,281	79,592	11,900	1,538	93,030
Victoria ..	60,389	4,131	1,172	465	5,768
Queensland ..	200,519	11,498	5,143	9,928	26,569
South Australia ..	42,503	2,564	1,587	867	5,018
Western Australia ..	242,288	12,170	7,859	4,566	24,595
Tasmania ..	101,431	5,766	860	484	7,110
Northern Territory ..	90,481	4,418	1,855	18,654	24,927
Australia ..	3,418,892	120,139	30,376	36,502	187,017
Papua and New Guinea ..	2,385,719	53,283	4,029	..	57,312
Grand Total ..	5,804,611	173,422	34,405	36,502	244,329

During 1944-45 the traffic at Australian coastal stations amounted to 84,839 messages with 4,312,956 paying words.

(c) *Island Stations.* Particulars of the island radio traffic dealt with during 1941-42 are given in the following table. Later particulars are not available owing to the suspension of this service.

RADIO TRAFFIC : ISLAND STATIONS, 1941-42.

Particulars.	To Australia.	From Australia.	Inter-Island.	Ship.	Total.
	No.	No.	No.	No.	No.
Messages ..	5,913	5,841	13,376	3	25,133
Words ..	167,815	226,089	210,425	57	604,386

(iv) *Overseas Telecommunications Commission.* (a) *Constitution and Purpose.* In the sphere of telecommunications the year 1946 was marked in Australia by important developments. The chief of these, and the one from which the others followed, was the passing by the Commonwealth Parliament of the Overseas Telecommunications Act 1946, assented to on 7th August, 1946. When full effect has been given to the programme authorized by the Act the wireless and cable services linking Australia with the rest of the world will have passed into public ownership. The change will bring to a close the long connexion of private enterprise with these services, and will open the way to their operation as a single integrated system. It will also bring them into a closer relationship with the internal telecommunications services, which have been owned and operated by the Commonwealth since federation.

The body set up under the Act to bring these changes into effect is the Overseas Telecommunications Commission (Australia). The Commission is a body corporate with perpetual succession and a common seal, and consists of five members appointed by the Governor-General. The Act also makes provision for the appointment of a general manager, who is the Commission's chief executive officer, and empowers the Commission to appoint such other officers as may be necessary. The Commission was formally constituted shortly after the passing of the Act, and has established its head

office in Sydney. It operates under the ministerial direction of the Postmaster-General. The members of the Commission are Mr. J. Malone, M.C., F.I.R.E., formerly Deputy Director, Posts and Telegraphs, Sydney (Chairman), Mr. L. B. Fanning, I.S.O., Director-General, Postmaster-General's Department (Vice-Chairman), Mr. S. G. McFarlane, C.M.G., M.B.E., Secretary to the Commonwealth Treasury, Mr. G. T. Chippindall, Assistant Director-General, Postmaster-General's Department, and Mr. G. Gowans. The General Manager and Chief Executive Officer is Major General J. E. S. Stevens, C.B., D.S.O., E.D.

The action which is being taken in Australia is part of a general plan for the transfer to public ownership of the entire telecommunications network of the British Commonwealth of Nations. Under this plan the United Kingdom Government and the Governments of Canada, India, New Zealand, South Africa and Southern Rhodesia are also to take over the private interests in the external telecommunication services operated from their territories, and will arrange, as in Australia, for the services to be operated under unified national control. The various controlling authorities will each have complete autonomy within their separate spheres, but a central co-ordinating body, the Commonwealth Telecommunications Board, is to be set up with a view to securing close co-ordination in all matters of common concern. The plan as a whole represents an attempt to secure the advantages of co-ordination, together with public ownership, on the largest scale, while at the same time making full provision for the preservation of regional identity and freedom of action. The different Governments concerned have all agreed to introduce legislation as soon as possible to authorize the implementation of the plan.

