SECTION XVII.

ROADS AND RAILWAYS.

§ 1. Roads and Bridges.

1. **Introduction.**—In Year Books No. 1 (pages 541 to 551) and No. 2 (pages 675 to 685), a brief historical account was given of the construction and development of roads in Australia. It is not proposed to repeat that account in the present issue of the Year Book.

In the publication "Local Government in Australia," issued by the Commonwealth Statistician in 1919, the subject of roads is also fully discussed.

2. **Expenditure on Roads and Bridges.**—Figures shewing the total expenditure on roads and bridges in the States are not available. The subjoined statement, however, gives the amounts of total loan expenditures by the State Governments up to the 30th June, 1918 :—

ROADS AND BRIDGES.—TOTAL GOVERNMENT LOAN EXPENDITURE TO THE 30th JUNE, 1918.

State.	N.S.W.*a*	Victoria.	Q'land.*b*	S. Aust.	W. Aust.	Tasmania.*c*	All States.
	£	£	£	£	£	£	£
Expenditure ..	1,821,457	1,581,938	931,775	1,721,342	369,401*d*	4,859,897	11,285,810*e*

(*a*) Including punts. (*b*) Including amounts from surplus revenue on which no interest is payable. (*c*) Including harbours, jetties, and lighthouses. (*d*) To 30th June, 1917. (*e*) Including W.A. to 30th June, 1917.

The following table shews the annual expenditure from loans on roads and bridges by the central Governments in each State during the year 1901–2, and from 1913 to 1918 :—

ROADS AND BRIDGES.—LOAN EXPENDITURE BY STATE GOVERNMENTS, 1901-2 AND 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1901–2 ..	150,777	47,104	..	185	740	77,536*a*	276,342
1912–13 ..	53,263	..	..	..	37,037	183,625*b*	273,925
1913–14 ..	23,553	..	..	17,838	..	191,428*b*	232,819
1914–15 ..	8,609	274,362	..	37,910	31,974	208,584	561,439
1915–16 ..	421	495,062	..	102,226	18,450	165,701*b*	781,860
1916–17 ..	5,428	252,836	..	54 939	5,878	148,698*b*	467,779
1917–18 ..	22,374	241,892	..	43,693	(*c*)	124,363	432,322*d*

(*a*) For the calendar year 1902. (*b*) See note (*c*) to previous table. (*c*) Not available. (*d*) Exclusive of W.A.

The two tables given above shew only a small proportion of the actual expenditure upon roads and bridges in the different States, for the reason that (*a*) there have been large expenditures from revenue, both by the central Governments and by local authorities, and (*b*) the State Governments have in many cases voted grants and subsidies on the amount of rates collected, and have issued loans to local authorities either for the express purpose of the construction of roads and bridges or for the general purpose of public works construction. Returns of expenditure, where available, are given below for each

State. Although no revenue is now derived directly from roads and bridges, they are indirectly of great value to the community, forming, next to railways and public lands, the most considerable item of national property.

3. **New South Wales.**—The control of all roads, bridges, and ferries in New South Wales is now regulated by the Local Government Act 1906, which came into force on the 1st January, 1907, and its subsequent amendments in 1908 and 1915. Under the provisions of this Act, the eastern and central divisions of the State are divided into shires and municipalities for the general purposes of local government, for the endowment of which a sum of not less than £150,000 is payable annually out of the consolidated revenue on the basis of a percentage subsidy on the proceeds of the general rates received by the local governing bodies concerned. The control of all roads, bridges, and ferries (except those proclaimed "National" and those in the unincorporated areas of the Western Division) has been transferred from the Roads Department to the respective shires and municipal councils, who are now responsible for their construction and maintenance. Up to December, 1915, 31 miles of roads, 275 bridges, 55 wharves, 99 jetties, and 16 ferries have been proclaimed as "National" works. Power is given to construct new roads, to widen or close existing roads, to make by-laws for the regulation of traffic, etc.; and in the case of the acquisition of land for the purpose of constructing new roads or of widening existing roads, the provisions of the Roads Act 1902 are incorporated. The Minister for Works is empowered to pay subsidies to the local authorities to maintain the roads. The roads leading to and within areas of lands which are made available for closer settlement will be constructed by the Government prior to transfer to the shires, as also will roads required mainly for tourists in districts not likely to produce revenue in rates to the local authorities.

(i) *Principal Main Roads.* The four principal main roads in New South Wales run in the same direction as, and are roughly contiguous to, the four State-owned main railway lines. (*a*) *The Southern Road,* 385 miles in length, runs from Sydney to Albury, and before the days of railway construction formed part of the highway over which the interstate traffic between Melbourne and Sydney used to flow. (*b*) *The South Coast Road,* 250 miles long, runs from Campbelltown along the top of the coast range and across the Illawarra district as far as Bega, from which place it extends as a minor road to the southern limits of the State. (*c*) *The Western Road,* 513 miles long, runs through Bathurst, Orange, and many other important towns as far as Bourke, on the Darling River. (*d*) *The Northern Road,* 405 miles in length, runs from Morpeth, near Maitland, as far as Maryland, on the Queensland border.

(ii) *Length and Classification of Roads and Bridges.* The length of roads in the State (exclusive of 31 miles proclaimed as "National" works) in 1915 was approximately 97,811 miles, of which 10,261 miles were controlled by municipalities, 81,075 by shires, and 6,475 miles were in the unincorporated areas of the Western Division. The following table gives particulars for the year 1915 (the latest year for which figures are available), of roads classified according to whether metalled, etc., formed only, cleared only, or natural surface :—

NEW SOUTH WALES.—APPROXIMATE LENGTH OF ROADS, 1915.

Classification.	Metalled, Ballasted, Gravelled, etc.	Formed only.	Cleared only.	Natural surface.	Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
Metropolitan	1,400	330	246	196	2,172
Country municipalities	2,676	1,638	1,897	1,878	8,089
Shires	14,342	10,404	24,731	31,598	81,075
Western Division (unincorporated) ..	100	196	2,752	3,427	6,475
Total	18,518	12,568	29,626	37,099	97,811

(iii) *Bridges, Culverts, and Ferries.* The more important bridges have been proclaimed under the provisions of the Local Government Act as "National" works (see above), and these, together with the bridges, etc., in the Western Division, remain under the control of, and are maintained by the Public Works Department. Particulars of bridges, culverts, and ferries in the State in 1915, the latest year for which figures are available, are given in the following table :—

NEW SOUTH WALES.—BRIDGES, CULVERTS, AND FERRIES, 1915.

Particulars.	Bridges.		Culverts.		Ferries.
	No.	Length.	No.	Length.	No.
		Feet.		Feet.	
"National" works	275	105,330	..	..	16
Metropolitan	130	6,133	844	78,117	3
Country municipalities	636	34,493	3,541	99,183	11
Shires	3,523	211,770	34,668	317,189	96
Western Division (unincorporated) ..	93	12,530	153	1,709	..
Total	4,657	370,256	39,206	496,198	126

(iv) *Expenditure on Roads and Bridges.* Since the year 1857 the total expenditure by the Roads Department and Road Trusts on roads and bridges is £25,361,123. In this expenditure is included the cost of administering the Department, services for other Departments, and payments on account of punt approaches and similar works incidental to the road traffic of the country. The amount expended from 1857 to the 30th June, 1900, for the next decennium, and for each succeeding financial year up to 1918, is given below. Until recent years, the expenditure on these works increased at a much faster rate than the population.

NEW SOUTH WALES.—EXPENDITURE BY ROADS DEPARTMENT AND ROAD TRUSTS, 1857 TO 1918.

Period.	Expenditure by Roads Department.	Expenditure by Trustees.	Total.
	£	£	£
1857 to 30th June, 1900 ..	18,714,078	1,258,027	19,972,105
1900–10	4,605,766	30,664	4,636,430
1910–11	125,326	..	125,326
1911–12	126,111	..	126,111
1912–13	120,719	..	120,719
1913–14	73,192	..	73,192
1914–15	92,729	..	92,729
1915–16	65,928	..	65,928
1916–17	74,124	..	74.124
1917–18	74,459	..	74,459
Total	24,072,432	1,288,691	25,361,123

The expenditure by the Department is now limited to the construction of roads in closer settlement areas and to the construction and maintenance of national bridges and ferries, and of works in the unincorporated areas of the Western Division.

4. **Victoria.**—Under the Local Government Act 1915, the control, construction, and maintenance of all roads, streets, and bridges are in the hands of Municipal Councils, which are empowered to open new roads, and to close, divert, or increase the width of any existing street or road, provided that no new road less than one chain in width may be opened without the consent of the Minister. The councils are also authorised to make and repair streets, lanes, or passages on private property, or to form means of back access to private property, and may compel the owners of such property to pay the cost of so doing. Footways in front of houses or grounds may be kerbed, flagged, paved, or asphalted, and the owners of such houses or grounds must bear half the cost of so doing. The revenue of the councils is derived from rates, which may be either ordinary or special. The councils are empowered to raise loans for the purpose of making or opening new streets and roads, and for diverting, altering, or increasing the width of streets and roads, provided that the amount of such loan must not exceed ten times the average income of the council during the three years immediately preceding from general rates not exceeding 1s. 6d. in the pound of annual value.

(i) *Country Roads Board.* With the object of improving the main roads of the State, an Act (No. 2415) was passed on 23rd December, 1912, which empowers the Governor in Council to appoint a board, to consist of three members.

The duties of the board are to ascertain by survey and investigation what roads are main roads; the nature and extent of the resources of Victoria in metals, minerals, and materials suitable for the purposes of road-making and maintenance, and the most effective and economical methods for dealing with the same, and for supplying and utilising the material in any part of Victoria; the most effective methods of road construction and maintenance; what deviations (if any) in existing roads or what new roads should be made so as to facilitate communication and improve the conditions of traffic; and to record, publish, and make available for general information the results of all such surveys and investigations. The duty of furnishing information that may be required is imposed on the municipal authorities.

The construction of permanent works and the maintenance of main roads are likewise to be carried out by the municipalities to the satisfaction of the board. The total cost of the works, in the first instance, is to be paid by the Treasury, but subsequently one-half to two-thirds of the amount expended on permanent works and maintenance is to be refunded by the municipalities affected.

For the construction of developmental or feeder roads to the main road system the Developmental Roads Act (No. 2944) was passed in 1918. Under the authority of this Act the Country Roads Board is empowered to spend a sum of £500,000 over a period of five years on some of the more important roads in the less developed and neglected parts of the State. It is intended that a further sum of £1,500,000 for the same purpose will be provided later on.

For the purpose of making permanent works, power is given to the Governor in Council to issue stock or debentures to the amount of £400,000 a year for five years, and the principal and interest are a charge upon the Consolidated Revenue of the State. The money so raised is to be placed to the credit of an account to be called "the Country Roads Board Loan Account," which will be debited with all payments made by the Treasurer towards the cost of permanent works. A sinking fund of 1 per cent. per annum on half the amount borrowed is authorised to be paid out of the Consolidated Revenue until half of the amount borrowed is redeemed. An annual payment to the Treasurer of 6 per cent. on the amount due by each municipality in respect of permanent works is provided for, and the cost of maintenance allocated to each municipality must be paid before the 1st July in each year. A special rate, not to exceed 6d. in the £1 on the net annual value of ratable property, to meet the cost of permanent works and maintenance, may be levied in any ward or riding of a municipality as the council may direct. In the event of default of payment by a municipality, the board may levy a rate to meet the

amount owing. All fees and fines paid under the Motor Car Act, all moneys standing to the credit of the Municipal Fees and Fines Trust Fund, all fees paid on the registration or renewal of the registration of traction engines, and all fees received by the Crown after the 30th June, 1912, under the Unused Roads and Water Frontages Act 1903 (which has been incorporated in the Local Government Act 1915), are to be credited to the Country Roads Board Fund.

Up to the 30th June, 1918, there were 6,500 miles of declared main roads, agreed to by the councils, and gazetted. The total amount expended during 1917–18 for permanent works was £226,599, and for maintenance work £173,757, a total of £400,356. The net receipts for the year were £116,521, of which amount the chief items were motor registration and license fees, £58,485, unused roads and water frontages license fees, £23,736, and contributions by municipalities for permanent works, £30,256.

(ii) *General and Local Government Expenditure.* The gross amount expended directly by the State Government of Victoria on roads and bridges was £8,785,974 up to the end of June, 1918. The annual expenditure from ordinary revenue by municipalities is not returned separately, but is included in Public Works Construction and Maintenance (see Section xxvi., *Local Government*). The subjoined table shews the cost from general revenue of municipalities of private streets, roads, etc., and also shews the amounts of municipal loan expenditure in 1901 and from 1914 to 1918 :—

VICTORIA.—EXPENDITURE ON ROADS AND BRIDGES, 1901 AND 1914 TO 1918.

Financial Year.(a)	Annual Expenditure by State Government.	Municipal Loan Expenditure.		Formation of Private Roads, Streets, Lanes, etc.(b)	
		Cities, Towns, and Boroughs.	Shires.	Cities, Towns, and Boroughs.	Shires.
	£	£	£	£	£
1901	72,890	16,844	12,928	18,829	4,521
1914	56,649	57,411	23,749	59,093	11,372
1915	47,898	103,124	40,129	53,365	8,647
1916	25,651	92,198	44,945	64,481	3,543
1917	16,514	41,686	7,279	60,277	3,222
1918	19,782	(c)	(c)	(c)	(c)

(a) The financial years of Melbourne and Geelong end on the 31st December and the 31st August respectively; those of all other municipalities on the 30th September.

(b) Including the cost of flagging, asphalting footpaths, etc., but exclusive of loan expenditure.

(c) Not available.

5. **Queensland.**—In Queensland the construction and maintenance of public roads are controlled under a system of local self-government, for the purposes of which the whole State is divided into (*a*) cities, (*b*) towns, and (*c*) shires. The duties, rights, and responsibilities of the local authorities with regard to roads, streets, and bridges are regulated by the Local Authorities Act of 1902 and subsequent amendments. The councils are invested with full powers to open, close, divert, or widen streets, roads, and bridges, and to make by-laws for the regulation of traffic, etc. The members of the councils are elected by the ratepayers, and with the aid of executive officers they undertake the supervision and control of all necessary constructions and improvements of roads and bridges within their district. The rates which the councils are empowered to levy are supplemented by Government grants. Separate returns as to the expenditure by towns and shires on roads and bridges are not available, the amounts being included in the returns of expenditure on public works, particulars as to which expenditure may be found in Section XXVI., *Local Government*, hereinafter.

6. **South Australia.**—Of the several Australian States, South Australia has by far the largest unincorporated area, no less than 88 per cent. of the whole area of the State being in this condition. This area is, however, very sparsely populated and much of it is entirely unoccupied. The remainder of the State is for purposes of local government under the control of Municipal Corporations and District Councils. Under the provisions of the District Councils Act 1914, the Municipal Corporations Acts 1890 to 1915, and of the Roads Acts 1884 to 1915, the councils are invested with full powers as to the opening and making of new streets and roads, and the diverting, altering, or increasing the width of existing roads; as to raising, lowering, or altering the ground or soil of any street or road; and as to the construction, purchase, and management of bridges, culverts, ferries, and jetties.

(i) *Main Roads and District Roads.* All the roads in each district are classified either as main roads or as district roads. Both classes of roads are under the direct control either of Municipal Corporations or of District Councils, but in the case of main roads the expenditure on construction and maintenance is chiefly provided for by Government grants, which are paid into a Government grants account, while the expenditure on district roads is paid for out of general rates, and out of subsidies on the amount of such rates granted by the central Government. Under the Main Roads Act 1915, a number of roads were declared to be main roads.

The total estimated length of streets and roads in the incorporated area in South Australia up to the 30th June, 1918, was as follows :—

SOUTH AUSTRALIA.—ESTIMATED LENGTH OF ROADS AND STREETS IN THE INCORPORATED AREA, 1918.

Particulars	Woodblocked.	Macadamised.	Other.	Total.
Miles	10	10,529	32,855	43,394

(ii) *Expenditure by Corporations on Main and District Roads.* The following table shews the expenditure by municipal corporations on both main and district roads during 1901, and each year from 1913 to 1918 inclusive :—

SOUTH AUSTRALIA.—EXPENDITURE BY CORPORATIONS ON STREETS, ROADS AND BRIDGES, 1901 AND 1913 TO 1918.

Year.(a)	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Construction.	Maintenance.	From Main Road Grants.	Total.	Construction.	Maintenance.
	£	£	£	£	£	£
1901	4,906	50,628	7,403	8,738	159	7,745
1913	31,797	89,830	11,817	13,128	463	13,142
1914	8,909	95,970	12,573	13,516	361	11,949
1915	31,732	74,887	12,084	12,820	26	11,502
1916	25,483	73,118	9,669	12,098	88	13,679
1917	15,952	80,106	14,299	15,787	619	13,073
1918	13,983	89,657	10,490	13,033	1,990	12,524

(a) Up to and including the year 1903 the financial year ended on the 31st December, but after that date ends on the 30th November.

(iii) *Expenditure of District Councils on Main and District Roads.* The following table gives similar information with respect to main and district roads under the control of District Councils :—

SOUTH AUSTRALIA.—EXPENDITURE BY DISTRICT COUNCILS ON STREETS, ROADS, AND BRIDGES, 1901 AND 1913 TO 1918.

Year ended 30th June.	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Construction.	Maintenance.	From Main Road Grants.	Total.	Construction.	Maintenance.
	£	£	£	£	£	£
1901	18,026	47,379	72,980	100,077	11,861	67,487
1913	56,128	76,880	106,482	108,489	14,915	96,673
1914	48,133	80,181	124,528	130,299	18,538	97,599
1915	51,625	85,119	114,722	114,781	15,571	102,679
1916	41,283	79,515	83,264	84,738	12,493	61,172
1917	47,337	79,377	109,044	111,567	18,809	72,644
1918	62,280	103,219	126,682	126,865	41,319	103,312

7. **Western Australia.**—In Western Australia the construction, maintenance, and management of roads and bridges throughout the State are under the control of Municipalities, constituted by the Municipal Corporation Acts 1906–1915, and District Road Boards, constituted by the Roads Acts 1911–1915.

(i) *District Roads and Bridges.* Under the provisions of the Roads Acts any part of the State, not within a municipality, may be constituted by the Governor in Council into a Road District, under the control of a board of not less than five nor more than eleven members elected by the ratepayers. The board is invested with full powers for controlling and managing all roads and bridges within the district, and is empowered to make by-laws for the general regulation of traffic, to control the weight of engines and machines permitted to cross any bridge or culvert, to regulate the speed limits of vehicles, lights to be carried by vehicles, the lighting of streets and roads, and the licensing of bicycles and motor cars. A District Road Board may not, however, construct any road or street less than sixty-six feet wide, nor any bridge or culvert at a greater cost than £100, without the consent of the Minister. The construction of the more important bridges and culverts is generally carried out by the Government, the work, after completion, being handed over to the Road Board for maintenance. In case of land being required for the purpose of constructing a new street or road, or for widening an existing street or road, the provisions of the Public Works Act of 1902 are incorporated in the Roads Act. A board may levy general rates within its district not exceeding two shillings nor less than ninepence in the £ on the annual ratable value, and, if valued on the basis of unimproved values of lands, the general rate must not be over threepence nor under one penny in the £ on the capital unimproved value. Boards are also empowered to raise loans for works or undertakings or to liquidate existing loans, but the amount of such loans must not be greater than seven times the average ordinary revenue of the board for the two preceding years. In the case, however, of boards already indebted, borrowing power to the extent of ten times the said average is given, less the amount of existing loan indebtedness at time of borrowing. For the purpose of paying the interest on money borrowed a board may levy a special rate. District Road Boards may also exercise the powers of Drainage Boards under the provisions of the Land Drainage Act of 1900.

(ii) *Municipal Streets, Roads, and Bridges.* As regards roads, streets, and bridges within municipalities, these are under the control of local authorities elected under the provisions of the Municipal Corporations Acts 1906–15. The municipal councils are invested with full powers for making, maintaining, and managing all streets, roads, and bridges within the municipal area, and may request the Governor to declare any such land reserved, used, or by purchase or exchange acquired for a street or way, to be a public highway, and on such request the Governor may, by notice in the *Gazette*, proclaim such highway absolutely dedicated to the public.

(iii) *Length of Roads, Number of Bridges, and Expenditure on Roads and Bridges.* The following table gives particulars of the operations of the District Road Boards since the 1st January, 1913 :—

WESTERN AUSTRALIA.—PARTICULARS OF ROADS UNDER CONTROL OF DISTRICT ROAD BOARDS, 1913 TO 1917.

Year ended the 30th June.	Area.	Revenue.				Expenditure.	Length of Cleared Roads.(*d*)				No. of Bridges and Culverts.	
		From Rates.	From Grants and Subsidies.	From other Sources.	Total.		Cleared only.	Cleared and Formed.	Metalled or otherwise Constructed.	Total.	Bridges.	Culverts.
	Sq. m.	£	£	£	£	£	Miles.	Miles.	Miles.	Miles.	No.	No.
1913	975,815	80,551	60,687	29,770	171,008	184,587	19,236	4,429	3,651	27,316*b*	721*c*	6,157*c*
1914	974,476	93,700	63,668	46,031	203,399	187 800	19,921	4,626	3,804	28,351*b*	731*a*	6,450*a*
1915	974,476	88,569	27,753	47,571	163,893	193,033	19,641	4,674	4,039	28,354*b*	761	6 649
1916	975,827	104,345	24,397	38,820	167,562	166,340	19,258	5,363	4,216	28,837	760	6,907
1917	975,828	113,686	30,226	55,383	199,295	189,177	19,903	5,680	4,359	29,942	957	7,315

(*a*) Exclusive of two Boards which have not supplied the information. (*b*) Exclusive of four Boards. (*c*) Exclusive of three Boards. (*d*) Approximate only.