(b) *Origin and Development.* From a historical standpoint the action now being taken is the result of a long process. In regard to the intergovernmental arrangements, this may be said to date from 1927, when the present Beam Wireless Service between the United Kingdom and Australia was inaugurated. This service, owing to the relatively low capital costs involved in its establishment, was able to offer rates lower than those charged by the cable companies, and it soon became clear that if unrestricted competition were to prevail the financial position of the cable companies would be seriously affected. On the other hand there was a strong case for the retention of the cables, in that they afforded the only completely secret means of communication in time of war, and were not subject to the daily fading and occasional prolonged interruptions which have to be contended with in long distance wireless transmission. Some plan combining the advantages of both systems had therefore to be found.

The first step in this direction was taken in 1928, when a merger of all the cable and wireless interests in Great Britain was effected under the sponsorship of the United Kingdom Government. The merger company, which subsequently became known as Cable and Wireless Limited, was made responsible for the operation of the cable and wireless services generally, and subject to certain conditions relating to charges to users, etc., was given exclusive rights in this connexion. These arrangements, however, did not quite fulfil the hopes of those who devised the plan, nor did the later modifications of the original plan which were made at intervals during the ensuing seventeen years. The whole position finally came up for review at a conference held in London in July and August of 1945. This conference, which was attended by representatives of all the Empire Governments, at length adopted the proposals which are now being carried into effect. It is noteworthy that the plan finally adopted was based very largely upon proposals put forward by the Australian and New Zealand representatives.

Within Australia, proposals for the nationalization of the external telecommunication services have also a long history. The internal telecommunication services, as has been mentioned above, have been owned and operated by the Commonwealth since federation, and the external wireless services, established in 1912 for the handling of traffic with ships at sea, were operated on the same basis until 1922, when they were transferred by the Government to the company now known as Amalgamated Wireless (Australasia) Limited. The earliest formal proposal for their re-acquisition by the Commonwealth was put forward in 1929, when the Government refused to ratify a plan for the merger of the cable and wireless services in Australia on a private basis, intimating that it

favoured the operation of these services by a public instrumentality. Plans for action to give effect to this view were considered by several subsequent Governments, but no finality was reached until 1941. The plans now being put into effect were developed under decisions given then.

The cable services linking Australia with the rest of the world were opened originally by private operators, and, as regards the Cape and Gibraltar cables, have been uninterruptedly in private ownership throughout their history. The Pacific Cable System, however, which was opened in 1902, was sponsored and financed as an inter-governmental project, and was publicly owned until 1929, when it was transferred to Cable and Wireless Limited. The amalgamation of the cable and wireless services has been a basic feature of all the telecommunications plans which have been given governmental consideration in Australia since 1929.

(c) *Transfer of Services.* At the time of the passing of the Overseas Telecommunications Act the external radio services handling public correspondence to and from Australia were all operated by Amalgamated Wireless (Australasia) Limited. The transfer of these services to the Commission was effected on 1st October, 1946. The total consideration paid to the Company in connexion with the transfer was £1,400,000, plus an allowance of £25,000 to the company to cover the costs of re-locating a number of broadcasting installations erected on sites taken over by the Commission. The agreement entered into with the company provides that the transferred telecommunications services will be managed by the company on the Commission's behalf for an initial period, pending completion by the Commission of its arrangements for staffing and organization.

The services which the Commission took over on 1st October, 1946, comprise—

- (a) The Beam Wireless Service which operates to London, Canada, China, Manila, Java, United States of America and Bombay.
- (b) The Overseas Radio Telephone Services which operate at the moment to London, New Zealand, America, Rabaul, Port Moresby and Nauru—a much curtailed service compared with pre-war years, when it extended to India and, through London, to almost every country in Europe. In the case of these radio telephone services, the Commission will be responsible for technical operation. Calls will continue to be booked with, and connected by, the Postmaster-General's Department.
- (c) The Coastal Radio Service which operates between the radio stations scattered round the Australian coastline and in adjacent islands and ships at sea, and also provides a service between Australia and adjacent islands.
- (d) The Picturegram Service for the transmission of images between Australia and Great Britain, Canada, and the United States of America.
- (e) Radio telegraph and telephone services to the Territories of the Commonwealth.
- (f) Radio telegraph services between land stations and aircraft operating outside Australia.

The following are the locations at which stations were operating at the date of the transfer of the radio services to the Commission :—

Beam Stations—

New South Wales	..	..	Pennant Hills (Transmitting).
			La Perouse (Receiving).
Victoria	..	..	Ballan (Transmitting).
			Rockbank (Receiving).