The following table gives similar information with reference to roads controlled by municipalities under the Municipal Institutions Act 1900 and the Municipal Corporations Act 1906 :—

WESTERN AUSTRALIA.—PARTICULARS OF STREETS, ROADS, AND BRIDGES UNDER THE CONTROL OF MUNICIPALITIES, 1901 AND 1913 TO 1917.

Year ended the 31st October.	No. of Municipalities.	Length of Streets and Roads.(*a*)					Revenue.		Expenditure.	
		Paved, Metalled, or Gravelled.	Formed only.	Cleared only.	Not Cleared.	Total.	From Rates.	From Grants.	Works and Improvements.	Street Lighting and Watering.
		Miles.	Miles.	Miles.	Miles.	Miles.	£	£	£	£
1901 ..	42	195	30	149	137	511	78,021	66,850	111,256	15,969
1913 ..	33	544	95	267	299	1,205	153,966	19,382	159,445	26,089
1914 ..	33	550	95	258	290	1,193	153,686	13,142	223,098	19,056
1915 ..	31	570	92	254	279	1,195	170,675	10,309	190,739	24,959
1916 ..	30	559	88	253	238	1,138	166,617	9,462	120,411	24,952
1917 ..	30	562	94	244	238	1,138	167,997	7,813	73,991	23,481

(*a*) Approximate only.

8. **Tasmania.**—In 1906 the Roads Act 1884 with its amendments was to a great extent repealed by the Local Government Act 1906, the parts referring to Main Roads being excepted. Under the 1906 Act it is provided that the councils of all municipalities constituted under the Act should exercise all powers conferred upon and should be liable to all the obligations imposed upon Road District Trusts by the Roads Act of 1884. The whole State is divided into municipal districts, 48 rural and 2 city, each rural district being under the control of a warden and councillors.

In 1918 the Main Roads Maintenance Act was passed and incorporated with the unrepealed portions of the Road Act of 1884. Under this Act a Board known as the Main Roads Advisory Board is appointed, consisting of seven members, of whom three,

called municipal members, are appointed on the nomination of the Municipal Association of Tasmania, two, called motorist members, appointed by the Governor, and two, called Government members, also appointed by the Governor. The revenue of the Board consists of the sum of £5,000 from the consolidated revenue, and of a sum equal to the total amount of motor taxes collected and paid into the Treasury, less 5 per centum. The Board's functions relate to the proclamation of main roads and their maintenance, etc., by the Municipal Councils out of the funds allocated to them by the Board for the purpose.

(i) *Mileage of Roads and Number of Bridges.* The following table gives particulars for the year 1917 as to length of roads and number of bridges and culverts under the control of the municipalities :—

TASMANIA.—ROADS AND BRIDGES IN MUNICIPALITIES, 1917.

Roads.			Bridges.	Culverts.
Macadamised or Gravelled.	Other.	Total.		
Miles.	Miles.	Miles.	No.	No.
5,952	5,467	11,419	1,120(a)	19,702(a)

(a) Last available figures.

(ii) *Revenue and Expenditure.* The following table gives particulars for the year 1917 of the revenue and expenditure of municipal councils in respect of roads and bridges :—

TASMANIA.—ROADS AND BRIDGES, REVENUE AND EXPENDITURE, 1917.

Revenue.				Expenditure.(b)
From Government.	Rates.	All other.(a)	Total.	
£	£	£	£	£
18,527	58,499	243,411	320,437	345,500(c)

(a) Including current receipts from loans. (b) Municipal "Works and Services." (c) Including £60,807 on trams.

§ 2. Railways.

(A) General.

1. **Introduction.**—In the issues of the Commonwealth Year Book, Nos. 1–7, the statistics of all Government railway systems were treated under the head of *Government Railways.* In the following issues, Nos. 8 to 11, the greater part of those statistics relating to State-owned lines was dealt with separately from those under the control of the Commonwealth Government. This arrangement is continued in the present issue. The State railways are referred to throughout as "State" and the Commonwealth railways as "Federal" railways. There is, however, a summary of the working of the Federal and States' railways in part (E) of the present section.

2. **Railway Statistics.**—In some of the earlier issues of the Year Book will be found a condensation of the report issued in 1909 by the Commonwealth Statistician to the Minister for Home Affairs on the subject of *The Desirability of Improved Statistics of Government Railways in Australia* (see Year Book No. 7, page 598).

3. **Railway Communication in the Commonwealth.**—An account of the progress in railway construction in Australia since the opening of the first line in 1854 will be found in Year Book No. 6, p. 681. In the eastern, south-eastern, and southern parts of Australia there now exists a considerable network of railway lines converging from the various agricultural, pastoral and mining districts towards the principal ports, which are themselves connected by systems of lines running approximately parallel to the

coast. These are shewn on the map on page 647. In the east, lines radiating from Cairns, Townsville, Rockhampton, Brisbane, and Sydney extend inland in various directions for distances ranging up to over 600 miles; in the south-east there are numerous lines, those in Victoria converging towards Melbourne, while others in New South Wales have their terminus in Sydney; in the south there are four main lines, with numerous branches, running from Melbourne, while from Adelaide one main line, with several branches to the coastal towns, runs inland in a northerly direction for a distance of nearly 700 miles, and another line runs in a south-easterly direction to various ports, meeting the main line from Melbourne on the border of South Australia and Victoria near Serviceton. The South Australian and Victorian railway systems also meet on the border at two other points, one near Pinnaroo, and the other at Rennick near Mount Gambier. By the opening, in 1917, of the Trans-Australian railway from Port Augusta to Kalgoorlie, through communication by rail has been established between the eastern States and the Western Australian railway system. The main interstate line (indicated by a heavier line in the map), which permits of direct communication between the five capital cities—Brisbane, Sydney, Melbourne, Adelaide, and Perth—covers a distance from end to end of 3,471.25 miles, or 3,476.27 miles *via* Newcastle. The scheduled time for the journey from Brisbane to Perth is six days, three hours and forty minutes. In the opposite direction the journey is scheduled to occupy five days, twenty-three hours and forty minutes. Both of these are the times taken over all.

In the following tables particulars are given of the gauges of lines, changing stations and duration of stops thereat, arrival and departure times, distances and average speeds on the journey from Brisbane to Perth, and *vice versa*:—

BRISBANE TO PERTH.

Gauge of Line.	Terminal or Changing Stations.	Times.		Day on Journey. (*a*)	Actual Time.	Duration of Stops at Changing Stations.	Intermediate Distance.	Total Distance from Brisbane.	Average Speed. (*b*)
		Arr.	Dep.						
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
	Brisbane ..	—	8.5 a.m.	Monday..	—	—	—	—	—
3 6	Wallangarra	5.55 p.m.	6.17 p.m.	,, ..	9 50	0 22	223.46	223.46	22.72
4 8½	Sydney ..	11.25 a.m.	7.25 p.m	Tuesday	17 8	8 00	*c*497.38	720.84	29.03
4 8½	Albury ..	7.23 a.m.	7.47 a.m.	Wednesday	11 58	0 24	398.11	1,118.95	33.27
5 3	Melbourne	12.51 p.m.	4.30 p.m.	,,	5 4	3 39	190.50	1,309.45	37.60
5 3	Adelaide ..	9.55 a.m.	10.45 a.m.	Thursday	17 55	0 50	483.05	1,792.50	26.96
5 3	Terowie ..	3.36 p.m.	4.0 p.m.	,,	4 51	0 24	139.75	1,932.25	28.81
3 6	Port Augusta	9.55 p.m.	10.30 p.m.	,,	5 55	0 35	119.50	2,051.75	20.20
4 8½	Kalgoorlie..	10.20 a.m.	5.40 p.m.	Saturday	37 20	7 20	1,051.30	3,103.05	28.16
3 6	Perth ..	9.45 a.m.	—	Sunday	16 5	—	373.22	3,476.27	23.21
				Total ..	126 6	21 34	3,476 27	—	27.57

PERTH TO BRISBANE.

Gauge of Line.	Terminal or Changing Stations.	Times.		Day on Journey. (*a*)	Actual Time.	Duration of Stops at Changing Stations.	Intermediate Distance.	Total Distance from Perth.	Average Speed (*b*)
		Arr.	Dep.						
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
	Perth ..	—	5.0 p.m.	Monday..	—	—	—	—	—
3 6	Kalgoorlie..	9.15 a.m.	10.0 a.m.	Tuesday	16 15	0 45	373.22	373.22	22.97
4 8½	Port Augusta	1.0 a.m.	4.55 a.m.	Thursday	37 30	3 55	1,051.30	1,424.52	28.03
3 6	Terowie ..	10.50 a.m.	11.15 a.m.	,,	5 55	0 25	119.50	1,544.02	20.20
5 3	Adelaide ..	3.37 p.m.	4.30 p.m.	,,	4 22	0 53	139.75	1,683.77	32.00
5 3	Melbourne	9.59 a m.	5.0 p.m.	Friday ..	16 59	7 1	483.05	2,166.82	28.44
5 3	Albury ..	10.21 p.m.	10.40 p.m.	,, ..	5 21	0 19	190.50	2,357.32	35.61
4 8½	Sydney ..	10.45 a.m.	3.30 p.m.	Saturday	12 5	4 45	398.11	2,755.43	32.95
4 8½	Wallangarra	9.7 a.m.	9.30 a.m.	Sunday	17 37	0 23	*c*497.38	3,252.81	28.23
3 6	Brisbane ..	6.40 p.m.	—	,,	9 10	—	223.46	3,476.27	24.38
				Total ..	125 14	18 26	3,476.27	—	27.76

(*a*) The days here given are for the purposes of time table interpretation. They are not the only days on which the service is provided. (*b*) Inclusive of stops between changing stations. (*c*) Runs *via* Newcastle.

The time allowed for the journey from Port Augusta to Kalgoorlie, 37 hours 20 minutes (actual), gives an average speed of 28.16 miles per hour throughout inclusive of stoppages. Exclusive of stoppages, which aggregate slightly under three hours, the average speed is about 30.5 miles per hour. In the opposite direction the gross time is 37 hours 30 minutes (actual), which gives an average speed of 28.03 miles per hour. Exclusive of stoppages, which aggregate about 3 hours 10 minutes, the average speed is 30.6 miles per hour.

The average speed inclusive of all stops is 23.54 miles per hour on the journey from Brisbane to Perth, and 24.20 miles per hour on the return journey.

The longest railway journey which can be undertaken in Australia, on one continuous line of railway, is from Longreach in Queensland to Meekatharra in Western Australia, a total distance of 4,756.76 miles.

In Western Australia there is a connected system of main or trunk lines between the ports of the State and the agricultural, pastoral, and mining districts, while there are also two short lines, one on the north-west, the other on the south coast, which are unconnected with the main system. In the northern parts of Queensland and in the Northern Territory there are also several disconnected lines running inland from the more important ports. In Tasmania the principal towns are connected by a system of lines, and there are also, more especially in the western districts, several lines which have been constructed for the purpose of opening up mining districts.

4. **Standard Times in Australia.**—In Year Book No. 11, pp. 1201–2, a short account was given as to the introduction of the standard times now in use in the Australian States. Particulars of these times are set out in the following table :—

STANDARD TIMES IN AUSTRALIA.

Colony.	Date when Act came into operation.	Meridian selected.	Time ahead of Greenwich.
		° ′	h. m.
New South Wales	1st February, 1895 ..	150 0 E.	10 0
Victoria	„ ..	150 0 „	10 0
Queensland..	1st January, 1895 ..	150 0 „	10 0
South Australia	1st February, 1895 ..	135 0 „	9 0
„ „	1st May, 1899 ..	142 30 „	9 30
Western Australia	1st December, 1895 ..	120 0 „	8 0
Tasmania	1st September, 1895 ..	150 0 „	10 0

Consequent upon the opening of the Trans-Australian Railway an arrangement has been made by which the difference of time between South Australia and Western Australia (viz., 1½ hours) is divided into two changes of 45 minutes each. Going east from Kalgoorlie the first change is made at Rawlinna, 235.18 miles out, where the time is put forward by 45 minutes. The second change of the same amount is made at Tarcoola, 794.05 miles out. Thenceforward South Australian standard time is kept.

5. **Non-conformity of Gauge.**—With but few exceptions, all the railway lines in the Commonwealth open for general traffic are now owned and managed by the respective States in whose territory they run, or by the Commonwealth Government, but,

unfortunately for the purpose of interstate traffic, the construction of the various systems in different parts of Australia has proceeded without uniformity of gauge. In 1846 Mr. Gladstone, then Colonial Secretary, recommended in a despatch to the Governor of New South Wales that the 4-ft. 8½-in. gauge should be adopted. In 1850, however, the engineer to the Sydney Railroad and Tramway Company strongly advocated the adoption of the 5-ft. 3-in. gauge, and in 1852 an Act was passed making it compulsory that all railways in New South Wales should be constructed to the wider gauge, the Governors of Victoria and South Australia being duly advised of the step that had been taken. In 1852, however, the company mentioned having changed its engineer, also changed its views as to the gauge question, and in the following year succeeded in obtaining the repeal of the Act of 1852 and in securing the passing of another, under the provisions of which the narrower gauge was made imperative. This step was taken without the concurrence of the other States concerned, and a considerable amount of ill-feeling arose, especially in Victoria, where two private companies had already placed large orders for rolling stock to be constructed to the broad gauge originally chosen. The result was that it was decided in Victoria to adhere to the 5-ft. 3-in. gauge as the standard gauge for the State, while the Sydney Railroad and Tramway Company proceeded with the construction of its lines to the 4-ft. 8½-in. gauge, and these two gauges have since been adhered to as the standard gauges of the respective States. The Queensland Government had, at the outset, adopted a gauge of 3-ft. 6-in. as being best suited to the requirements of the colony, and has since adhered to that gauge throughout the State, so that all goods requiring conveyance into New South Wales or *vice versa* have to be transhipped at the boundary between the two States. In June, 1914, however, the Queensland Government purchased two short lengths of line laid on a 2-ft. gauge. In South Australia the 5-ft. 3-in. gauge was adopted, but in 1870, however, on the grounds of economy, the 3-ft. 6-in. gauge was introduced, and many of the lines in South Australia have been constructed with that gauge. The interstate line between Adelaide and Melbourne was opened as a through route in January, 1887, and is of the 5-ft. 3-in. gauge throughout. At the 30th June, 1918, of the 2,242.33 miles of State Government railways in South Australia 1,209.59 miles were of 3-ft. 6-in. gauge, exclusive of 477.96 miles of the same gauge from Port Augusta to Oodnadatta belonging to the Federal Government. In the Northern Territory the line from Darwin to Katherine, 199.56 miles in length, is of 3-ft. 6-in. gauge. In Western Australia the 3-ft. 6-in. gauge was also adopted. In Tasmania the first line made had a gauge of 5-ft. 3-in., but after a short time it was converted to 3-ft. 6-in., which, with the exception of three short lines with a 2-ft. gauge, is the present gauge of the Government and most of the privately-owned lines. It was recognised in both these States that the construction of railways was essential to their proper development, but as their financial resources would not bear a heavy initial expenditure in connection with the establishment of railway lines, it was decided to adopt the narrow gauge. In Victoria, short lengths of light railways have been constructed in recent years to a gauge of 2-ft. 6-in.

6. **Interstate Communication.**—Until the railway systems of the eastern States were connected at the common boundaries, the inconvenience of non-conformity of gauge was not felt. Since then, however, the necessary transhipments of both passengers and goods have been a source of trouble, delay, and expense. On the 14th June, 1883, a railway bridge over the River Murray at Wodonga was opened for traffic, and railway communication was then established between Melbourne and Sydney. On the 19th January, 1887, the last section of the Victorian line to Serviceton, on the South Australian border, was completed, and a junction was thus effected with the South Australian line to Adelaide. On the 16th January, 1888, a junction was effected between the New South Wales and Queensland lines at Wallangarra, but there was still a break in the line from Sydney at the Hawkesbury River, thirty-six miles from Sydney. This last link was, however, completed on the 1st May, 1889, by the opening of the Hawkesbury River bridge, 2,900 feet in length, and railway communication was thus established between the four capital cities, Brisbane, Sydney, Melbourne, and Adelaide.

By the opening of the Trans-Australian railway, to which reference has already been made, Western Australia is now linked to the other States, and an unbroken line of communication established from one side of the continent to the other. The construction,

moreover, of lines recently decided upon, connecting Victoria with the Riverina district in New South Wales and with the wheat-growing districts of South Australia, will undoubtedly facilitate interstate exchange and will allow the produce of inland areas to find its natural outlet at the nearest port.

7. **Unification of Gauge.**—The development of the railway systems of the Commonwealth has shewn that the adoption of different gauges on the main lines in the several States was a serious error. As already mentioned, the extra cost, delay, and inconvenience incurred by the necessity of transferring through-passengers and goods at places where there are breaks of gauge are becoming more serious as the volume of business increases. As an indication of the extra cost thus involved, the junction charges on interstate traffic between New South Wales and Victoria range from 1s. 6d. to 2s. 6d. per ton.

Although the cost of alteration to a uniform gauge would be great, many propositions have from time to time been put forward with the object of securing such a gauge, and attention has been drawn to the importance of the unification of gauges before further expenditure on railway construction is incurred by the States. The problem is, however, one which is by no means easy of solution, and the difficulties are increased by the introduction of what may be called questions of local or State policy.

The first question that naturally arises in considering the problem is as to which gauge should be adopted as the universal gauge of the Commonwealth. As regards State Government railways, the 4-ft. 8½-in. gauge has a mileage of 4,639.22, all in New South Wales; Victoria and South Australia have a combined mileage of 5,062.48 of 5-ft. 3-in. gauge; while New South Wales, Queensland, South Australia, Western Australia have together 10,006.56 miles of 3-ft. 6-in. gauge. In addition, the Commonwealth Government has (i) of 4-ft. 8½-in. gauge 4.94 miles in the Federal Territory, 597.36 miles in South Australia, and 453.94 miles in Western Australia, and (ii) of 3-ft. 6-in. gauge 477.96 miles in South Australia, and 199.56 miles in the Northern Territory. By far the greater part of the mileage of private railways open for general traffic has also been constructed to the 3-ft. 6-in. gauge. The mere question of preponderance of mileage, therefore, indicates the 3-ft. 6-in. gauge for adoption. But this question is obviously subordinate to those involving engineering and economic considerations. Thus, the relative efficiency from the widest point of view, the relative costs of alterations of the permanent way and rolling stock, of carrying capacity and speed, that is to say, questions of a technical nature about which figures are not available, enter into the grounds for decision. As regards the unification of the New South Wales and Victorian gauges, the advantage of reducing the broad gauge to the 4-ft 8½-in. gauge instead of increasing the 4-ft. 8½-in. gauge to the broad gauge is that, under the former method, there would be no necessity for the alteration of tunnels, cuttings, bridges, or viaducts.

Many conferences on the subject of the unification of gauge have taken place from time to time both between the Railways Commissioners and also between the Premiers of the States concerned, and references to these conferences have been made in previous issues of the Year Book (see No. 11, pp. 657–8). The last conference, that between the engineers of the Commonwealth and States Railways, was held in Melbourne in August, 1918. Much consideration was given to the devices to deal with the break-of-gauge question which had been submitted to the conference, but all of them failed to meet the requirements of the conditions laid down by the conference in order to ensure both safety and celerity of action in train working.

8. **Rolling Stock Gauges.**—Allied to the question of the gauges of the railways of Australia is that of the rolling stock gauges which are in use, the rolling stock gauge being the maximum transverse dimensions to which the rolling stock may be constructed. In

the following table will be found particulars of the rolling stock gauges, together with maximum length and weights of vehicles, at present in use on the Government railways, State and Federal :—

ROLLING STOCK GAUGES IN USE ON STATE AND FEDERAL GOVERNMENT RAILWAYS, 1918.

PASSENGER ROLLING STOCK.

Railway.	Gauge of Track.	Maximum Rolling Stock Gauge.				Maximum Tare.		
		Width.		Height above Rail Level.		Length over all.		
	ft. in.	ft.	in.	ft.	in.	ft.	in.	T. c. q.
New South Wales	4 8½	9	8	14	0	74	4½	44 2 1
Victoria	5 3	9	11½	14	0⅝	74	1¼	46 17 2
,, ...	2 6	7	0¼	10	4¼	31	8	8 11 0
Queensland	3 6	9	4	12	9	53	5	26 14 0
,, ...	2 0	6	3⅞	10	0	22	0	3 0 0
South Australia	5 3	10	4¼	14	1¾	74	1¼	37 11 2
,, ...	3 6	9	4⅜	12	1	62	6	24 18 0
Western Australia	3 6	8	10	12	7	60	9	31 10 0
Tasmania	3 6	9	6	12	5	64	0	30 0 0
,, ...	2 0	6	6	10	0	30	2	5 10 1
Federal—								
Trans-Australian	4 8½	10	6	14	6	78	9½	50 0 0
Northern Territory	3 6	9	4	12	9	33	6	11 0 0
Oodnadatta	3 6	10	2	12	4	33	6	11 0 0

GOODS ROLLING STOCK.

Railway.	Gauge of Track.	Maximum Rolling Stock Gauge.				Maximum—					
		Width.		Height above Rail Le el.		Length over all.		Tare.			Carrying Capacity.		
	ft. in.	ft.	in.	ft.	in.	ft.	in.	T.	c.	q.	T.	c.	q.
New South Wales ..	4 8½	9	8	13	6	60	11	20	10	3	40	0	0
Victoria	5 3	9	7½	13	5	55	4½	20	6	0	30	0	0
,, ...	2 6	6	5½	9	7¼	27	3¾	7	12	2½	10	0	0
Queensland	3 6	8	0	12	0	45	5	11	10	0	21	8	0
,, ...	2 0	6	6	9	0	22	0	4	10	0	16	0	0
South Australia ..	5 3	10	0¼	12	10¾	43	6	16	0	0	30	0	0
,, ..	3 6	8	6	12	1	38	9	11	15	0	25	0	0
Western Australia ..	3 6	8	8	12	6	44	9	17	18	0	25	0	0
Tasmania	3 6	8	6	11	0	40	10	12	5	0	30	0	0
,, ...	2 0	6	0	6	6	27	0	5	15	2	20	0	0
Federal—													
Trans-Australian ..	4 8½	10	6	14	6	45	0	15	0	0	40	0	0
Northern Territory	3 6	9	4	12	9	32	6	6	0	0	10	0	0
Oodnadatta ..	3 6	10	2	12	4	18	0	5	0	0	12	0	0

In the above tables the transverse dimensions given are not necessarily those of one particular vehicle, but are the greatest employed on any vehicle.

9. **Mileage Open for Traffic.**—In all the States of the Commonwealth the principle that the control, construction, and maintenance of the railways should be in the hands of the Government has long been adhered to, excepting in cases presenting unusual circumstances. In various parts of the Commonwealth, lines have been constructed and managed by private companies, but at the present time nearly the whole of the railway traffic in the Commonwealth is in the hands of the various State Governments or of the Commonwealth Government. A large proportion of the private lines which are at present running have been laid down for the purpose of opening up forest lands, mining districts, or sugar areas, and are not generally used for the conveyance of passengers or the public conveyance of goods. (See (F) *Private Railways*, hereinafter.)

Mileage of Government and Private Lines, 1855 to 1918. The subjoined table shews the mileage of Commonwealth Government, State Government, and private lines open for traffic (exclusive of sidings and cross-overs) in each State at different periods since the inauguration of railways in Australia in 1854 up to the year 1918. The railway mileage given for each State includes both Commonwealth and State Government railways in that State, and in this table and in those on the following page, is estimated from the geographic point of view and not from that of ownership. The figures from 1855 to 1881 are given to the end of the calendar year; the later figures are to the end of the financial year ended on the 30th June, unless otherwise stated, excepting the mileages for private lines, which are in most cases taken for the calendar year :—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OPEN, 1855 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1855 ..	14	2½	..	6¾*a*	..	..	..	23¼
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
1890–1 ..	2,263	2,763	2,205	1,666	656*b*	425*b*	145	10,123
1900–1 ..	2,926	3,238	2,904	1,736	1,984	618*c*	145	13,551
1910–11 ..	4,027	3,574	4,390	1,993	3,208	675	145	18,012
1913–14 ..	4,251	3,886	5,213	2,357	3,910	766½	146	20,529½
1914–15 ..	4,444	3,936½	5,449¼	2,955	4,553	779½	146	22,263¼
1915–16 ..	4,496¾	4,152½	6,452½	3,060¼	4,707½	758½	146	23,773¾
1916–17 ..	4,786¾	4,176½	6,702¼	3,241¼	4,878½	783¾	199½	24,769
1917–18 ..	5,030	4,222¾	6,769½	3,356½	4,904¼	781¾	199½	25,264¼

a The line between Goolwa and Port Elliot was opened in 1854 as a horse tramway, but now forms part of the railway system. *b* To the 31st December, 1891. *c* To the 31st December, 1901.

It will be seen from the above table that the rate of construction up to the year 1871 was very slow, the average annual length of lines opened from 1861 to 1871 being only 80 miles for the whole Commonwealth. By the middle of the following decade, however, the principal mountain ranges had been crossed, and the work of construction could be proceeded with at a greater rate, and at a less cost per mile. A great period of activity was from 1881 to 1891, when the average annual length opened for traffic was 593 miles for the whole Commonwealth; the corresponding figures for the periods from June, 1891, to June, 1901, and from June, 1901, to June, 1911, were 343 and 446 miles respectively. Since June, 1911, the average annual length opened for traffic has been 1,036 miles.

10. **Comparative Mileage of Government and Private Lines, 1918.**—The subjoined table shews for each State (*a*) the length of lines owned by the State Government, and by the Commonwealth Government in that State, all of which lines are open for general use by the public, (*b*) the length of private lines available for general use by the public, and

(c) the length not so available. The mileages specified in the case of Government lines are to the 30th June, 1918; those given for private lines are as nearly as possible to the 31st December, 1917 :—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OF GOVERNMENT LINES, OF PRIVATE LINES AVAILABLE FOR GENERAL TRAFFIC, AND OF PRIVATE LINES NOT SO AVAILABLE, 1917-18.

State or Territory.	Government Lines—		Private Lines available for General Traffic.	Total Open for General Traffic.	Private Lines used for Special Purposes only.	Grand Total.
	State.	Federal.				
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	4,679.31	..	185.02	4,864.33	160.83	5,025.16
Victoria ..	4,151.64	..	24.94	4,176.58	46.12	4,222.70
Queensland ..	5,295.15	..	555.77	5,788.92	918.48	6,769.40
South Australia	2,242.33	1,075.32	33.80	3,351.45	5.00	3,356.45
Western Australia	3,491.08	453.94	278.35	4,223.37	680.96	4,904.33
Tasmania ..	588,00	..	162.86	750.86	30.85	781.71
Northern Territory	..	199.56	..	199.56	..	199.56
Federal Territory	..	4.94	..	4.94	..	4.94
Total ..	20,447.51	1,733.76	1,240.74	23,360.01	1,842.24	25,264.25

11. **Comparative Railway Facilities in Different States and Territories, 1918.**—The relations to populations and areas respectively of the mileage of line open to the public for general traffic (including both Government and private lines) on the 30th June, 1918, are shewn in the subjoined statement for each State, the Northern Territory, and also for the Commonwealth :—

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARISON OF RAILWAY FACILITIES IN DIFFERENT STATES AND TERRITORIES, 1918.

State or Territory.	Population, 30th June, 1918.	Area.	Mileage of Railway.	
			Per 1,000 of Population.	Per 1,000 sq. miles of Territory.
	Number.	Sq. miles.	Miles.	Miles.
New South Wales	1,910,389	309,432	2.63	16.24
Victoria	1,416,791	87,884	2.98	48.05
Queensland	692,214	670,500	9.78	10.10
South Australia	439,466	380,070	7.64	8.83
Western Australia	311,121	975,920	15.76	5.03
Tasmania	202,842	26,215	3.85	29.82
Northern Territory	5,269	523,620	37.87	0.38
Federal Territory	2,473	940	2.00	5.26
Commonwealth ..	4,980,565	2,974,581	5.07	8.49

12. **Classification of Lines according to Gauge, 1917-18.**—The subjoined table gives a classification, according to gauge, of the total mileage, exclusive of sidings and cross-overs, of (i) Commonwealth Government railways, given in the State or Territory in which situated; (ii) State Government railways; (iii) Private railways open to the public for general traffic; and (iv) Private lines open for special purposes. Particulars of Government railways are up to the 30th June, 1918, of private railways open for general traffic to the 31st December, 1917, and of private railways open for special purposes to the 31st December, 1917, as nearly as possible.

GOVERNMENT AND PRIVATE RAILWAYS.—CLASSIFICATION ACCORDING TO GAUGE, 1917–18.

State or Territory in which situated.	Mileage having a Gauge of—						Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	3 ft. 0 in.	2 ft. 6 in.	2 ft. 0 in.	
FEDERAL RAILWAYS.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
South Australia ..	..	597.36	477.96	..	..	..	1,075.32
Western Australia	..	453.94	..	..	..	..	453.94
Northern Territory	..	..	199.56	..	..	..	199.56
Federal Territory ..	..	4.94	..	..	..	..	4.94
Total ..	..	1,056.24	677.52	..	..	..	1,733.76
STATE RAILWAYS.							
New South Wales ..	..	4,639.22	40.09	..	..	..	4,679.31
Victoria	4,029.74	..	..	..	121.90	..	4,151.64
Queensland ..	..	..	5,265.80	..	..	29.35	5,295.15
South Australia ..	1,032.74	..	1,209.59	..	..	..	2,242.33
Western Australia	..	..	3,491.08	..	..	..	3,491.08
Tasmania ..	..	..	564.42	..	..	23.58	588.00
Total ..	5,062.48	4,639.22	10,570.98	..	121.90	52.93	20,447.51
PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC.							
New South Wales ..	45.00	77.10	36.67	..	..	26.25	185.02
Victoria	13.94	..	..	11.00	..	..	24.94
Queensland ..	..	..	367.14	..	7.00	181.63	555.77
South Australia ..	..	..	33.80	..	..	..	33.80
Western Australia	..	..	278.35	..	..	..	278.35
Tasmania ..	..	..	152.87	..	..	9.99	162.86
Total ..	58.94	77.10	868.83	11.00	7.00	217.87	1,240.74
PRIVATE RAILWAYS OPEN FOR SPECIAL PURPOSES.							
New South Wales ..	..	157.33	3.50	..	..	..	160.83
Victoria	28.83	..	..	4.29	..	13.00	46.12
Queensland ..	..	..	202.97	..	10.00	705.51	918.48
South Australia ..	..	..	..	..	..	5.00	5.00
Western Australia	..	..	616.96	..	..	*a*64.00	680.96
Tasmania ..	..	..	29.10	..	..	1.75	30.85
Total ..	28.83	157.33	852.53	4.29	10.00	*a*789.26	1,842.24
ALL RAILWAYS.							
New South Wales ..	45.00	4,873.65	80.26	..	..	26.25	5,025.16
Victoria	4,072.51	..	..	15.29	121.90	13.00	4,222.70
Queensland ..	..	..	5,835.91	..	17.00	916.49	6,769.40
South Australia ..	1,032.74	597.36	1,721.35	..	..	5.00	3,356.45
Western Australia	..	453.94	4,386.39	..	..	*a*64.00	4,904.33
Tasmania ..	..	..	746.39	..	..	35.32	781.71
Northern Territory	..	..	199.56	..	..	..	199.56
Federal Territory ..	..	4.94	..	..	..	..	4.94
GRAND TOTAL ..	5,150.25	5,929.89	12 969.86	15.29	138.90	*a*1,060.06	25,264.25

a Including 28 miles of 1-ft. 8-in. gauge.

(B) Federal Railways.

1. **General.**—On the 1st January, 1911, the Commonwealth Government took over the Northern Territory from the South Australian Government, and at the same time the railways from Darwin to Pine Creek, in the Northern Territory, and from Port Augusta to Oodnadatta, in South Australia, came under its control. Subsequently, the construction of a transcontinental line from Port Augusta, in South Australia, to Kalgoorlie, in Western Australia, was undertaken by the Commonwealth Government, while a line has been constructed in the Federal Territory, connecting Canberra with the New South Wales railway system at Queanbeyan. In 1917 an Act was passed by which all the Commonwealth railways are vested in a Commissioner.

2. **Northern Territory Railway (Darwin to Katherine).**—On the 1st January, 1911, the line from Darwin to Pine Creek came under the jurisdiction of the then Department of External Affairs, and was worked under the Administrator of the Northern Territory. As mentioned above, the management of this railway is now vested in the Commissioner.

Particulars as to the working of this line for the year 1901–2 prior to its passing under the control of the Commonwealth Government will be found in sub-section C, State Government Railways.

In the Northern Territory Acceptance Act, the construction of a transcontinental line from South Australia is provided for. The extension of the line from Pine Creek to Katherine River has been completed, and the first train ran through to Katherine on 13th May, 1917.

3. **Oodnadatta Line.**—This line was taken over by the Commonwealth Government from 1st January, 1911, but was held under lease by the South Australian Government until 31st December, 1913. From the 1st January, 1914, the line has been worked by the South Australian Government for and on behalf of the Commonwealth. It is provided in the Northern Territory Acceptance Act that the Commonwealth shall annually reimburse the State with the interest payable on the amount of loans raised by the State for the purpose of constructing the railway, and the agreement for working the line prescribes that the Commonwealth is responsible to the State for any financial loss incurred by the State in the working and management of the railway, but is entitled to receive from the State any profit made in such working and management.

4. **Trans-Australian Railway (Kalgoorlie to Port Augusta).**—A Federal Act passed in 1907 provided for the expenditure of a sum of £20,000 for a preliminary survey of a railway line connecting Western Australia with the eastern States. This survey was commenced in 1908, and was completed in March, 1909. The route *via* Tarcoola was, for several reasons, chosen in preference to that *via* Gawler Range and Fowler's Bay. The estimated cost of construction and equipment of the line on the basis of a 4-ft. 8½-in. gauge, from Port Augusta in South Australia to Kalgoorlie in the Western Australian goldfields, a distance of 1,063 miles, was £4,045,000. In September, 1911, a Bill was introduced into the Commonwealth Parliament to authorise the construction of the line, and it became law in December following. In South Australia an Act was passed enabling the Commonwealth to acquire lands for the railway in South Australia not exceeding one-eighth of a mile wide on either side of the line, but no town lands are to be included at any time. In Western Australia, an Act was also passed by which all necessary lands are to be granted to the Commonwealth for railway purposes. A Railway Construction Department was created by the Federal Government to carry out the work, which was commenced at Port Augusta in September, 1912. On 12th September the ceremony of cutting the first sod was performed at Port Augusta by the Governor-General, Lord Denman, in the presence of a representative gathering, and on the 12th February, 1913, a like ceremony was performed at Kalgoorlie by the Prime Minister of the Commonwealth (the Right Hon. Andrew Fisher), and the line was thus commenced at both ends.

On the 17th October, 1917, the eastern and western divisions met at 621 miles 58 chains *ex* Kalgoorlie, and railway communication between Western Australia and the eastern States was thus established.

In the last issue of the Year Book (No. 11, pp. 663 to 666 and p. 1213) a short description was given of the country through which the line passes between Kalgoorlie and Port Augusta, together with particulars of the rate of construction, permanent way, water supply, rolling stock, etc. Owing to considerations of space it has not been possible to repeat the information in this issue.

On the 22nd October, 1917, the first through train left Port Augusta with an official party on board for Kalgoorlie. It should be mentioned that owing to deviations from the original route, the length of this line was reduced from 1,063.39 miles to 1,051.30 miles, a saving of 12.09 miles.

5. **Federal Territory Railway—Queanbeyan-Canberra.**—This line was built by the Railway Construction Branch of the Public Works Department, New South Wales, and was completed and taken over by the Chief Commissioner of Railways for that State, who has since worked the line for and on behalf of the Commonwealth Government. The line was opened for departmental goods traffic on 25th May, 1914. It connects with the New South Wales railway system at Queanbeyan, is 4.94 miles in length, and has sidings of an aggregate length of 2.75 miles.

6. **Summary of Federal Railways.**—The following table shews the railway lines open for traffic under the control of the Commonwealth at 30th June, 1918, together with the lines which have been or are being surveyed :—

FEDERAL GOVERNMENT RAILWAYS, 30th JUNE, 1918.

Terminals.	Miles.
OPEN FOR TRAFFIC.	
Darwin to Katherine (Northern Territory)	199.56
Port Augusta to Oodnadatta (South Australia)	477.96
Canberra to Queanbeyan (Federal Territory)	4.94
Trans-Australian—Port Augusta to Kalgoorlie	1,051.30
Total opened for traffic	1,733.76
SURVEYED, OR BEING SURVEYED.	
Katherine River to Mataranka (Northern Territory)	64.50
Mataranka to Daly Waters (Northern Territory)	95.00
Kingoonya to Boorthanna (South Australia)	176.44
Canberra to Jervis Bay (Federal Territory)	140.23
Canberra (Federal Territory) to Federal Territory Border in the direction of Yass (New South Wales)	11.67
Daly Waters (Northern Territory) to Oodnadatta (South Australia)	851.50
Port Augusta to Crystal Brook (South Australia)	69.25
Total surveyed or being surveyed	1,408.59

7. **Average Miles Worked, Cost of Construction, Revenue, Expenditure, Train Mileage, Number of Passenger Journeys, and Tonnage of Goods and Live Stock carried on Federal Railways.**—In the following table will be found particulars of the average

miles worked, cost of construction, revenue, working expenses, train mileage, number of passenger journeys, and tonnage of goods and live stock carried on the Federal lines during the undermentioned periods :—

FEDERAL RAILWAYS.—AVERAGE MILES WORKED, COST OF CONSTRUCTION, REVENUE, WORKING EXPENSES, TRAIN MILEAGE, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK, 1911 TO 1918.

Year ended June 30.	Average Miles Open.	Cost of Construction.	Revenue.	Working Expenses.	Train Miles run.	No. of Pass. Journeys.	Tonnage of Goods and Live Stock.
			TRANS-AUSTRALIAN.				
		£	£	£			
1915	370	2,846,090	142,159	147,846	497,553	12,324	282,471
1916	668	4,747,062	273,959	273,959	622,919	7,667	248,744
1917	865	6,079,313	290,750	290,750	570,493	4,160	583,250
1918	1,051	6,674,278	175,039	232,468	475,936	17,934	124,806
			OODNADATTA.				
1911	(c)240	2,151,309	(c)29,954	(c)33,150	(c)90,031	(a)	(a)
1912	478	2,151,710	57,939	69,367	214,321	(a)	14,071
1913	478	2,153,323	75,869	77,926	281,739	(a)	15,302
1914	478	2,153,438	76,317	86,102	296,094	(a)	(a)
1915	478	2,155,156	66,664	95,871	273,488	(a)	(a)
1916	478	2,158,355	64,518	95,069	276,690	(a)	(a)
1917	478	2,281,271	66,429	102,298	254,927	(a)	(a)
1918	478	2,281,939	69,231	94,458	259,838	(a)	(a)
			FEDERAL TERRITORY.				
1914	0.5	45,486	..	..	..	..	..
1915	5	46,108	1,088	1,635	(b)6,000	(a)	(a)
1916	5	47,103	1,040	1,638	1,080	1,079	12,114
1917	5	52,591	592	1,446	1,169	1,578	6,586
1918	5	47,883	705	1,496	1,127	300	7,261
			NORTHERN TERRITORY.				
1911	(c)73	1,040,734	(c)5,614	(c)5,882	(c)15,046	(c)1,130	(c)935
1912	146	1,040,702	13,267	18,769	30,916	1,791	1,895
1913	146	1,040,702	14,398	17,963	30,683	1,249	2,781
1914	146	1,040,702	17,819	22,991	30,229	2,739	3,615
1915	146	1,040,702	22,143	27,796	39,652	3,857	11,995
1916	146	1,055,754	31,518	47,953	52,424	4,718	30,007
1917	187	1,664,370	28,695	39,771	87,652	8,034	27,529
1918	200	1,695,556	32,511	53,482	112,648	11,546	40,862
			TOTAL ALL LINES.				
(c)1911	313	3,192,043	35,568	39,032	105,077	(d)1,130	(d)935
1912	624	3,192,412	71,206	88,136	245,237	(d)1,791	15,966
1913	624	3,194,025	90,267	95,889	312,422	(d)1,249	18,083
1914	(e)624	3,239,626	(e)94,136	109,093	e326,323	(f)2,739	(f)3,615
1915	999	6,088,056	232,054	273,148	816,693	(f)16,181	(f)294,466
1916	1,297	8,008,274	371,035	418,619	953,113	(d)13,464	(d)290,865
1917	1,535	10,077,545	386,466	434,265	914,241	(d)13,772	(d)617,365
1918	1,734	10,699,656	277,486	381,904	849,549	(d)29,780	(d) 72,929

(a) Not available. (b) Estimated. (c) For six months only. (d) Exclusive of Oodnadatta line. (e) Exclusive of Federal Territory line. (f) Exclusive of Oodnadatta and Federal Territory lines.

8. **Number and Description of Rolling Stock, 1918.**—The following table shews the numbers of locomotives and rolling stock in use on the Federal railways, classified according to gauge:—

CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK ON FEDERAL RAILWAYS, 1917-18.

Railway.	Gauge.		Total.
	4 ft. 8½ in.	3 ft. 6 in.	
LOCOMOTIVES.			
Trans-Australian	45	1	46
Oodnadatta	..	(*a*)	..
Federal Territory	(*b*)	..	..
Northern Territory	..	12	12
Total	45	13	58
PASSENGER VEHICLES.			
Trans-Australian	31	..	31
Oodnadatta	..	(*a*)	..
Federal Territory	(*b*)	..	..
Northern Territory	..	4	4
Total	31	4	35
VEHICLES OTHER THAN PASSENGER.			
Trans-Australian	742	31	773
Oodnadatta	..	(*a*)	..
Federal Territory	(*b*)	..	..
Northern Territory	..	306	306
Total	742	337	1,079

(*a*) South Australian Government railway locomotives and rolling stock used.
(*b*) New South Wales Government railway locomotives and rolling stock used.

9. **Number of Railway Employees.**—The following table shews the number of employees on the Federal railways at 30th June, 1918, classified according to (*a*) salaried staff, and (*b*) wages staff.

FEDERAL RAILWAYS.—NUMBER OF EMPLOYEES ON RAILWAYS, 1917-18.