Coastal Radio Stations—

New South Wales	..	..	Pennant Hills (Transmitting).
New South Wales	..	..	La Perouse (Receiving).
Victoria	..	..	Braybrook (Transmitting).
			Rockbank (Receiving).

Coastal Radio Stations—continued.

Queensland	Brisbane. Townsville. Rockhampton. Cooktown. Thursday Island. Willis Island.
South Australia	Adelaide.
Western Australia	Perth. Esperance. Geraldton. Broome. Wyndham.
Tasmania	Hobart. King Island. Flinders Island.
Northern Territory	Darwin.
New Guinea-Papua	Port Moresby. Lae.

Prior to the 1939-45 War stations were also operated in New Guinea-Papua at Madang, Manus, Samarai, Kavieng, Kieta and Rabaul. Action for the re-establishment of the services in Papua-New Guinea generally is being taken at the present time, though the new arrangements will probably differ in some respects from those of the pre-war period.

(d) *Cable Services.* The cable services in Australia are operated by Cable and Wireless Limited, the English company established in 1929 to take over the Empire cable network and the cable and wireless services in Great Britain. Negotiations for the taking over of the Australian portion of this great undertaking are in progress at the present time. The plans under discussion provide for the transfer of the services to the Commission at the earliest practicable date during 1947, leaving questions of compensation, etc., for determination at a later stage. Pending the transfer the services will continue to be operated by the company.

The transfer of the cable services to the Commission will place under the Commission's control the cable stations at Melbourne, Sydney, Adelaide, Perth, Southport (Queensland) and Norfolk Island.

In addition the Commission will probably assume responsibility on a slightly different basis for the stations at Suva and on Fanning Island. The cables themselves will pass into the hands of the national authority which is to be set up in England to replace Cable and Wireless Limited, and cable maintenance, etc., will be the responsibility of that body.

(e) *Traffic.* Over the beam wireless services some 40 million paid words per year are transmitted. Over the radio telephone services about 150,000 paid minutes of business are completed annually. The coastal radio service carries nearly 5 million paid words annually and, in addition, transmits nearly a million words, comprising weather messages, navigation warnings, etc., free of charge. These stations not only provide a communication service but they also provide definite aids to navigation in Australian coastal waters. Cable services carry about 40 million paid words annually.

(f) *Development and Research.* Other interesting aspects of the arrangements now being made by the various Partner Governments which have subscribed to the overall scheme are the provision for co-ordination and mutual consultation and the provision for development and research. On the first of these points steps are being taken to establish a Commonwealth Telecommunications Board, which will sit in London and on which all the Partner Governments will have equal and direct representation. The

constitution and functions of the Board are defined in the Second Schedule to the Act under which the Commission itself is established. Research and development will be partly the responsibility of the various national authorities, including the Commission, and partly that of the Commonwealth Telecommunications Board, which will receive grants of money from the national authorities to enable it to further this important part of its work. The Commission in Australia is keenly alive to the necessity of keeping its equipment and methods fully abreast of current technical developments, and has in contemplation an extensive programme for overtaking the maintenance and development arrears which accumulated during the war. Provision is also being made for local research work on the specific and background problems of wireless and cable operation.

(g) *International Conferences.* A further point is that under its Act the Commission assumes responsibility, in association with the Postmaster-General's Department, for fulfilment of the obligations resting upon the Australian Government under the International Telecommunications Convention of 1932 and the many other international agreements relating to telecommunications traffic. An important series of international conferences on telecommunications matters is to be held during 1947, including a Plenipotentiary Conference for the revision of the Convention of 1932, and it is contemplated that the Commission will have representatives in attendance at all discussions. In addition to the matters to be dealt with by the Plenipotentiary Conference questions for discussion will include the general subject of rates, on which important steps in the direction of simplification were made at a conference held at Bermuda in 1945, and the technical developments which have taken place during and since the war. The allocation of the radio frequency spectrum amongst the very numerous national and functional claims for frequencies will also be considered. Over 60 nations will probably be represented at the conferences.