Railway.	1917-18.	
	Salaried Staff.	Wages Staff.
Trans-Australian	201	913
Oodnadatta	(*a*)	(*a*)
Federal Territory	(*b*)	(*b*)
Northern Territory	12	164
Total	213	1,077

(*a*) Worked by South Australian Government railways.
(*b*) Worked by New South Wales Government railways.

10. **Accidents.—Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock since the 1st January, 1911, on the Federal railways :—

FEDERAL RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED ON FEDERAL RAILWAYS, 1911-18.

Railway.	1911.*a*	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.
			NUMBER OF PERSONS KILLED.				
Trans-Australian ..	..	..	2	13	1	1	3
Oodnadatta ..	1	..	..	2	..	..	1
Federal Territory ..	..	..	..	..	..	..	..
Northern Territory	..	..	..	..	1	..	..
Total ..	1	..	2	15	2	1	4
			NUMBER OF PERSONS INJURED.				
Trans-Australian ..	..	..	3	34	16	37	139
Oodnadatta ..	1	2	13	2	6	4	12
Federal Territory ..	..	..	..	..	..	..	..
Northern Territory	1	..	..	..	1	2	7
Total ..	2	2	16	36	23	43	158

a To 30th June.

11. **Passenger Fares, Goods Rates, and Parcel Rates.**—(i) *Passenger Fares.* In the following table the fares for certain specified distances on the Trans-Australian and Northern Territory Railways are set out :—

ORDINARY PASSENGER MILEAGE RATES ON THE UNDERMENTIONED FEDERAL RAILWAYS, 1918.

TRANS-AUSTRALIAN RAILWAY.

Class.	For a Journey of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
	s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
First single fare	8 4	16 8	33 4	50 0	64 7	77 1
Average per passenger mile ..	2.00	2.00	2.00	2.00	1.94	1.85
Second single fare	5 7	11 1	22 3	33 4	43 1	51 5
Average per passenger mile ..	1.34	1.33	1.34	1.33	1.29	1.23
	600 Miles.	700 Miles.	800 Miles.	900 Miles.	1,000 Miles.	1,051 Miles.
	s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
First single fare	89 7	102 1	110 5	117 9	122 11	125 0
Average per passenger mile ..	1.79	1.75	1.66	1.57	1.48	1.43
Second single fare	59 9	68 1	73 8	78 6	81 11	83 4
Average per passenger mile ..	1.20	1.17	1.11	1.05	0.98	0.95

ORDINARY PASSENGER MILEAGE RATES ON FEDERAL RAILWAYS, 1918—*continued.*

NORTHERN TERRITORY RAILWAY.

Class.	For a Journey of—		
	50 Miles.	100 Miles.	200 Miles.
	s. d.	s. d.	s. d.
First single fare	10 5	20 10	41 8
Average per passenger mile	2.50	2.50	2.50
Second single fare	6 7	13 0	27 9
Average per passenger mile	1.58	1.56	1.67

In the case of the Trans-Australian railway through passengers have to pay for sleeping berths in addition to the ordinary fares. For the first class the charge is ten shillings for a night or part of a night, the corresponding charge for the second class being five shillings. There is also a fixed scale of charges made in respect of the meals served between Port Augusta and Kalgoorlie. It will be observed that both the first and second class fares on the Trans-Australian railway have a constant rate for distances up to 300 miles and then have a tapering character beyond that distance.

(ii) *Goods Rates.* The rates for agricultural produce and ordinary goods on the Trans-Australian and Northern Territory railways are set out in the following tables :—

RATES FOR AGRICULTURAL PRODUCE IN TRUCK LOADS ON THE UNDERMENTIONED FEDERAL RAILWAYS, 1918.

TRANS-AUSTRALIAN RAILWAY.

——	Charge per Ton in Truck Loads for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Rate	5 4	9 6	15 9	20 9	25 9	29 9
Average per ton mile ..	1.28	1.14	0.95	0.83	0.77	0.71
	600 Miles.	700 Miles.	800 Miles.	900 Miles.	1,000 Miles.	1,051 Miles.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Rate	33 9	37 9	41 9	45 3	48 9	50 0
Average per ton mile ..	0.68	0.65	0.63	0.60	0.59	0.57

NORTHERN TERRITORY RAILWAY.

——	Charge per Ton in Truck Loads for a Haul of—		
	50 Miles.	100 Miles.	200 Miles.
	s. d.	s. d.	s. d.
Rate	7 8	11 10	20 3
Average per ton mile	1.84	1.42	1.22

ORDINARY GOODS MILEAGE RATES, 1918.

HIGHEST CLASS FREIGHT.

Trans-Australian Railway.

	Charge per Ton for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
Rate	s. d. 32 1	s. d. 58 2	s. d. 105 0	s. d. 144 1	s. d. 183 2	s. d. 211 9
Average per ton mile ..	7.70	6.98	6.30	5.76	5.50	5.08
	600 Miles.	700 Miles.	800 Miles.	900 Miles.	1,000 Miles.	1,051 Miles.
Rate	s. d. 240 5	s. d. 269 1	s. d. 297 9	s. d. 317 6	s. d. 337 4	s. d. 343 9
Average per ton mile ..	4.81	4.61	4.47	4.23	4.05	3.92

Northern Territory Railway.

	Charge per Ton for a Haul of—		
	50 Miles.	100 Miles.	200 Miles.
Rate	s. d. 34 9	s. d. 66 0	s. d. 128 6
Average per ton mile	8.34	7.93	7.71

LOWEST CLASS FREIGHT.

Trans-Australian Railway.

	Charge per Ton for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
Rate	s. d. 5 4	s. d. 9 6	s. d. 15 9	s. d. 20 9	s. d. 25 9	s. d. 29 9
Average per ton mile ..	1.28	1.14	0.95	0.83	0.77	0.71
	600 Miles.	700 Miles.	800 Miles.	900 Miles.	1,000 Miles.	1,051 Miles.
Rate	s. d. 33 9	s. d. 37 9	s. d. 41 9	s. d. 45 3	s. d. 48 9	s. d. 50 0
Average per ton mile ..	0.68	0.65	0.63	0.60	0.59	0.57

Northern Territory Railway.

	Charge per Ton for a Haul of—		
	50 Miles.	100 Miles.	200 Miles.
Rate	s. d. 7 8	s. d. 11 10	s. d. 20 3
Average per ton mile	1.84	1.43	1.22

In the above tables it will be seen that the average rates per ton mile are of a tapering character.

(iii) *Parcel Rates.* On the Trans-Australian railway parcels weighing between 85 and 112 lbs. are taken by passenger train 500 miles for thirteen shillings and threepence.

(C) State Railways.

1. **Mileage Open, 1901 to 1918.**—The following table shews the length of State railways open for traffic on the 30th June in the years 1901–2 and 1913 to 1918 :—

STATE RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, 1901–2 AND 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr.	All States.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1901–02 ..	3,026	3,302	2,801	*a*1,736	1,360	*b*462	145	12,832
1912–13 ..	3,930	3,647	4,381	1,690	2,854	507	..	17,009
1913–14 ..	3,967	3,835	4,570	1,845	2,967	519	..	17,703
1914–15 ..	4,134	3,875	4,838	2,157	3,332	533	..	18,869
1915–16 ..	4,188	4,100	4,967	2,187	3,332	562	..	19,336
1916–17 ..	4,437	4,123	5,214	2,221	3,425	581	..	20,001
1917–18 ..	4,679	4,152	5,295	2,242	3,491	588	..	20,447

a Including the mileage (478) of the Oodnadatta line. *b* To the 31st December, 1902.

The following statement shews the actual mileage opened for traffic in the year 1917–18, and also the annual average increase in mileage opened since 1908 in each State :—

STATE RAILWAYS.—MILEAGE OPENED ANNUALLY.

Mileage.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Total all States.
Mileage opened during 1917–18	242.23	29.00	30.46*a*	21.84	65.98	6.35	395.86
Average annual mileage increase in 10 years to 30th June, 1918 ..	120.70	75.60	193.60	36.30	154.80	12.40	593.40

(*a*) Exclusive of 50.90 miles acquired by purchase.

(i) *New South Wales.* During the year ended 30th June, 1918, the following lines were opened for traffic :—Wardell Road Fork (0.41 mile); Denman to Merriwa (35.07 miles); Wyalong to Cargelligo (70.45 miles); Wauchope to Kempsey (30.65 miles); Cobar to C.S.A. Mines (7.05 miles); Meeks' Road Goods Loop (0.57 mile); Troy Junction to Merrygoen (59.37 miles); and Caragabal to Forbes (38.66 miles); making a total of 242.23 miles.

(ii) *Victoria.* The following lines were opened for traffic during 1917–18 :—Dartmoor to Mumbannar (12.80 miles); Mumbannar to South Australian border (5.65 miles); and Toolando to Kanagulk (10.55 miles); a total of 29.00 miles.

(iii) *Queensland.* The increase of 81.36 miles in the mileage opened for traffic in 1917–18 was due to the opening of the following lines :—Rifle Range to Mitchelton (0.81 mile); Rannes to Baralaba (22.46 miles); Mackay to Farleigh (7.19 miles); and by purchase of the Proserpine Tramway (38.34 miles); and of the Woongarra Tramway (12.56 miles).

(iv) *South Australia.* The lines opened for traffic in this State during the year 1917–18 were on the 5-ft. 3-in. gauge, from Nuriootpa to Truro (10.05 miles); and Mount Gambier to Victorian boundary (11.79 miles); a total of 21.84 miles.

By the transfer on 1st January, 1911, to the Commonwealth Government of the line from Port Augusta to Oodnadatta, the railways of the State were reduced to the extent of 478 miles. This line, however, was leased to the State by the Commonwealth Government until 31st December, 1913, since which date it has been worked on behalf of the Commonwealth under agreement. (See page 637.)

(v) *Western Australia.* In the year 1917–18 the following new lines were opened for traffic :—Wagin to Bokal (34.35 miles); and Kondinin to Narembeen (31.63 miles); making a total of 65.98 miles.

(vi) *Tasmania.* During the year 1917–18 the line from National Park to Fitzgerald (6.35 miles) was opened for traffic.

2. **Average Mileage Worked, Train Miles Run, Number of Passenger Journeys, and Tonnage of Goods and Live Stock Carried, on State Government Railways.**—The table on page 644 gives the total mileage open for traffic at the end of each financial year, but, in considering the returns relating to revenue and expenditure, and other matters, it is desirable to know the average number of miles actually worked during each year. The next table shews the average number of miles worked, the total number of train miles run, the number of passenger journeys, and the tonnage of goods and live stock carried by the Government railways of each State during the years 1901–2 and 1913 to 1918 inclusive :—

STATE RAILWAYS.—AVERAGE MILEAGE WORKED, TRAIN MILES RUN, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1901-2 AND 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust. (b)	W. Aust.	Tasmania.	N. Ter. (f)	All States.
AVERAGE MILEAGE WORKED.								
1901–2	2,953	3,265	2,801	1,736	1,356	d468	145	12,724
1913–14	3,959	3,747	4,507	1,815	2,910	525	..	17,463
1914–15	4,057	3,848	4,730	2,026	3,096	536	..	18,293
1915–16	4,169	3,955	4,939	2,185	3,332	552	..	19,132
1916–17	4,313	4,104	5,067	2,193	3,370	577	..	19,624
1917–18	4,551	4,139	5,281	2,235	3,463	591	..	20,260
TRAIN MILES RUN.								
1901–2	11,649,059	11,284,944	5,666,058	4,196,138	4,507,919	d902,918	30,275	38,237,311
1913–14	20,549,695	15,028,649	11,346,334	6,731,284	5,565,062	1,000,740	..	60,221,764
1914–15	20,420,023	15,303,209	11,988,521	5,580,679	5,404,814	1,005,145	..	59,702,391
1915–16	21,556,034	13,826,538	11,571,746	5,630,984	5,149,289	1,051,511	..	58,786,102
1916–17	20,300,717	14,022,040	10,729,187	5,730,539	4,500,211	1,080,459	..	56,363,153
1917–18	18,143,267	13,626,371	10,319,694	5,440,515	4,094,510	1,056,373	..	52,680,730
NUMBER OF PASSENGER JOURNEYS.								
1901–2	30,885,214	57,465,077	a8,421,258	9,643,058	8,158,299	d761,345	3,755	115,338,006
1913–14	86,328,421	116,611,448	22,252,476	19,809,533	19,208,420	1,708,334	..	265,918,632
1914–15	88,774,451	117,259,926	24,257,552	18,831,273	18,635,327	1,750,905	..	269,509,434
1915–16	92,850,838	115,771,238	24,438,905	20,512,753	18,884,541	2,078,228	..	274,536,503
1916–17	96,709,846	103,341,540	24,837,714	18,107,015	17,466,744	1,971,888	..	267,434,747
1917–18	94,304,516	105,753,073	25,682,368	18,936,104	16,081,695	1,874,029	..	262,631,785
TONNAGE OF GOODS AND LIVE STOCK CARRIED.								
1901–2	6,467,552	3,433,627	1,881,570	1,392,257	1,888,146	d e407,505	2,436	c15,473,093
1913–14	13,245,842	5,816,088	4,301,410	3,103,471	3,170,144	408,864	..	30,045,819
1914–15	11,920,881	5,410,045	4,970.873	2,076,280	2,523,859	408,069	..	27,310,007
1915–16	11,915,500	5,829,835	4,570,883	2,396,938	2,554,858	388,782	..	27,656,796
1916–17	11,732,864	5,962,602	4,035,379	2,822,401	2,400,246	401,076	..	27,354,568
1917–18	11,293,060	6,231,093	4,154,441	2,767,734	2,259,070	407,405	..	27,112,803

(a) These figures are partly estimated, the actual returns excluding journeys by season ticket holders. (b) Exclusive of the Oodnadatta line (478 miles) as from the 1st January, 1911. (c) Exclusive of live stock returns for Tasmania. (d) For the calendar year 1902. The average mileage worked in some cases is greater than the actual mileage open, owing to the fact that the Government railways have running powers over certain private lines. (e) Exclusive of live stock. (f) Taken over by Commonwealth Government, 1st January, 1911.

3. **Length and Gauge of Railway Systems in each State.**—A map shewing the State railway lines, and also some private lines open to the public for general traffic, in the different States of the Commonwealth is given on page 647 hereinbefore. In all the States the Government railways are grouped, for the convenience of administration and management, into several divisions or systems, some of which have already been briefly referred to in dealing with the history of construction of the railways. The

subjoined summary shews concisely the gauge and length of the main and branch lines included in each division or system of the different States of the Commonwealth for the year ended the 30th June, 1918 :—

STATE RAILWAYS, 1917-18.

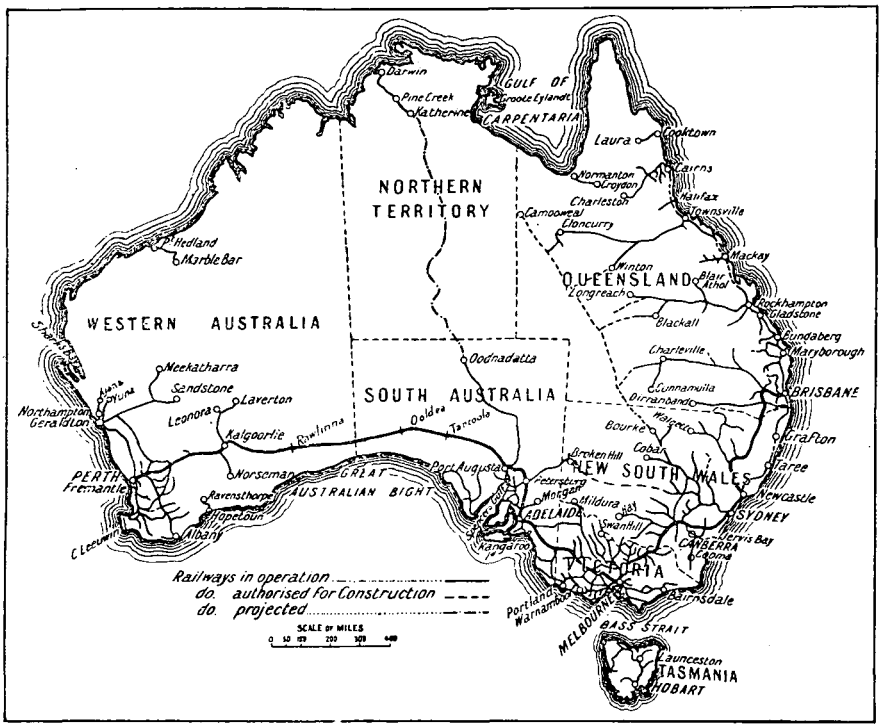
Particulars.	Length, including Suburban Lines, and Gauge.		Suburban. (1)
	4 ft. 8½ in.	3 ft. 6 in.	4 ft. 8½ in.
1. NEW SOUTH WALES.	Miles.	Miles.	Miles.
(i) The Northern line and branches—			
(a) Main line. Strathfield-Wallangarra ..	488.48	..	98.84
(b) Branch lines	620.23	..	5.21
(ii) The North Coast line and branches—			
(a) Main line. West Maitland–Murwillumbah	383.21	..	12.85
(b) Branch lines	17.89	..	..
(iii) The Western line and branches—			
(a) Main line. Sydney–Bourke	508.80	..	34.25
(b) Branch lines	1,034.76	..	24.58
(iv) The Southern line—			
(a) Main line. Granville–River Murray ..	386.25	..	20.69
(b) Branch lines	1,090.73	..	..
(v) The South Coast (Illawarra) line—			
(a) Main line. Sydney–Nowra	94.94	..	34.23
(b) Branch lines	13.93	..	9.99
(vi) Broken Hill line. Broken Hill–Tarrawingee ..	..	40.09	..
Total length all lines, 4,679.31 miles ..	4,639.22	40.09	240.64

(1) Including lines 34 miles from Sydney and Newcastle respectively, and the Richmond line.

2. VICTORIA.	5 ft. 3 in.	2 ft. 6 in.	(1) 5 ft. 3 in.
(i) The South-eastern system—			
(a) Main lines. Dandenong–Port Albert ..	117.27	..	..
Caulfield–Stony Point ..	38.72	..	13.50
(b) Branch lines	47.49	3.23	..
(ii) The Eastern system—			
(a) Main lines. South Yarra–Sale	125.27	..	16.00
Traralgon–Orbost	132.12	..	..
(b) Branch lines	74.69	26.06	1.60
(iii) The North-eastern system—			
(a) Main line. Essendon Junc.–River Murray	187.44	..	14.75
(b) Branch lines	575.20	30.49	1.50
(iv) The Northern system—			
(a) Main line. Melbourne–Echuca	156.00	..	20.25
(b) Branch lines	491.77	..	..
(v) The Midland system—			
(a) Maryborough–Merbein	246.49	..	..
(b) Branch lines	337.85	..	..
(vi) The Western and South-western systems—			
(a) Main lines. Sunshine–Warrenheip ..	61 95	..	10.75
Newport–Port Fairy ..	180.24	..	13.00
N. Geelong Junc.–Serviceton	267.57	..	..
(b) Branch lines	827.79	43.90	..
(vii) Metropolitan District—			
(a) Richmond–Healesville	37.27	..	17.00
(b) Branch lines	41.15	18.22	12.99
(c) Princes Bridge–Hurst Bridge	22.70	..	19.50
(d) Whittlesea Junction–Whittlesea	22.07	..	16.25
(e) Suburban lines—Port Melbourne, St. Kilda, Sandringham, Burnley–Darling, Deepdene–Burwood, Fawkner, Williamstown, etc.	38.69	..	38.69
Total length all lines, 4,151.64 miles ..	4,029.74	121.90	195.78

(1) Within 20 miles of Melbourne.

THE GOVERNMENT RAILWAY SYSTEMS OF THE COMMONWEALTH
AS AT 30TH JUNE, 1918.



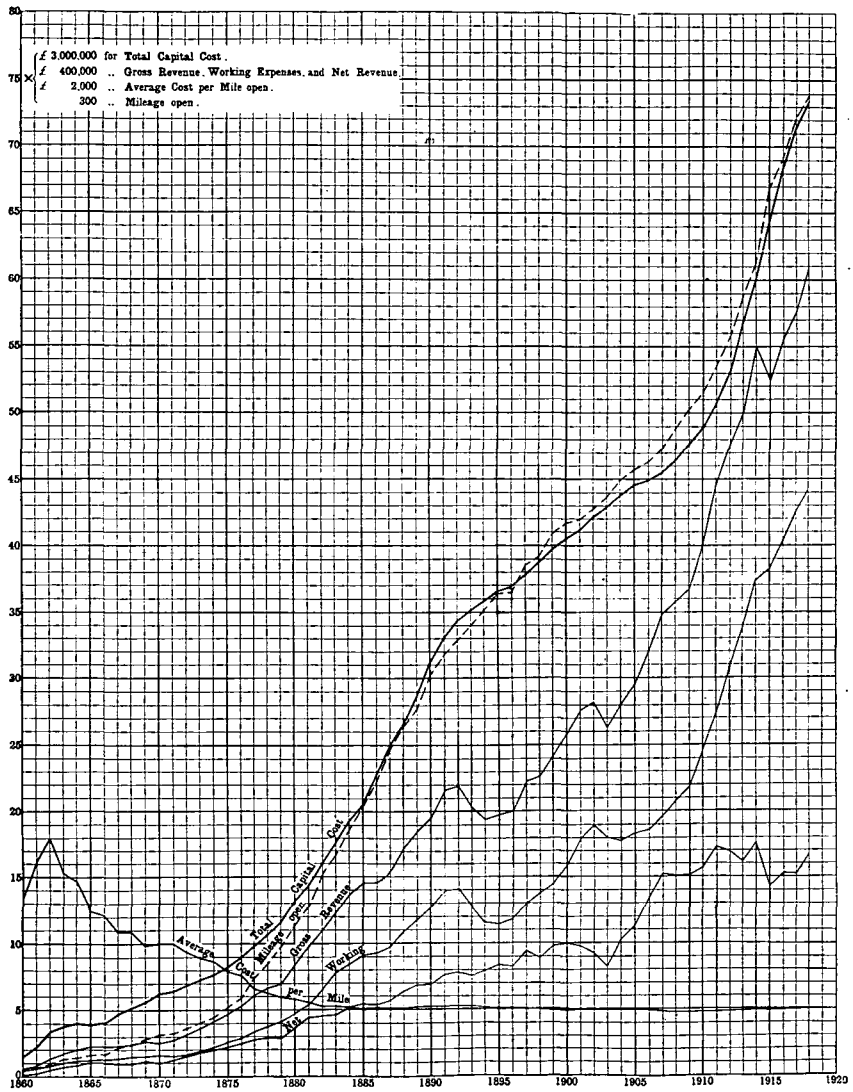
EXPLANATION OF MAP.—The continuous lines denote the existing railway lines of Australia, the heavier lines being the main routes.

Of the two transcontinental lines, viz., one joining the railways of South and Western Australia, thus connecting continuously by railway Queensland, New South Wales, Victoria, South Australia, and Western Australia, and one connecting Oodnadatta in South Australia with Katherine in the Northern Territory, the former has been constructed, and is shewn ————: while the latter, the construction of which is to be deferred for the present, is shewn — - — - —.

LIST OF PRINCIPAL SECTIONS OF RAILWAYS.

	Miles.		Miles.		Miles.
Townsville to Winton	368	Sydney to Nimmitabel	291	Adelaide to Broken Hill	334½
Townsville to Selwyn	552	Sydney to Melbourne (17¼ hours)	588½	Adelaide to Oodnadatta	688
Rockhampton to Longreach	428	Adelaide to Melbourne (17 hours)	482¾	Perth to Laverton	586
Brisbane to Cunnamulla	604	Melbourne to Merbein	358½	Perth to Meekatharra	600
Sydney to Brisbane (27⅛ hours)	715¾	Melbourne to Swan Hill	214½	Perth to Albany	341
Newcastle to Inverell	410	Melbourne to South Australian border *viâ* Murrayville	369½	Hobart to Launceston	133
Sydney to Bourke	511				
Sydney to Hay	466				

GRAPH SHEWING THE FINANCIAL POSITION OF THE GOVERNMENT RAILWAYS OF THE COMMONWEALTH, 1860 TO 1918.



(See page 655.)

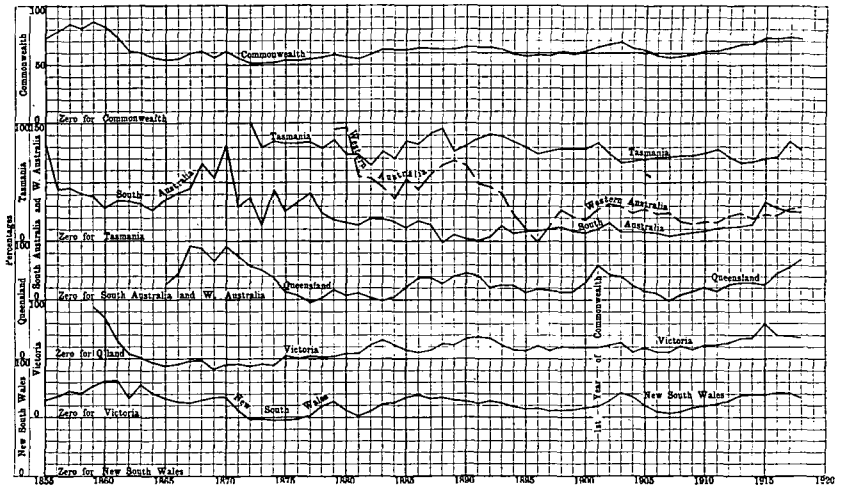
EXPLANATION OF GRAPH.—In the above diagram the base of each small square represents throughout one year. The significance of the vertical height of each square varies, however, according to the nature of the several curves.

In the heavy curve denoting the total capital cost of the railways of the Commonwealth, the vertical side of each square denotes £3,000,000.

In the three lighter curves, representing (i) gross revenue, (ii) working expenses, and (iii) net revenue, the vertical height of each small square denotes £400,000. For the curve of average cost per mile open, the vertical side of the small square denotes £2,000. The mileage open is shewn by a dotted curve, the vertical side of each square representing 300 miles.

For the curves shewing the percentage of working expenses to gross revenue, and the percentage of net revenue to capital cost, see graphs on pages 649 and 650 respectively.

GRAPH SHEWING PERCENTAGES OF WORKING EXPENSES TO GROSS REVENUE OF GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 TO 1918.

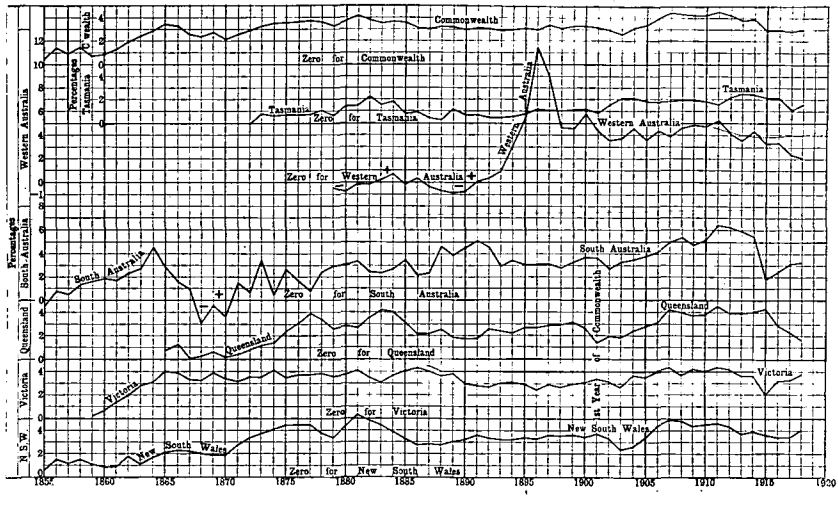


(See page 662.)

EXPLANATION OF GRAPH.—In the above diagram the base of each small square represents throughout one year. The vertical side of a small square denotes throughout 10 per cent., the heavy zero lines being different for each State and the Commonwealth, with, however, one exception, viz., that the zero line for South Australia and Western Australia is identical.

The curve for New South Wales commences in 1855; that for Victoria commences in 1859; that for Queensland in 1865; that for Tasmania in 1872; and that for Western Australia in 1879, these being the years in which the Government Railway systems of the several States were inaugurated.

GRAPH SHEWING PERCENTAGES OF NET REVENUE TO CAPITAL COST OF GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 TO 1918.



(See page 664.)

EXPLANATION OF GRAPH.—In the above diagram the base of each small square represents throughout one year. The vertical side of a small square denotes 1 per cent., the thick zero lines, however, for each State and for the Commonwealth being different. This was necessary to avoid confusion of the curves.

Where the curve for any State falls below that State's zero line, loss is indicated, the working expenses having exceeded the gross revenue.

The curve for New South Wales commences in 1855; that for Victoria commences in 1859; that for Queensland in 1865; that for Tasmania in 1872; and that for Western Australia in 1879, these being the years in which the Government railway systems of the several States were inaugurated.

STATE RAILWAYS—*continued.*

Particulars.	Length, including Suburban Lines, and Gauge.		Suburban.
	3 ft. 6 in.	2 ft. 0 in.	3 ft. 6 in.
	Miles.	Miles.	Miles.
3. QUEENSLAND.			
(i) The Southern Division—			
(*a*) South Coast line. Yeerongpilly to Tweed Heads	68.13	..	[1]19.93
(*b*) South Metropolitan lines and branches	78.86	..	28.09
(*c*) Main line. Brisbane to Toowoomba	102.20	..	[2]24.09
(*d*) Branch lines	170.07	..	..
(*e*) Southern line. Toowoomba to Wallangarra	122.70	..	..
(*f*) Branch lines	113.70	..	..
(*g*) South-western line. Warwick to Dirranbandi	256.44	..	..
(*h*) Western line. Toowoomba to Cunnamulla	503.12	..	..
(*i*) Branch lines	408.28	..	..
(*j*) North Coast line. Northgate Junction to Maryborough	161.59	..	[3]10.95
(*k*) Croydon Junction to 235 miles 14 chains	70.42	..	..
(*l*) Branch lines	431.88	..	..
(*m*) Suburban lines	25.24	..	25.24
(ii) The Central division—			
(*a*) North Coast line (south of Rockhampton)— 235 miles 14 chains to Rockhampton	160.58	..	..
Glenmore Junction (near Rockhampton) to Marlborough	62.60	..	..
(*b*) Central line. Rockhampton to Longreach	424.54	..	..
(*c*) Branch lines	518.33	..	..
(iii) The Northern Division—			
(*a*) North Coast line (portions north of Rockhampton)—			
Koumala to Paget Junction (Mackay line)	33.60	..	..
Mackay to Farleigh	7.19	..	..
Proserpine to Don	38.34	..	..
Bowen to Carstairs (Bowen line)	65.32	..	..
Carstairs to Stewart's Creek (Gt. N. line)	49.16	..	..
Townsville to Moongobulla	38.96	..	..
Mooliba to Cairns (Cairns line)	41.71	..	..
(*b*) Mackay line (exclusive of North Coast line) and Branches	63.13	..	..
(*c*) Bowen line (see North Coast line)			
(*d*) Great Northern Railway—			
Townsville to Cloncurry	479.98	..	..
Branch lines	390.23	..	..
(*e*) Geraldton and Mourilyan Tramway	..	29.35	..
(*f*) Cairns line. Cairns to Ravenshoe	104.46	..	..
Branch lines	48.40	..	..
(*g*) Cooktown line. Cooktown to Laura	68.33	..	..
(*h*) Normanton line. Normanton to Croydon	95.96	..	..
(*i*) Mount Mulligan line	29.80	..	..
(*j*) Mount Garnet line	32.55	..	..
Total length all lines, 5,295.15 miles	5,265.80	29.35	108.30

1. To Beenleigh. 2. To Ipswich. 3. To Petrie.

STATE RAILWAYS—*continued.*

Particulars.	Length, including Suburban Lines, and Gauge.		Suburban. 1.
	5 ft. 3 in.	3 ft. 6 in.	5 ft. 3 in.
	Miles.	Miles.	Miles.
4. SOUTH AUSTRALIA.			
(i) Midland system—			
(*a*) Main line. Adelaide–Terowie	139.81	..	24.51
(*b*) Branch lines	187.60	..	22.91
(ii) The Northern system—			
(*a*) Terowie–Quorn	..	94.41	..
(*b*) Other lines	5.15	477.81	..
(iii) The Southern system—			
(*a*) Main line. Adelaide–Serviceton (near) ..	194.93	..	23.50
(*b*) Branch lines	195.32	..	34.14
(iv) Murray Lands lines	298.14	..	..
(v) South-eastern system—			
(*a*) Wolseley–Mount Gambier	..	112.26	..
(*b*) Branch lines	11.79	112.73	..
(vi) Port Broughton line	..	10.01	..
(vii) Eyre Peninsula system—			
(*a*) Port Lincoln–Cape Thevenard	..	269.53	..
(*b*) Branch lines	..	132.84	..
Total length all lines, 2,242.33 miles ..	1,032.74	1,209.59	105.06

1. Within 25 miles of Adelaide.

	3 ft. 6 in.	3 ft. 6 in.
5. WESTERN AUSTRALIA.	Miles.	Miles. 1.
(i) Eastern railway—		
(*a*) Main line. Fremantle–Northam ..	78.13	40.78
(*b*) Branch lines	93.71	34.70
(ii) South-western railway—		
(*a*) East Perth–Picton Junction	110.11	18.20
(*b*) Branch lines	498.80	19.96
(iii) Great Southern railway—		
(*a*) Main line. Spencer's Brook–Albany Jetty	280.05	..
(*b*) Branch lines	622.73	..
(iv) Eastern Goldfields railway—		
(*a*) Main line. Northam–Laverton and Leonora	533.35	..
(*b*) Branch lines	156.51	..
(v) East Northern–Mullewa railway—		
(*a*) Main line	262.86	..
(*b*) Branch lines	164.84	..
(vi) Northern railway—		
(*a*) Main line. Geraldton–Meekatharra ..	333.97	..
(*b*) Branch lines	207.84	..
(vii) Hopetoun–Ravensthorpe railway	33.78	..
(viii) Port Hedland–Marble Bar	114.40	..
Total length all lines, 3,491.08 miles ..	3,491.08	113.64

1. Suburban included in preceding column.

STATE RAILWAYS—*continued.*

Particulars.	Length, including Suburban Lines, and Gauge.		Suburban. 1.
	3 ft. 6 in.	2 ft. 0 in.	3 ft. 6 in.
	Miles.	Miles.	Miles.
6. TASMANIA.			
(i) Main line—			
(*a*) Hobart–Evandale Junction	121.80	..	9.69
(*b*) Branch lines	120.12	..	..
(ii) Western line—			
(*a*) Launceston to Myalla	135.00	..	..
(*b*) Branch lines	71.14	..	..
(iii) North Eastern line—			
(*a*) Launceston to Branxholm	71.01	..	..
(*b*) Branch line	0.60	..	..
(iv) Sorell line	14.65	..	..
(v) Strahan–Zeehan line and Branch line	30.10	..	..
(vi) North-east Dundas tramway	..	19.38	..
(vii) Comstock tramway	..	4.20	..
Total length all lines, 588.00 miles ..	564.42	23.58	9.69

1. Within 10 miles of Hobart.

GRAND TOTAL OF STATE RAILWAYS, 20,447.51 MILES.

4. **Administration and Control of State Railways.**—In each State of the Commonwealth the policy has been established that the railways should be under the control of the Government. This policy, as has been shewn, was actualised early in the railway history of Australia, and, excepting in cases presenting unusual circumstances, may be regarded as the settled policy of the country. In earlier issues of the Year Book (see No. 6, p. 693) will be found a description of the methods adopted by the various State Governments in the control and management of their railways.

5. **Lines under Construction, and Authorised Lines, 1918.**—The following statement gives particulars up to the 30th June, 1918, of the mileage of State railways (*a*) under construction, and (*b*) authorised for construction but not commenced :—

STATE RAILWAYS.—MILEAGE UNDER CONSTRUCTION AND AUTHORISED, 30th JUNE, 1918.(*a*)

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	All States.
Mileage under construction	462.94	112.19	(*b*)496.00	122.03	160.75	40.30	1,394.21
Mileage authorised but not commenced ..	374.15	32.25	1,335.00	117.50	92.50	..	1,951.40

(*a*) For similar statistics of Federal railways see page 638. (*b*) Exclusive of 97 miles on which work was suspended.

(i) *Lines under Construction.* In spite of the great extension of State railways which has taken place since the year 1875 throughout the Commonwealth, there are still, in some of the States, tracts of country of immense area which are as yet practically undeveloped, and in which little in the nature of permanent settlement has been accomplished; the general policy in the States is to extend the existing lines inland,

in the form of light railways, as settlement increases, and although 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 is kept in view. (*a*) In *New South Wales* the lines under construction are chiefly of the "pioneer" class, and are made with a view to affording railway communication over level country to districts in which the traffic would not warrant the expenditure necessary to provide thoroughly equipped lines. As the traffic increases, the permanent way is strengthened in order to allow the heavy types of engines to run over it. It is probable that railway extension in New South Wales, in the near future, will be mainly confined to lines of the "pioneer" class. The line under construction on 30th June, 1918, from Kempsey to Macksville (29.79 miles), when completed, will form part of an alternative main route between Newcastle and Brisbane. Other lines under construction at that date were as follow:—Henty to Billabong (33.00 miles), Craboon to Coolah (23.95 miles), Matakana to Mount Hope (10.25 miles), Tottenham to the Mines (6.55 miles), Condobolin to Menindie (285.70 miles), and Broken Hill to Menindie (73.70 miles), a total distance of 462.94 miles. The following lines have also been under construction, but further work thereon has been suspended for the present:—Nimitabel to Bombala (37.85 miles), Sydenham to Botany (6.20 miles), Werris Creek to Binnaway (88.11 miles), Macksville to Raleigh (20.68 miles), Coff's Harbor to Glenreagh (26.37 miles), and Glenreagh to Dorrigo (44.25 miles), a total distance of 223.46 miles. (*b*) *Victoria.* In this State the following lines were under construction by the Board of Land and Works on the 30th June, 1918:—*5-ft. 3-in. gauge:* Shelley to Cudgewa (19.64 miles), Cavendish to Toolondo (33.45 miles), Nayook to Tooronga River (5.98 miles), Koo-wee-rup to McDonald's Track (30.75 miles), North Geelong to Fyansford (2.87 miles), and Nandaly to Kulwin (19.50 miles), making in all 112.19 miles. An electric tramway of 4-ft. 8½-in. gauge was also under construction from Sandringham to Black Rock, a distance of 2.38 miles. (*c*) *Queensland.* In December, 1910, the North Coast Railway Act was passed. Under this Act a series of lines, when constructed, will link up a number of existing lines in such a way that a through line will be obtained from Rockhampton to Cairns, *via* Mackay and Townsville, a total distance of 569 miles. By the completion of this line it will be possible to travel from Cairns to the southern border of the State at Wallangarra, a total distance of about 1,189 miles. At the same time the Great Western Railway Act was passed. Under this Act provision is made for the extension in a westerly or south-westerly direction of the lines already constructed to Quilpie, Yaraka, Winton, and Dajarra, in such a manner that they will form junctions with a line to be made running north-westerly from Eromanga to Camooweal. These extensions, together with the north-westerly line, will make an aggregate distance of 990 miles to be constructed. With the completion of both these schemes, the railways of this State will be brought into direct communication with each other on both their east and west boundaries. On the 30th June, 1918, the following lines, of an aggregate length of 496 miles, were under construction:—Rifle Range to Dayborough (24 miles), Goondoon to Kalliwa (31 miles), Murgon to Proston (26 miles), Branch to Windera (12 miles), Evanslea to Cecil Plains (20 miles), Orallo to Injune Creek (33 miles), Dawson Valley line, Rannes to Baralaba (23 miles), and Longreach to Winton (109 miles). Of the Great Western Railway the following part has been under construction but operations have been suspended:—Section C: From Winton to Elderslie (37 miles). The following parts of the North Coast Railway were under construction:—Section A: Marlborough towards St. Lawrence (43 miles); Section B: Koumala to Carmila Creek (25 miles); Mackay northwards towards Proserpine (31 miles); Sections B and C: Proserpine southwards towards Mackay (21 miles); Section D: From Moongobulla to Ingham (28 miles); Section E: From Mooliba to Innisfail (12 miles). In the northern division the line from Merinda to Bowen coalfields, 50 miles long, and the second section of the line from Milanda to Millaa Millaa, 8 miles long, were also under construction. The following lines were under construction during the year, but work was suspended:—Kalbar to Mount Edwards (10 miles), and Tara to Surat (50 miles). (*d*) *South Australia.* In this State the lines under construction on the 30th June, 1918, were as follow:—Riverton to Spalding (51.25 miles), Balhannah to Mount Pleasant (22 miles), New Palmer to Sedan (20 miles), and Palmer to Monarto (28.78 miles), 5-ft. 3-in. gauge—an aggregate distance of 122.03 miles. (*e*) In *Western Australia* the following lines were in course of construction by the Public Works Department on the 30th June, 1918:—Bokal to Bowelling (28 miles), Calingiri

to Piawaning (19.50 miles), Esperance northward (60 miles), and Narembeen to Merredin (53.25 miles), a total distance of 160.75 miles. (*f*) *Tasmania.* At 30th June, 1918, the following lines were under construction :—Branxholm to Moorina (13.75 miles), and Stanley to Trowutta (26.55 miles), a total distance of 40.30 miles.

(ii) *Lines Authorised for Construction.* (*a*) *New South Wales.* At the 30th June, 1918, the following lines had been authorised for construction but not commenced :—Mirrool to Hillston (62.18 miles), Barmedman to Rankin Springs (70.91 miles), Coonabarabran to Burren Junction (95.36 miles), Gilgandra to Collie (24 miles), Canowindra to Eugowra (26.70 miles), Grafton to South Grafton (2.34 miles), Roslyn to Taralga (15.82 miles), and Molong to Dubbo (76.84 miles), a total distance of 374.15 miles. (*b*) In *Victoria* the following lines were authorised, but their construction had not been commenced up to the end of June, 1918 :—*5-ft. 3-in. gauge :* White Cliffs to Yelta (10 miles), Alberton to Won Wron (12.25 miles), and Bittern to Red Hill (10 miles), a total of 32.25 miles. (*c*) *Queensland.* In addition to the new lines upon which work has been commenced, Parliament has also authorised the construction of the following parts of the Great Western Railway : Section A, from Quilpie to Eromanga (120 miles) ; Section B, from Yaraka (251 miles) ; Section C, from 37 miles to Springvale (324 miles) ; and Section D, from Dajarra (258 miles) ; and on the North Coast Railway, Section B, from Carmila Creek to St. Lawrence (33 miles), Mackay northwards towards Prosperine (25 miles) ; Section D, from beyond Moongobulla to Cardwell (33 miles) ; Section E, from Innisfail southwards to Cardwell (57 miles). The following lines were also authorised for construction : Inglewood to Texas and Silverspur (44 miles), Mount Edwards to Maryvale (28 miles), Lanefield to Rosevale (17 miles), Gatton to Mount Sylvia (11 miles), Juandah to Taroom (42 miles), Dirranbandi extension (52 miles), Mundubbera to the Northern Burnett (32 miles), and Mount Molloy extension (8 miles), a total of 1,335 miles. (*d*) In *South Australia*, Parliament has authorised the construction of lines on the 5-ft. 3-in. gauge (i) from Paringa to Renmark, a distance of 2.50 miles, and (ii) from Long Plains to Red Hill, a distance of 61 miles, and also of lines on the 3-ft. 6-in. gauge (i) from Wandana to Penong (54 miles), and (ii) from Kielpa to Mangalo Hall (26.25 miles). The latter line, however, cannot be proceeded with except by resolution of both Houses of Parliament. (*e*) In *Western Australia* the following lines were authorised for construction up to the 30th June, 1918 :—Busselton-Margaret River (37.75 miles), Dwarda-Narrogin (33 miles), and Nyabing-Pingerup (21.75 miles), a distance of 92.50 miles. (*f*) In *Tasmania* there were no lines authorised for construction which were not being proceeded with at the 30th June, 1918.

6. ***Cost of Construction and Equipment of State Railways.***—The total cost of construction and equipment of the State railways of Australia at the 30th June, 1918, amounted to £209,602,066, or to an average of £10,263 per mile open for traffic. Particulars as to the capital expenditure incurred in each State on lines open for traffic are given in the following table :—

STATE RAILWAYS.—MILEAGE AND COST TO 30th JUNE, 1918.

State.	Length of Line Open (Route).	Total Cost of Construction and Equipment.	Average Cost per Mile Open.	Cost per Head of Population.	Mileage per 1,000 of Population.
	Miles.	£	£	£	Miles.
New South Wales (*a*) ..	4,679.31	75,050,450	16,039	39.29	2.45
Victoria	4,151.64	(*b*) 56,535,414	(*b*) 13,659	39.90	2.93
Queensland	5,295.15	37,301,889	7,045	53.89	7.65
South Australia (*a*) ..	2,242,33	(*c*) 17,974,348	(*c*) 8,058	40.90	5.10
Western Australia (*a*)..	3,491.08	17,760,566	5,087	57.09	11.22
Tasmania	588.00	4,979,399	8,470	24.55	2.90
All States ..	20,447.51	209,602,066	10,263	42.15	4.11

(*a*) Exclusive of Federal railways.
(*b*) Exclusive of cost of line from Murrayville to South Australian border (12.53 miles).
(*c*) Exclusive of cost of line from Mount Gambier and Victorian border (11.79 miles).

It will be seen that the lowest average cost per mile open is in Western Australia, and is only £5,087, which is slightly less than one-third of the highest average cost, namely, £16,039 in New South Wales, compared with an average of £10,263 for all the State Government railways. In Western Australia there have been comparatively few engineering difficulties to contend with; moreover, the system was adopted in several instances in that State of giving contractors the right to carry traffic during the period of their contracts, with the result that, at least in all goldfields railway contracts, the cost of construction was considerably lessened.

In the above table the figures relating to cost of construction and equipment do not include the discounts and flotation charges on loans allocated to the railways. This will explain the reason for the differences between the amounts shewn above for Queensland and South Australia and those shewn in the railway reports for these States.

(i) *Reduction of Cost per Mile in Recent Years.* The average cost per mile of the lines constructed lately in the Commonwealth is very much less than the figure given in the above table, in consequence of the construction of light "pioneer" lines, which have already been referred to, and which it was originally considered in New South Wales could be laid down at a cost of £1,750 per mile (exclusive of stations and bridges). It should also be remembered that in the early days of railway construction there were considerable engineering difficulties to overcome, and that labour was scarce and dear. Since 1892 many hundreds of miles of the "pioneer" lines have been opened in New South Wales, the average cost ranging from about £2,000 to £7,500 per mile, according to the difficulties met in the country traversed. The lowest cost per mile for any line previously constructed had been that of the line from Nyngan to Cobar and the Peak, the average cost of which, to the end of June, 1918, was £3,786. In Victoria also the cost of construction has been greatly reduced in recent years. The total cost to the 30th June, 1918, of the narrow gauge (2 ft. 6 in.) lines, having a length of one hundred and twenty-two miles, was only £341,443, which gives an average cost per mile of only £2,801. In the other States the cost of construction per mile has been similarly reduced by building light railways as cheaply as possible. Fairly substantial permanent way is laid down with reduced ballast, and, as settlement progresses and traffic increases, the road is strengthened, and the stations and siding accommodation enlarged. The subjoined table gives examples of some of the more expensive lines, most of which were built in the early days of railway construction in Australia :—

STATE RAILWAYS.—EXAMPLES OF LINES CONSTRUCTED AT LARGE CAPITAL EXPENDITURE PER MILE OPEN.

Line.	Gauge.	Length.			Total Cost.	Average Cost per Mile.	Date of Opening.
		Double Lines and over.	Single Line.	Total.			
	ft. in.	Miles.	Miles.	Miles.	£	£	
NEW SOUTH WALES—							
Penrith to Bathurst ..	4 8½	88.50	22.55	111.05	4,105,278	36,968	1876
Sydney to Kiama	4 8½	39.90	57.79	97.69	4,321,636	44,237	1887
Homebush to Waratah ..	4 8½	95.71	..	95.71	3,577,826	37,380	1889
VICTORIA—							
Melbourne to Bendigo ..	5 3	100.89	..	100.89	4,950,548	49,069	1862
North Geelong to Ballarat ..	5 3	41.45	11.98	53.43	1,957,262	36,632	1862

The next table gives instances of lines which have been constructed in more recent years at a comparatively small cost per mile.

The average cost per mile of the 458.77 miles comprised in the above table was £41,224, whereas the average cost of the 351.24 miles referred to in the next table was £1,913.

STATE RAILWAYS.—EXAMPLES OF LINES CONSTRUCTED AT SMALL CAPITAL EXPENDITURE PER MILE OPEN.

Line.	Gauge. ft.	Gauge. in.	Length. Miles.	Total Cost. £	Average Cost per Mile. £	Date of Opening.
NEW SOUTH WALES—						
Parkes to Condobolin ..	4	8½	62.75	132,787	2,116	1898
Burren Junction to Collarenebri ..	4	8½	42.55	104,509	2,455	1906
VICTORIA—						
Wangaratta to Whitfield ..	2	6	30.49	40,135	1,316	1899
Wycheproof to Sea Lake ..	5	3	47.89	85,236	1,780	1895
Ultima to Chillingollah ..	5	3	20.14	34,254	1,701	1909
QUEENSLAND—						
Dalby to Bell	3	6	23.50	38,520	1,639	1906
Mahar to Jandowae	3	6	28.24	61,291	2,170	1914
SOUTH AUSTRALIA—						
Wandilo to Glencoe	3	6	9.13	11,733	1,286	1904
Tailem Bend to Pinnaroo ..	5	3	86.55	163,394	1,888	1906

The comparisons afforded in the two preceding tables are subject to certain limitations, inasmuch as the cost is naturally greater in the case of the older lines. Further, the figures given represent the cost of construction only (*i.e.*, are exclusive of cost of equipment), and cannot therefore be directly compared with the average cost per mile open given in the table on page 655.

(ii) *Capital Cost of Construction and Equipment, Total and per Mile Open.* The increase in the total capital cost of construction and equipment of Government railways in each State for 1901–2 and for each year from 1913 to 1918 is shewn in the following table :—

STATE RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT, 1901-2 AND 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Terr. (*c*)	All States.
TOTAL COST OF LINES OPEN.								
	£	£	£	£	£	£	£	£
1901–2	40,565,073	40,613,784	20,119,143	*a*12,769,899	7,410,426	*b*3,840,747	1,018,700	126,337,772
1913–14	60,128,491	49,216,744	31,817,792	15,240,779	15,873,852	4,496,634	..	176,774,292
1914–15	64,008,436	51,518,792	33,405,877	16,597,139	16,980,712	4,628,911	..	187,139,867
1915–16	68,825,592	54,428,148	34,787,623	17,236,543	17,118,195	4,798,646	..	197,194,747
1916–17	72,006,621	55,652,275	36,476,000	17,687,344	17,466,802	4,913,395	..	204,202,437
1917–18	75,050,450	*d*56,535,414	37,301,889	*e*17,974,348	17,760,566	4,979,399	..	209,602,066
COST PER MILE OPEN.								
1901–2	13,405	12,300	7,183	(*a*)7,428	5,449	(*b*)8,313	7,124	9,860
1913–14	15,157	12,834	6,962	8,260	5,350	8,663	..	9,986
1914–15	15,483	13,295	6,905	7,695	5,096	8,683	..	9,918
1915–16	16,434	13,275	7,004	7,881	5,138	8,534	..	10,198
1916–17	16,229	13,498	6,996	7,964	5,100	8,447	..	10,210
1917–18	16,039	(*d*)13,659	7,045	(*e*)8,058	5,087	8,470	..	10,263

(*a*) Including the Oodnadatta line. (*b*) To the 31st December, 1902. (*c*) Transferred to Commonwealth Government, 1st January, 1911. (*d*) Exclusive of cost of line from Murrayville to South Australian border (12.53 miles). (*e*) Exclusive of cost of line from Mount Gambier to Victorian border (11.79 miles).

(iii) *Loan Expenditure on Railways.* The subjoined table shews the total loan expenditure on Government railways and tramways (including lines both open and unopen) in each State during the financial year 1901–2, and on railways only for all States except Western Australia in 1913–14, and Tasmania for the years 1913–14 to 1917–18.

STATE RAILWAYS.—LOAN EXPENDITURE, 1901-2 AND 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
1901–2*a*	2,243,672	483,325	751,451	121,907	578,985	*b*80,948	4,260,288
1913–14	4,903,328	2,361,660	1,679,482	1,489,168	*a*1,227,711	*a*146,055	11,807,404
1914–15	4,394,318	2,809,926	1,739,156	1,285,431	670,209	*a*228,285	11,127,325
1915–16	4,787,669	2,440,317	2,034,614	929,143	414,026	*a*233,601	10,839,370
1916–17	3,706,422	1,266,352	1,342,249	413,095	308,027	*a*133,056	7,169,201
1917–18	2,294,547	761,705	984,147	500,441	181,394	*a*55,561	4,777,795

(*a*) Including tramways. (*b*) For the calendar year 1902.

The following statement shews the total loan expenditure on railways to the 30th June, 1918 :—

STATE RAILWAYS.—TOTAL LOAN EXPENDITURE IN EACH STATE TO 30th JUNE, 1918.

State ..	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.*a*	All States.
	£	£	£	£	£	£	£
Expenditure	79,553,656	54,644,702	39,217,225	20,584,860	17,178,590	5,466,600	216,649,633

(*a*) Including tramways.

7. Gross Revenue; Total, per Average Mile Worked, and per Train-mile Run.—The following table shews the total revenue from all sources, the revenue per average mile worked, and the revenue per train-mile run in each State during 1901–2 and each financial year from 1913 to 1918 inclusive :—

STATE RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED, AND PER TRAIN-MILE RUN, 1901-2 AND 1913-18.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr. (*b*)	All States.
Total Gross Revenue.								
	£	£	£	£	£	£	£	£
1901–2 ..	3,668,686	3,367,843	1,382,179	1,085,175	1,521,429	*a*233,211	12,522	11,271,045
1913–14 ..	7,742,241	5,560,958	3,660,022	2,337,251	2,257,011	330,168	..	21,887,651
1914–15 ..	7,616,511	5,161,073	3,832,003	1,745,378	2,058,244	323,265	..	20,736,474
1915–16 ..	8,006,078	5,705,163	3,745,350	1,965,410	2,088,110	348,028	..	21,858,139
1916–17 ..	8,380,084	5,952,719	3,831,967	2,273,530	1,877,382	340,505	..	22,656,187
1917–18 ..	8,954,880	6,562,259	4,023,921	2,331,549	1,816,388	356,735	..	24,045,732
Gross Revenue per Average Mile Worked.								
	£	£	£	£	£	£	£	£
1901–2 ..	1,242	1,031	493	625	1,122	(*a*)498	86	886
1913–14 ..	1,956	1,484	812	1,288	776	629	..	1,253
1914–15 ..	1,877	1,341	810	861	665	603	..	1,134
1915–16 ..	1,920	1,443	758	899	627	630	..	1,142
1916–17 ..	1,943	1,450	756	1,037	557	591	..	1,155
1917–18 ..	1,968	1,585	762	1,043	524	604	..	1,166
Gross Revenue per Train-mile Run.								
	d.	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*
1901–2 ..	75.58	71.62	58.55	62.07	81.00	(*a*)61.99	99.27	70.74
1913–14 ..	90.42	88.81	77.42	83.33	97.34	79.18	..	87.23
1914–15 ..	89.52	80.94	76.71	75.06	91.40	77.18	..	83.36
1915–16 ..	89.14	99.03	77.68	83.77	97.32	79.43	..	89.24
1916–17 ..	99.07	101.89	85.72	95.22	100.12	75.64	..	96.47
1917–18 ..	118.46	115.58	93.58	102.85	106.47	81.05	..	109.55

(*a*) For the calendar year 1902. (*b*) Federal railway since 1st January, 1911.

8. Coaching, Goods, and Miscellaneous Receipts.—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 subjoined table shews the gross revenue for 1901–2 and 1913–18, classified according to the three chief sources of receipts. The total of the three items specified has already been given in the preceding paragraph.

STATE RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS, 1901-2 AND 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.(b)	W. Aust.	Tas.(a)	N. Ter. (c)	All States.
				COACHING TRAFFIC RECEIPTS.				
	£	£	£	£	£	£	£	£
1901–2	1,367,796	1,580,218	435,434	369,677	442,719	110,196	3,032	4,309,072
1913–14	3,236,512	2,868,705	1,257,100	752,493	666,665	165,909	..	8,947,384
1914–15	3,315,294	2,795,673	1,284,595	668,403	617,553	157,726	..	8,839,244
1915–16	3,574,063	3,003,263	1,339,753	721,555	646,566	179,784	..	9,464,984
1916–17	3,637,656	2,918,557	1,308,896	739,483	607,537	171,220	..	9,383,349
1917–18	3,932,936	3,254,274	1,396,803	819,197	617,606	177,854	..	10,198,670
				GOODS AND LIVE STOCK TRAFFIC RECEIPTS.				
1901–2	2,263,837	1,719,462	862,234	681,045	1,037,099	116,061	7,996	6,687,734
1913–14	4,397,997	2,603,415	2,359,786	1,534,187	1,483,862	154,564	..	12,533,811
1914–15	4,206,234	2,268,375	2,516,380	1,049,074	1,350,740	153,845	..	11,544,648
1915–16	4,329,971	2,610,210	2,364,364	1,211,465	1,356,452	156,860	..	12,029,322
1916–17	4,542,619	2,934,259	2,433,868	1,502,363	1,176,058	158,162	..	12,747,329
1917–18	4,652,113	3,137,547	2,516,564	1,480,469	1,105,836	168,095	..	13,060,624
				MISCELLANEOUS RECEIPTS.				
1901–2	37,053	68,163	84,511	34,453	41,611	6,954	1,494	274,239
1913–14	107,732	88,838	43,136	50,571	106,484	9,695	..	406,456
1914–15	94,983	97,025	31,028	27,901	89,951	11,694	..	352,582
1915–16	102,044	91,690	41,233	32,390	85,092	11,384	..	363,833
1916–17	199,809	99,903	89,203	31,684	93,787	11,123	..	525,509
1917–18	369,831	170,438	110,554	31,883	92,946	10,786	..	786,438

(a) Tasmanian figures for 1902 are for year ended the 31st December. (b) Exclusive of Oodnadatta line as from 1st January, 1911. (c) Federal railway since 1st January, 1911.

(i) *New South Wales.* The total earnings for the year 1917–18 amounted to £8,954,880, an increase of £574,796 as compared with the previous year. Increases of £295,280, £109,494, and £170,022 took place in the coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(ii) *Victoria.* In Victoria, traffic receipts shewed an increase of £609,540, as compared with the previous year. This was due to increases of £335,717, £203,288, and £70,535 in the receipts from coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(iii) *Queensland.* In Queensland, there was an increase of £191,954 in 1917–18 relatively to 1916–17. There were increases of £87,907, £82,696 and £21,351 in respect of coaching traffic, goods and live stock traffic, and miscellaneous receipts respectively.

(iv) *South Australia.* In this State there were increases of £79,714 and £199 in coaching traffic and miscellaneous receipts respectively, and a decrease of £21,894 in the goods and live stock receipts, the net increase for the year 1917–18 being £58,019 in advance of the receipts for the previous year.

(v) *Western Australia.* In this State the earnings in 1917–18 shewed a decrease of £60,994 as compared with 1916–17. There was an increase of £10,069 in the coaching traffic, but decreases of £70,222 and £841 in the goods and live stock traffic, and miscellaneous receipts respectively.

(vi) *Tasmania.* The gross revenue in 1917–18 shewed an increase of £16,230 as compared with the previous year. In the coaching traffic and goods and live stock traffic receipts there were increases of £6,634 and £9,933 respectively, and a decrease of £337 in the miscellaneous receipts.

The following table shews for the two years 1916–17 and 1917–18 the percentage which each class of receipts bears to the total gross revenue :—

STATE RAILWAYS.—PERCENTAGE OF REVENUES FROM VARIOUS SOURCES ON TOTAL REVENUE, 1916 TO 1918.

Particulars.	1916–17.						
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	43.41	49.03	34.16	32.53	32.36	50.28	41.70
Goods and live stock ..	54.21	49.29	63.51	66.08	62.64	46.45	56.27
Miscellaneous	2.38	1.68	2.33	1.39	5.00	3.27	2.03

Particulars.	1917–18.						
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	43.92	49.59	34.71	35.13	34.00	49.86	42.41
Goods and live stock ..	51.95	47.81	62.54	63.50	60.88	47.12	54.32
Miscellaneous	4.13	2.60	2.75	1.37	5.12	3.02	3.27

9. **Coaching Traffic Receipts per Average Mile Worked, and per Passenger-train Mile.**—The subjoined table shews the receipts from coaching traffic per average mile of line worked, and per passenger-train mile, in each State and for all States for the year ended the 30th June, 1918 :—

STATE RAILWAYS.—COACHING TRAFFIC RECEIPTS PER MILE WORKED, AND PER PASSENGER-TRAIN MILE, 1917-18.

State.	Number of Passenger-Train Miles.(a)	Coaching Traffic Receipts.		
		Gross.	Per Average Mile Worked.	Per Passenger-Train Mile.
	No.	£	£	*d.*
New South Wales	9,440,720	3,932,936	864	99.98
Victoria	7,279,999	3,254,274	786	107.28
Queensland	3,598,543	1,396,803	264	93.16
South Australia	2,596,950	819,197	367	75.71
Western Australia	1,734,674	617,606	178	85.45
Tasmania	447,807	177,854	301	95.32
Total	25,098,693	10,198,670	503	97.52

(a) The returns include the undermentioned mixed-train mileage, which has been divided between passenger-train miles and goods-train miles in the proportion of one-third and two-thirds respectively in the case of the following States :—

New South Wales ..	1,447,202	Western Australia ..	925,204
Victoria	2,513,111	Tasmania	658,345

The preceding table shews that, amongst the States, there is a considerable difference in the amount of the average receipts per average mile worked. In this case New South Wales leads with a maximum of £864, and Western Australia has a minimum of £178, the average for all States being £503. In the case of the receipts per passenger-train mile the maximum occurs in Victoria with 107.28 pence and the minimum in South Australia, 75.71 pence, the average for all States being 97.52 pence.

With regard to the number of passenger journeys in the various States, it will be seen from the table on page 645 *ante* that there has been a large preponderance in favour of Victoria for years past, though it has been a declining one during the years 1915–18.

This preponderance in Victoria is accounted for, to a great extent, by the large number of metropolitan suburban passengers in that State. Of the total number of passengers carried in Victoria in 1917–18, 97,410,850 were metropolitan suburban passengers, *i.e.*, were carried between stations within twenty miles of Melbourne, while in New South Wales the number of suburban passenger journeys between stations within thirty-four miles of Sydney, including the Richmond line, and of Newcastle, including Greta, was 84,750,703. In Sydney a large proportion of the metropolitan suburban traffic is carried on the electric and steam tramways, the number of passenger journeys during the year 1917–18 being 242,629,241. In Melbourne, on the other hand, the number of passengers carried on the two cable tramway systems during the same period was 118,438,599; and the number carried on the St. Kilda-Brighton, Prahran-Malvern Trust, Melbourne-Brunswick-Coburg Trust, Hawthorn Trust, and the North Melbourne tramways, 50,540,955, making a total of 168,979,554. This matter is referred to hereinafter. (See subsection 14.)

10. Goods and Live-Stock Traffic Receipts per Mile Worked, per Goods-train Mile, and per Ton Carried.—The following table shews the gross receipts from goods and live-stock traffic per mile worked, per goods-train mile, and per ton carried, for the year ended the 30th June, 1918 :—

STATE RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS PER MILE WORKED, PER GOODS-TRAIN MILE, AND PER TON CARRIED, 1917-18.

State.	Number of Goods-Train Miles. (*a*)	Goods and Live-Stock Tonnage.	Goods and Live-Stock Traffic Receipts.			
			Gross.	Per Average Mile Worked.	Per Goods-Train Mile.	Per Ton Carried.
	No.	Tons.	£	£	*d.*	*d.*
New South Wales ..	8,702,547	11,293,060	4,652,113	1,022	128.30	98.87
Victoria	6,346,372	6,231,093	3,137,547	758	118.65	120.85
Queensland ..	6,721,151	4,154,441	2,516,564	477	89.86	145.38
South Australia ..	2,843,565	2,767,734	1,480,469	662	124.95	128.38
Western Australia ..	2,359,836	2,259,070	1,105,836	319	112.47	117.48
Tasmania	608,566	407,405	168,095	284	66.29	99.02
Total ..	27,582,037	27,112,803	13,060,624	645	113.64	115.61

(*a*) The returns include the undermentioned mixed-train mileage, which has been divided between passenger-train miles and goods-train miles in the proportion of one-third and two-thirds respectively in the case of the following States :—

New South Wales ..	1,447,202	Western Australia ..	925,204
Victoria	2,513,111	Tasmania	658,345

From the preceding table it will be seen that the average cost of freight per ton ranges from 98.87 pence in New South Wales to 145.38 pence in Queensland, the average for all States being 115.61 pence.

11. **Working Expenses.**—In order to make an adequate comparison of the working expenses of the Government railways in the several States, allowance should be made for the variation of gauges and of physical and traffic conditions, not only on the railways of the different States, but also on different portions of the same system. Where traffic is light, the percentage of working expenses is naturally greater than where 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. Further, though efforts have been made from time to time to obtain a uniform system of accounts in the several States, the annual reports of the Commissioners do not yet comprise fully comparable data of railway expenditure.

The following table shews the total annual expenditure, comprising expenses on (*a*) maintenance of way, works, and buildings; (*b*) locomotive power—repairs and renewals; (*c*) carriages and wagons—repairs and renewals; (*d*) traffic expenses; (*e*) compensation; and (*f*) general and miscellaneous charges; and the percentage of the total of these expenses upon the corresponding gross revenues in each State for 1901–2 and for each year 1913 to 1918 :—

STATE RAILWAYS.—TOTAL WORKING EXPENSES AND PERCENTAGES OF WORKING EXPENSES ON GROSS REVENUE, 1901-2 AND 1913 TO 1918.

Year.	N.S.W.	Victoria. (*a*)	Q'land.	S. Aust. (*d*)	W. Aust.	Tasmania.	Nor. Ter. (*c*)	All States.
				TOTAL WORKING EXPENSES.				
	£	£	£	£	£	£	£	£
1901–2	2,342,369	2,072,374	992,751	689,517	1,256,370	(*b*)173,292	34,649	7,561,322
1913–14	5,409,820	3,752,643	2,371,261	1,505,765	1,572,008	222,713	..	14,834,210
1914–15	5,311,162	4,114,973	2,401,679	1,448,495	1,497,826	225,995	..	15,000,130
1915–16	5,661,168	3,997,412	2,745,061	1,545,489	1,511,655	248,651	..	15,709,436
1916–17	5,915,360	4,154,040	2,994,187	1,725,341	1,448,451	289,186	..	16,526,565
1917–18	5,940,447	4,451,092	3,410,157	1,747,055	1,451,334	277,952	..	17,278,037
				PERCENTAGE OF WORKING EXPENSES ON GROSS REVENUE.				
	%	%	%	%	%	%	%	%
1901–2	63.85	61.53	71.83	63.54	82.58	(*b*)74.31	276.70	67.09
1913–14	69.87	67.48	64.79	64.43	69.65	67.45	..	67.77
1914–15	69.73	79.73	62.67	82.99	72.77	69.91	..	72.34
1915–16	70.71	70.07	73.29	78.63	72.39	71.45	..	71.87
1916–17	70.59	69.78	78.14	75.89	77.15	84.93	..	72.95
1917–18	66.34	67.83	84.75	74.93	79.90	77.92	..	71.85

(*a*) Including amounts paid for special expenditure and charges for belated repairs and in reduction of deficiencies. (*b*) For the calendar year 1902. (*c*) Federal railway since 1st January, 1911. (*d*) Exclusive of the Oodnadatta line as from 1st January, 1911.

(i) *New South Wales.* In this State the total working expenses in 1917–18 amounted to £5,940,447, an increase of £25,087 as compared with the previous year.

(ii) *Victoria.* In Victoria the increase of £297,052 in working expenses was owing mainly to certain special and abnormal changes, increments to staff, and to the higher price of coal.

(iii) *Queensland.* In this State the working expenses increased £415,970 from £2,994,187 in 1916–17 to £3,410,157 in 1917–18. The increase was mainly due to the additions to the wages of the staff, expenditure in respect of damages caused by floods and cyclones, and the rise in price of stores.

(iv) *South Australia.* In South Australia the working expenses in 1917–18 shewed an increase of £21,714 over 1916–17, viz., from £1,725,341 to £1,747,055. It should be mentioned that the average mileage worked during the year was 42 miles greater than in the previous year.

(v) *Western Australia.* In this case the expenditure in 1917–18 was £2,883 greater than in the previous year. As the train mileage run was 405,701 less than in the previous year, the locomotive and rolling stock charges were considerably lower, but maintenance and traffic expenses were greater, mainly owing to the higher cost of stores.

(vi) *Tasmania.* In 1917–18 the working expenses were £11,234 lower than in the previous year. This was rendered possible by reductions in the train mileage run.

In the preceding table it will be observed that the percentages of the total working expenses to the total gross earnings of the States railways have varied but slightly during the period 1914–18, after a sudden rise in the year 1914–15.

(vii) *Working Expenses per Average Mile Worked and per Train-mile Run.* The following table shews the working expenses per average mile worked and per train-mile run in each State for the years 1901–2 and 1913 to 1918 :—

STATE RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED AND PER TRAIN-MILE RUN, 1901-2 AND 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust. (*b*)	W. Aust.	Tas.	N. Ter.	All States.
Working Expenses per Average Mile Worked.								
	£	£	£	£	£	£	£	£
1901–2	793	634	354	397	927	(*a*)370	238	594
1913–14	1,367	1,001	526	830	540	424	..	849
1914–15	1,309	1,069	508	715	484	422	..	820
1915–16	1,358	1,011	556	707	454	450	..	821
1916–17	1,372	1,012	591	787	430	502	..	842
1917–18	1,305	1,075	646	782	419	470	..	838
Working Expenses per Train-mile Run.								
	d.	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*
1901–2	48.26	44.07	42.05	39.44	66.89	*a*46.06	274.67	47.46
1913–14	63.18	59.93	50.16	53.69	67.80	53.41	..	59.12
1914–15	62.42	64.53	48.08	62.29	66.51	53.96	..	60.30
1915–16	63.03	69.39	56.93	65.87	70.45	56.75	..	64.14
1916–17	69.93	71.10	66.98	72.26	77.25	64.24	..	70.37
1917–18	78.58	78.40	79.31	77.07	85.07	63.15	..	78.72

(*a*) For the calendar year 1902. (*b*) Excluding the Oodnadatta line as from the 1st of January, 1911.

12. **Distribution of Working Expenses.**—The subjoined table shews the distribution of working expenses, among four chief heads of expenditure, for the years 1901–2 and 1913 to 1918 :—

STATE RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1901-2 AND 1913 to 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tasmania.	N. Terr.	All States.
				MAINTENANCE.				
	£	£	£	£	£	£	£	£
1901–2 ..	554,483	501,938	355,793	166,691	246,931	(b)58,612	29,001	1,913,449
1913–14 ..	1,109,749	935,652	649,925	308,244	362,517	57,685	..	3,423,772
1914–15 ..	918,790	1,107,310	626,793	280.062	346,771	58.253	..	3,337,984
1915–16 ..	895,526	993,619	738,160	306,420	361,627	66,618	..	3,366,970
1916–17 ..	932,990	927,215	774,833	391,334	349,714	82,571	..	3,458,757
1917–18 ..	996,502	1,049,270	851,525	304,462	371,411	72,515	..	3,645,685
				LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.				
1901–2 ..	1,102,314	855,464	389,746	343,572	670,485	(b)63,792	3,210	3,428,583
1913–14 ..	2,687,079	1,636,480	1,015,522	803,421	746,882	96,676	..	6,986,060
1914–15 ..	2,755,669	1,789,836	1,051,683	793,997	714,173	99,829	..	7,205,187
1915–16 ..	2,917,299	1,747,319	1,198,160	859,334	714,802	108,887	..	7,545,801
1916–17 ..	2,926,231	1,953,262	1,326,902	909,660	681,243	125,889	..	7,923,187
1917–18 ..	2,755,183	2,042,846	1,515,121	982,298	656,576	125,190	..	8,077,214
				TRAFFIC EXPENSES.				
1901–2 ..	588,938	640,442	226,745	162,626	306,409	(b)41,734	2,108	1,969,002
1913–14 ..	1,491,423	1,066,738	656,406	365,954	415,836	57,731	..	4,054,088
1914–15 ..	1,502,945	1,099,026	671,622	347,437	392,628	57,814	..	4,071,472
1915–16 ..	1,638,942	1,127,568	744,229	350,472	393,033	58,571	..	4,312,815
1916–17 ..	1,763,466	1,137,703	821,941	391,309	375,655	64,247	..	4,554,321
1917–18 ..	1,727,861	1,225,479	974,513	426,775	379,991	63,728	..	4,798,347
				OTHER CHARGES.				
1901–2 ..	96.634	74,530	20,467	16,628	32,545	(b)9,154	330	250,288
1913–14 ..	121,569	113,773	49,408	28,146	46,773	10,621	..	370,290
1914–15 ..	133,758	118,801	51,576	26,999	44,254	10,099	..	385,487
1915–16 ..	209,401	123,906	64,512	29,263	42,193	14,575	..	483,850
1916–17 ..	292,673	135,760	70,511	33,038	41,839	16,479	..	590,300
1917–18 ..	460,901	133,497	68,998	33,520	43,356	16,519	..	756,791

(a) Excluding the Oodnadatta line as from the 1st of January, 1911. (b) For the calendar year 1902.

13. **Net Revenue.**—The following table shews the net sums available to meet interest charges, also the percentage of such sums upon the capital cost of construction and equipment of lines opened for traffic in each State for the years 1901–2 and 1913 to 1918 :—

STATE RAILWAYS.—NET REVENUE AND PERCENTAGE OF NET REVENUE ON CAPITAL COST OF LINES OPEN, 1901-2 AND 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tasmania.	N. Ter.	All States.
				NET REVENUE.				
	£	£	£	£	£	£	£	£
1901–2 ..	1,326,317	1,295,469	389,428	395,658	265,059	b59,919	−22,127	3,709,723
1913–14 ..	2,332,421	1,808,315	1,288,761	831,486	685,003	107,455	..	7,053,441
1914–15 ..	2,305,349	1,046,100	1,430,324	296,883	560,418	97,270	..	5,736,344
1915–16 ..	2,344,910	1,707,751	1,000,289	419,921	576,455	99,377	..	6,148,703
1916–17 ..	2,464,724	1,798,679	837,780	548,189	428,931	51,319	..	6,129,622
1917–18 ..	3,014,433	2,111,167	613,764	584,494	365,054	78,783	..	6,767,695
				PERCENTAGE OF NET REVENUE ON CAPITAL EXPENDITURE.				
	%	%	%	%	%	%	%	%
1901–2 ..	3.27	3.19	1.94	3.10	3.58	b1.56	−2.17	2.94
1913–14 ..	3.88	3.67	4.05	5.46	4.32	2.39	..	3.99
1914–15 ..	3.60	2.03	4.28	1.79	3.30	2.10	..	3.07
1915–16 ..	3.41	3.14	2.88	2.44	3.27	2.07	..	3.12
1916–17 ..	3.42	3.23	2.30	3.10	2.46	1.04	..	3.00
1917–18 ..	4.02	3.73	1.65	3.25	2.06	1.58	..	3.23

Note.—The minus sign (−) denotes net loss.

(a) Exclusive of Oodnadatta line as from the 1st of January, 1911. (b) For the calendar year 1902.

(i) *Net Revenue per Average Mile Worked and per Train-mile Run.* Tables shewing the gross earnings and the working expenses per average mile worked and per train-mile run have been given above. The net earnings, *i.e.*, the excess of gross earnings over working expenses, per average mile worked and per train-mile run are shewn in the following table :—

STATE RAILWAYS.—NET REVENUE PER AVERAGE MILE WORKED AND PER TRAIN-MILE RUN, 1901-2 AND 1913 TO 1918.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	N. Terr.	All States.
NET REVENUE PER AVERAGE MILE WORKED.								
	£	£	£	£	£	£	£	£
1901–2 ..	449	397	139	228	195	(b)128	−153	292
1913–14 ..	589	483	286	458	235	205	..	404
1914–15 ..	568	272	302	147	181	181	..	314
1915–16 ..	562	432	202	192	173	180	..	321
1916–17 ..	571	438	165	250	127	89	..	312
1917–18 ..	663	510	116	261	105	133	..	328
NET REVENUE PER TRAIN-MILE RUN.								
	d.	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*
1901–2 ..	27.32	27.55	16.50	22.53	14.11	(b)15.93	−175.40	23.28
1913–14 ..	27.24	28.88	27.26	29.64	29.54	25.77	..	28.11
1914–15 ..	27.10	16.41	28.63	12.77	24.89	23.23	..	23.06
1915–16 ..	26.11	29.64	20.75	17.90	26.87	22.68	..	25.10
1916–17 ..	29.14	30.79	18.74	22.96	22.87	11.40	..	26.10
1917–18 ..	39.88	37.18	14.27	25.78	21.40	17.90	..	30.83

Note.—The minus sign (−) denotes net loss.

(a) Exclusive of Oodnadatta line as from the 1st of January, 1911. (b) For the calendar year 1902.

14. **Traffic Conditions.**—Reference has already been made to the difference in the traffic conditions on many of the lines of the Commonwealth (see sub-sections 9, 10, and 11 hereof). These conditions differ not only in the several States, but also on different lines in the same State, and this is true with regard 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 sea-borne competition. On most of the lines extending into the more remote interior districts, traffic is light; the density of population diminishes rapidly as the coastal regions are left behind; and there is a corresponding diminution in the volume of traffic, while, in comparison with other more settled countries, there is but little back-loading.

As an indication of the different traffic conditions prevailing in the several States, the following table is given shewing the numbers of passenger journeys and the tons of goods carried (*a*) per 100 of the mean population; and (*b*) per average mile worked in each State during the financial year 1917–18 :—

STATE RAILWAYS.—PASSENGER JOURNEYS AND TONNAGE OF GOODS AND LIVE STOCK, 1917-18.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
(a) PER 100 OF MEAN POPULATION.							
Passenger journeys .. No.	5,028	7,524	3,810	4,381	5,212	942	5,365
Goods and live stock Tons	602	443	616	640	732	205	554
(b) PER AVERAGE MILE OF LINE WORKED.							
Passenger journeys .. No.	20,722	25,551	4,863	8,473	4,644	3,171	12,963
Goods and live stock Tons	2,481	1,505	787	1,238	652	689	1,338

Particulars of the actual numbers of passengers and tons of goods and live stock carried have already been given (see sub-section 2 hereof).

(i) *Metropolitan and Country Passenger Traffic.* A further indication of the difference in passenger traffic conditions might be obtained from a comparison of the volume of metropolitan, suburban, and country traffic in each State. Particulars are, however, available only for the States of New South Wales and Victoria. The subjoined table shews the number of metropolitan and country passengers carried in each of the States mentioned and the revenue derived therefrom during the year 1917–18 :—

STATE RAILWAYS.—METROPOLITAN, SUBURBAN, AND COUNTRY PASSENGER TRAFFIC, 1917-18.

Particulars.	Number of Passenger Journeys.			Revenue.		
	Metropolitan.	Country.	Total.	Metropolitan.	Country.	Total.
				£	£	£
N.S.W. ..	*a*84,750,703	9,553,813	94,304,516	1,100,149	2,373,191	3,473,340
Victoria ..	*b*97,410,850	8,342,223	105,753,073	1,205,721	1,686,835	2,892,556

(*a*) Within 34 miles of Sydney and Newcastle, and including the Richmond line.
(*b*) Within 20 miles of Melbourne.

From this table it will be seen that the number of passenger journeys in country districts in Victoria was less than the corresponding number in New South Wales, while the number of metropolitan passenger journeys in Victoria was greater than in New South Wales, although in the latter State both Sydney and Newcastle are included. In Sydney a larger proportion of the suburban traffic is carried by the tramway systems than in Melbourne. The Sydney ferries also carry a large number of suburban passengers (see § 3. Tramways).

For several years it has been recognised that the suburban passenger transport, both in Sydney and in Melbourne, was increasing so rapidly that it must eventually become impossible to cope with it under the existing systems. A scheme for the electrification of the Melbourne suburban lines was under the consideration of the Victorian Government in 1908, but owing chiefly to a doubt as to its success from a financial standpoint, its adoption was for a time deferred. In November, 1912, however, a Commission was appointed by Parliament to again consider the 1908 scheme, and, acting on its report, the Government decided to proceed at once with the electrification of the suburban lines. Contracts for the construction of power-houses and the necessary equipment were put in hand at an estimated cost of £2,250,299. It was anticipated that a portion of the suburban railway system would be electrically operated by the end of 1915, but owing to delays in the delivery of plant, due to the war, the date of opening had to be postponed. On the 28th May, 1919, the electric service was inaugurated by a train conveying certain Ministers of the Crown, officials, and others, running from Melbourne to Essendon, thence to Sandringham, and back to Melbourne. On the following day a limited number of electric trains commenced running between Essendon and Sandringham regularly, but on the old steam service times. It is anticipated that the service between Sandringham and Essendon will be wholly electric and run on the faster schedules at an early date. In Sydney, a Metropolitan Railway Construction Branch of the Railway Department has been created to deal specially with electrical transport in the city area. The Minister has approved of the construction of an underground city railway, and plans have been prepared and a commencement made with the preliminary works. The preliminary work in the location of a system of electric railways for the eastern, western, and northern suburbs has also been in hand. Further progress with this work has, however, for financial reasons, been deferred for the present.

(ii) *Goods Traffic.* The differing conditions of the traffic in each State might also, to some extent, be analysed by an examination of the tonnage of various classes of commodities carried and of the revenue derived therefrom. Comparative particulars regarding the quantities of some of the leading classes of commodities carried on the Government railways are available for all the States; corresponding information regarding the revenue derived from each class of commodity is not, however, generally

available in a comparable form. In this connection it may be stated that the following resolution was passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909 :—"That in view of the variations in the character and classification of the goods traffic in the different States, the subdivisions of tonnage carried and revenue in each State shall be those which best suit local conditions."

The following table shews the number of tons of various representative commodities carried, and the percentage of each class on the total tonnage carried during the financial year 1917–18 :—

STATE RAILWAYS.—CLASSIFICATION OF COMMODITIES CARRIED, 1917-18.

State.	Minerals.	Fire-wood.	Grain and Flour.	Hay, Straw, and Chaff.	Wool.	Live Stock.	All other Com-modities.	Total.
	TONS CARRIED.							
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales	a6,329,566	215,701	c1,398,994	341,720	120,612	523,683	2,163,518	11,093,794
Victoria ..	b1,120,246	538,133	1,636,690	311,443	70,059	451,704	2,102,818	6,231,093
Queensland ..	1,355,101	281,167	d37,261	f459,849	64,640	439,196	1,517,227	4,154,441
South Australia	742,346	159,494	775,744	60,456	28,967	112,118	888,609	2,767,734
Western Australia	424,493	575,851	496,419	79,641	25,593	73,095	583,978	2,259,070
Tasmania ..	109,736	42,403	(e)	34,627	4,981	18,775	196,883	407,405
All States ..	10,081,488	1,812,749	4,345,108	1,287,736	314,852	1,618,571	7,453,033	26,913,537
	PERCENTAGE ON TOTAL TONNAGE CARRIED.							
	%	%	%	%	%	%	%	%
New South Wales	57.05	1.95	12.61	3.08	1.09	4.72	19.50	100.00
Victoria ..	17.98	8.63	26.27	5.00	1.12	7.25	33.75	100.00
Queensland ..	32.62	6.77	0.90	11.07	1.55	10.57	36.52	100.00
South Australia	26.82	5.76	28.03	2.18	1.05	4.05	32.11	100.00
Western Australia	18.79	25.49	21.97	3.53	1.13	3.24	25.85	100.00
Tasmania ..	26.93	10.41	(e)	8.50	1.22	4.61	48.33	100.00
All States ..	37.46	6.74	16.14	4.79	1.17	6.01	27.69	100.00

(*a*) Exclusive of 199,266 tons of coal on which only shunting and haulage were collected. (*b*) Coal, stone, gravel, and sand (*c*) Up journey only. (*d*) Flour only. (*e*) Included in all other commodities. (*f*) Sugar-cane.

15. **Passenger-Mileage and Ton-Mileage.**—In earlier issues of the Year Book reference has been made to the resolution on the subject of passenger-mileage and ton-mileage statistics, passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909; and to the Report [Cd. 4697] on the same subject by a Committee appointed by the President of the Board of Trade in the United Kingdom (see Year Book No. 10, p. 654).

In the Commonwealth, information regarding "passenger-miles" and "ton-miles" is available, either wholly or in part, for three of the States only, viz., New South Wales, South Australia, and Tasmania, but is not available at all for either Victoria, Queensland, or Western Australia. Of the three States which give particulars of the nature indicated, New South Wales furnishes the information in a classified form according to class of passengers and nature of commodities carried. South Australia supplies particulars for all classes of passengers and goods together, and Tasmania supplies particulars for all classes of passengers together and a classification of nature of commodities carried. Western Australia furnished particulars as to ton-miles for the years 1907–12, but has since discontinued to record them.

(i) *Passenger-Miles.* Particulars for the whole of the Commonwealth period regarding total "passenger-miles" are available for one State only, namely, Tasmania. For New South Wales to the end of 1909–10, particulars are available for suburban and extended suburban traffic only—*i.e.*, for all stations within 34 miles of Sydney

(including the Richmond line), and of Newcastle (including Greta), but since that date all passenger traffic is included. For South Australia particulars are available for each year since 1904. No particulars are available for other States. In the tables given below the average number of passengers carried per "train," is obtained by dividing the number of "passenger-miles" by the number of "passenger-train-miles." Similarly the "density of traffic" is obtained by dividing the number of "passenger-miles" by the "average miles worked."

STATE RAILWAYS.—SUMMARY OF "PASSENGER-MILES," 1902 AND 1914 TO 1918.

Year ended 30th June—	Passenger Train Mileage.	Number of Passenger Journeys.	Total Passenger-miles.	Amount Received from Passengers.	Average Number of Passengers carried per Train.	Average Mileage per Passenger-journey.	Average Receipt per Passenger-mile.	Average Fare per Passenger-journey.	Density of Traffic per Average Mile Worked.
	Miles. (,000 omitted.)	No. (,000 omitted.)	No. (,000 omitted.)	£	No.	Miles.	d.	d.	No.
NEW SOUTH WALES.									
1914	10,081	86,328	1,235,025	2,832,450	123	14.30	0.55	7.87	311,954
1915	10,099	88,774	1,230,901	2,910,684	122	13.87	0.57	7.87	303,402
1916	10,283	92,851	1,321,491	3,147,041	129	12.85	0.57	8.13	316,980
1917	10,435	96,710	1,473,707	3,202,167	141	15.24	0.52	7.95	341,690
1918	9,441	94,305	1,384,766	3,473,340	147	14.67	0.60	8.84	304,277
SOUTH AUSTRALIA.(a)									
1914	2,952	19,809	236,764	635,967	80	11.95	0.63	7.70	130,449
1915	2,815	18,831	215,489	560,012	77	11.44	0.60	7.14	106,362
1916	2,786	20,513	218,609	603,203	78	10.66	0.66	7.06	100,050
1917	2,635	18,107	210,303	615,909	80	11.61	0.70	8.16	95,897
1918	2,597	18,936	234,197	703,221	90	12.37	0.72	8.91	104,786
TASMANIA.									
1902*b*	336	761	19,444	88,541	58	25.60	1.09	27.91	42,086
1914	446	1,708	36,028	140,185	81	21.09	0.91	19.69	68,624
1915	454	1,751	36,051	132,680	79	20.59	0.88	18.19	67,260
1916	465	2,078	46,719	154,225	100	22.48	0.79	17.81	84,567
1917	471	1,972	40,164	145,941	85	20.37	0.87	17.76	69,607
1918	448	1,874	40,385	151,874	90	21.55	0.90	19.45	68,324

(*a*) Exclusive of the returns of the Oodnadatta line. (*b*) To 31st December, 1902.

(ii) *Ton-miles.* Particulars regarding total "ton-miles" are available for each year since 1901 for the States of New South Wales, South Australia, and Tasmania. Corresponding particulars for Western Australia are available for the years 1907 to 1912, but not for subsequent years. (See Year Book No. 11, p. 691.) The average freight-paying load carried per "train" is obtained by dividing the total "ton-miles" in the fourth column by the goods-train mileage in the second column. In New South Wales the tonnage carried is exclusive of coal, on which only shunting and haulage charges are collected, and the amount of earnings specified excludes terminals. In South Australia and Tasmania terminals are included.

STATE RAILWAYS.—SUMMARY OF "TON-MILES," 1902 AND 1914 TO 1918.

Year ended the 30th June—	Goods Train Mileage.	Total Tons Carried.	Total "Ton-miles."	Earnings.	Average Freight-paying Load carried per "Train."	Average Miles per Ton.	Earnings per "Ton-mile."	Density of Traffic per Average Mile Worked.
	No. (,000 omitted.)	No. (,000 omitted.)	No. (,000 omitted.)	£	Tons.	Miles.	*d.*	Tons.
NEW SOUTH WALES. (*a*)								
1902	6,586	6,164	436,814	1,947,305	66.32	70.87	1.07	148,464
1914	10,469	12,901	1,037,911	3,760,384	99.14	80.45	0.87	262,165
1915	10,321	11,660	916,923	3,633,613	88.84	78.64	0.95	226,010
1916	11,273	11,614	1,028,760	3,738,227	91.26	88.58	0.87	246,764
1917	9,866	11,468	1,136,485	3,936,639	115.19	99.10	0.83	263,502
1918	8,703	11,094	1,044,437	4,051,655	120.02	94.14	0.93	229,496
SOUTH AUSTRALIA. (*b*)								
1902	2,468	1,392	170,523	681,045	69.09	122.48	0.96	98,803
1914	3,780	3,103	402,356	1,534,187	106.45	129.65	0.92	221,684
1915	2,766	2,076	237,014	1,049,074	85.70	114.15	1.06	116,986
1916	2,845	2,397	278,942	1,211,465	98.04	116.37	1.04	127,662
1917	3,095	2,822	298,442	1,502,363	96.41	105.74	1.21	136,089
1918	2,844	2,768	270,104	1,480,469	94.99	97.59	1.32	120,852
TASMANIA. (*c*)								
1902*d*	567	407	14,331	109,266	25.26	35.30	1.82	31,019
1914	554	389	18,709	142,642	33.76	48.06	1.82	35,826
1915	551	388	19,809	141,049	35.90	51.09	1.70	37,000
1916	586	367	20,105	145,094	34.29	54.81	1.73	36,392
1917	609	380	21,288	146,248	34.93	55.98	1.65	36,894
1918	609	389	21,539	153,577	35.39	55.42	1.71	36,444

(*a*) Exclusive of tonnage on which only shunting and haulage charges are collected. (*b*) Exclusive of the returns of the Oodnadatta line on and after 1st January, 1911. (*c*) Exclusive of live stock. (*d*) To 31st December.

(iii) *Classification of Commodity Ton-mileage.* As previously mentioned New South Wales and Tasmania are the only States for which particulars, specifying the ton-mileage and the earnings per ton-mile for various classes of commodities, are available.

The subjoined statement gives particulars for the last financial year in respect of New South Wales. Miscellaneous traffic consists of timber, bark, bricks, drain-pipes in six-ton lots, and cement in full truck loads, agricultural and vegetable seeds in five-ton lots, and traffic of a similar nature. A and B classes consist of lime, vegetables, tobacco leaf, caustic soda and potash, copper ingots, fat and tallow, water and mining plant in six-ton lots, leather in one and three-ton lots, agricultural implements in five-ton lots, and other

traffic of a similar nature. The table does not include 199,266 tons of coal on which only shunting and haulage charges were collected, nor does it include £63,292 for haulage, tonnage dues, etc.

NEW SOUTH WALES.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1918.

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings (exclusive of Terminals).	Earnings per "Ton-mile."	Per cent. on Total Tonnage.
	No.	No.	No.	£	d.	%
Coal, coke, and shale	5,497,564	232,407,386	42.27	593,810	0.61	49.56
Other minerals ..	621,824	41,562,674	66.84	98,359	0.57	5.60
Crude ores	210,178	23,695,801	112.74	56,652	0.57	1.89
Miscellaneous ..	696,287	68,078,457	97.77	213,575	0.75	6.28
Firewood	215,701	6,536,108	30.29	29,557	1.09	1.94
Fruit	101,846	16,033,848	157.43	78,804	1.18	0.92
Grain, flour, etc. (Up journey) ..	1,398,994	263,643,668	188.45	443,028	0.40	12.61
Hay, straw, and chaff	341,720	75,953,324	222.27	139,256	0.44	3.08
Frozen meat ..	37,214	7,376,122	198.20	37,686	1.23	0.34
A class	638,439	57,369,813	89.86	281,712	1.18	5.75
B class	309,937	36,391,706	117.41	279,587	1.84	2.79
C class	27,657	1,581,095	57.16	19,288	2.93	0.25
1st class	153,730	14,008,243	91.12	187,858	3.22	1.39
2nd class	198,408	31,495,775	158.74	561,202	4.28	1.79
Wool	120,612	35,960,230	298.15	325,093	2.17	1.09
Live stock	523,683	132,343,125	252.71	706,188	1.28	4.72
Total ..	11,093,794	1,044,437,375	94.14	4,051,655	0.93	100.00

In the following table will be found particulars of the ton-mileage and earnings per ton-mile in the case of Tasmania :—

TASMANIA.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1918.

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings.	Earnings per "Ton-mile."	Per cent. on Total Tonnage.
	No.	No.	No.	£	d.	%
Agricultural produce ..	63,810	3,730,642	58.46	22,883	1.47	16.42
Hay, straw, chaff, and horse feed	34,627	2,197,534	63.46	12,632	1.37	8.91
Manures	11,210	353,570	31.54	1,522	1.03	2.89
Native coal	61,807	6,285,719	101.69	20,796	0.79	15.90
Minerals, other than native coal	47,929	1,149,811	23.98	7,240	1.51	12.33
Bark	2,142	82,518	38.52	703	2.04	0.55
Firewood	42,403	1,273,755	30.03	5,546	1.04	10.91
Timber	61,052	2,407,290	39.43	14,770	1.47	15.71
Wool	4,981	389,372	78.17	5,712	3.52	1.28
Miscellaneous goods ..	58,669	3,668,360	62.52	61,773	4.04	15.10
Total	388,630	21,538,571	55.42	153,577	1.71	100.00

16. **Interest Returned on Capital Expenditure.**—In the table in sub-section 13 hereof, it will be seen that the State Government railways in the year 1901–2 made a profit of 2.94 per cent. on the capital expenditure at that time. In the subsequent years up to and including the year 1910–11, the percentages were 2.56, 3.11, 3.36, 3.98, 4.45, 4.32, 4.22, 4.26, and 4.63 respectively, rates which shew substantial increases with one exception on that for the first-named year. Since 1910-11, the rates have oscillated and have shewn a decreasing tendency, the rate for the year 1917–18 being 3.23, or 1.40 less than that for the year 1910–11. The reasons for this reduction are to be found in the increases of the charges in respect of working expenses, brought about by the opening of new lines, the higher cost of materials, and the raising of the rate of wages, while in the last four years additional expenses have been incurred in consequence of the war. The return on the capital invested as at the 30th June, 1918, was not equal to the interest payable for that year, the rate of which was 3.93 per cent. This average, however, does not accurately express the position. At an early period the necessity for the construction of railways to open up undeveloped districts was recognised, and the money had to be raised at a very high rate of interest. It may be noted, however, that although the loans made for expenditure on railway construction and equipment very largely increase the amount of the public debt of the States, forming, in fact, nearly three-fifths of the total debt, the money borrowed has not been sunk in undertakings which give no return, but has been expended on works which are increasingly reproductive, yielding in most cases a direct return on the capital expended, and representing a greater value than their original cost. In Europe the national debts of various countries have been incurred principally through the expenses of prolonged wars, and the money has gone beyond recovery; but in Australia the expenditure by the States up to a recent period is represented to a large extent by public works which yield a direct return. In addition to the purely commercial aspect of the figures relating to the revenue and expenditure of the State railways, it is of great importance that the object with which many of the lines were constructed should be kept clearly in view; the anticipated advantage in building these lines has been the ultimate settlement of the country rather than the direct returns from the railways themselves, and the policy of the State Governments has been to use their railway systems for the development of the country's resources to the maximum extent consistent with the direct payment by the customers of the railways of the cost of working and interest charges.

(i) *Profit or Loss after Payment of Working Expenses and Interest.* The net revenue of the Government railways of each State after payment of working expenses is shewn in sub-section 13 hereof. The following table shews the amount of interest payable on expenditure from loans on the construction and equipment of the railways of each State, the actual profit or loss after deducting working expenses and interest and all other charges from the gross revenue, and the percentage of such profit or loss on the total capital cost of construction and equipment.

It will be seen that during the year ended 30th June, 1914, all the States, with the exception of Tasmania, shew a net profit after paying working expenses and interest. In the year ended 30th June, 1915, only two States, New South Wales and Queensland, shew a profit, while in the three years ended 30th June, 1918, all the States shew a loss.

The losses during the last three years for all the States are due to the causes to which allusion has already been made in the remarks as to increases in the working expenses of the railways (see pp. 662 and 663 *ante*). It will be observed in the following table that the interest charges in 1918 were £1,578,427 higher than they were in 1915.

STATE RAILWAYS.—INTEREST ON LOAN EXPENDITURE, PROFIT OR LOSS, AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST, 1901–2 AND 1913 TO 1918.

AMOUNT OF INTEREST ON RAILWAY LOAN EXPENDITURE.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.(a)	W. Aust.	Tasmania.	Nor. Ter.	All States.
	£	£	£	£	£	£	£	£
1901–2	1,434,638	1,492,695	837,205	469,787	252,891	140,550	47,012	4,674,778
1913–14	2,089,495	1,674,036	1,250,598	566,497	556,843	169,268	..	6,306,737
1914–15	2,279,070	1,764,379	1,312,196	584,812	586,069	172,349	..	6,698,875
1915–16	2,568,659	1,922,410	1,418,280	663,588	625,250	180,772	..	7,378,959
1916–17	2,858,789	2,006,197	1,500,800	673,985	643,765	181,617	..	7,865,153
1917–18	3,043,349	2,120,547	1,559,136	716,234	654,059	183,977	..	8,277,302

PROFIT OR LOSS AFTER PAYMENT OF WORKING EXPENSES, INTEREST, AND OTHER CHARGES.(b)

	£	£(c)	£	£	£	£	£	£
1901–2	− 108,321	− 197,226	− 447,777	− 74,129	+ 12,168	− 80,631	− 69,139	− 965,055
1913–14	+ 242,926	+ 134,279	+ 38,163	+ 264,989	+ 128,160	− 61,813	..	+ 746,704
1914–15	+ 26,279	− 718,279	+ 118,128	− 287,929	− 25,651	− 75,079	..	− 962,531
1915–16	− 223,749	− 214,659	− 417,991	− 243,667	− 48,795	− 81,395	..	−1,230,256
1916–17	− 394,064	− 207,518	− 663,020	− 125,796	− 214,834	− 130,298	..	−1,735,531
1917–18	− 28,916	− 9,380	− 945,372	− 131,740	− 289,005	− 105,194	..	−1,509,607

PERCENTAGE OF PROFIT OR LOSS ON CAPITAL COST OF CONSTRUCTION AND EQUIPMENT.(b)

	%	%(c)	%	%	%	%	%	%
1901–2	−0.27	−0.49	−2.22	−0.58	+0.16	−2.10	−6.71	−0.76
1913–14	+0.40	+0.27	+0.12	+1.74	+0.81	−1.37	..	+0.42
1914–15	+0.04	−1.39	+0.35	−1.73	−0.15	−1.62	..	−0.51
1915–16	−0.33	−0.39	−1.20	−1.41	−0.29	−1.70	..	−0.62
1916–17	−0.55	−0.37	−1.82	−0.71	−1.23	−2.65	..	−0.85
1917–18	−0.03	−0.02	−2.53	−0.73	−1.63	−2.11	..	−0.72

(a) Inclusive of Oodnadatta line to 31st December, 1910. (b) + Indicates a profit; − indicates a loss. (c) Allowing for payment of special expenditure and charges (see sub-section 11 above).

17. **Passenger Fares and Goods Rates.**—Fares and rates are changed from time to time to suit the convenience and varying necessities of the railways, but, as traffic is developed and revenue increases, they are in many cases reduced to an extent consistent with the direct payment by the customers of the railways of the cost of working and interest charges.

(i) *Passenger Fares.* On the Australian Government railways two classes are provided for passenger traffic. The fares charged may be classified as follows:—(*a*) Fares between specified stations (including suburban fares). (*b*) Fares computed according to mileage rates. (*c*) Return, periodical, and excursion fares. (*d*) Special fares for workingmen, school pupils, and others. Fares in class (*a*) are issued at rates lower than the ordinary mileage rates. Fares in class (*b*) are charged between stations not included in class (*a*). On the average, mileage-rate fares run about 1.8 pence per mile for first-class and about 1.2 pence per mile for second-class single tickets. In New South Wales, Victoria, and Queensland the mileage rates are based upon a tapering principle, *i.e.*, a lower charge per mile is made for a long journey than for a short journey. In Victoria and Western Australia, return fares are generally about $1\frac{1}{2}$ to $1\frac{3}{4}$ times the single fare, and the second-class are about 30 to 45 per cent. lower than the first-class fares. In New South Wales, Queensland, South Australia, and Tasmania the issue of ordinary return tickets outside the suburban areas has now been discontinued. Special excursion return tickets are, however, issued at certain times of the year, subject to restrictions as to break of journey and trains available for such tickets.

The following table shews the passenger fares for different distances charged in each State, between stations for which specific fares are not fixed :—

ORDINARY PASSENGER MILEAGE RATES ON STATE RAILWAYS, 1918.

State.	For a Journey of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
First-class Single Fares.						
New South Wales (*a*) ..	s. d. 5 5	s. d. 13 3	s. d. 28 11	s. d. 44 4	s. d. 59 9	s. d. 71 11
Victoria	8 6	16 8	33 2	49 4	64 4	79 6
Queensland	8 2	15 4	29 10	43 4	56 0	68 8
South Australia	7 6	15 0	30 0	45 0	60 0	75 0
Western Australia (*b*) ..	6 8	15 0	31 8	48 4	65 0	81 8
Tasmania	8 3	16 3	32 3	..	..	..
Average	7 5	15 3	31 0	46 1	60 10	75 4
Average per passenger-mile *d.*	1.78	1.83	1.86	1.84	1.83	1.81
Second-class Single Fares.						
New South Wales (*a*) ..	s. d. 3 7	s. d. 8 9	s. d. 18 4	s. d. 27 4	s. d. 35 7	s. d. 41 7
Victoria	5 8	11 2	22 2	32 10	43 0	53 0
Queensland	5 5	9 11	19 0	27 1	34 3	41 6
South Australia	5 0	10 0	20 0	30 0	40 0	50 0
Western Australia (*b*) ..	4 0	9 3	19 8	30 1	40 6	50 11
Tasmania	5 6	10 9	21 6	..	..	..
Average	4 10	10 0	20 1	29 6	38 8	47 5
Average per passenger-mile *d.*	1.16	1.20	1.20	1.18	1.16	1.14

(*a*) Inclusive of suburban rates up to 34 miles.
(*b*) Inclusive of suburban rates up to 41 miles.

(ii) *Parcel Rates.* In all the States parcels may be transmitted by passenger train upon payment of the prescribed rates, which are based upon weight and distance carried. The rates vary slightly in the different States. In New South Wales they range from threepence for a parcel not exceeding 3 lbs. for any distance up to 25 miles, to thirteen shillings and fourpence for a parcel weighing from 85 lbs. to 112 lbs., for a distance of 500 miles. In Victoria the charge for a parcel weighing from 84 lbs. to 112 lbs. for a distance over 450 miles is twelve shillings and fivepence. The rate in Queensland for a parcel weighing from 85 to 112 lbs. for 500 miles is thirteen shillings ; in South Australia for 550 miles thirteen shillings and sixpence ; in Western Australia for 500 miles fourteen shillings ; and in Tasmania for a distance of 250 miles the rate is eight shillings.

(iii) *Goods Rates.* The rates charged for the conveyance of goods and merchandise may generally be divided into three classes, viz. :—(*a*) Mileage rates, (*b*) District or "development" rates, and (*c*) Commodity rates. In each of the States there is a number —ranging from eight in Victoria to fifteen in Tasmania—of different classes of freight. Most of the mileage rates are based upon a tapering principle, *i.e.*, a lower charge per ton-mile is made for a long haul than for a short haul ; but for some classes of freight there is a fixed rate per mile irrespective of distance. District rates are charged between specified stations and are somewhat lower than the mileage rates. In addition to the ordinary classification of freights under class (*a*), certain commodities, such as wool, grain, agricultural produce, and crude ores, are given under class (*c*) Special rates, lower than the mileage rates.

Space will not permit of exhibiting a complete analysis of goods rates in the several States. As an indication of the range and amount of such rates the subjoined tables are given. The first table shews for each State the truck-load rates charged for hauls of different distances in respect of agricultural produce not otherwise specified; these special rates are here given for this class of produce, since it is generally forwarded in truck-loads.

RATES FOR AGRICULTURAL PRODUCE IN TRUCK-LOADS ON STATE RAILWAYS, 1918.

State.	Charge per Ton in Truck-loads for a Haul of—											
	50 Miles.		100 Miles.		200 Miles.		300 Miles.		400 Miles.		500 Miles.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
New South Wales	5	11	8	10	11	2	12	5	13	5	14	2
Victoria	5	10	9	2	12	2	14	0	15	10	17	6
Queensland	4	10	9	2	11	0	12	0	13	0	14	0
South Australia (a)	6	9	9	8	14	3	18	10	23	5	28	0
Western Australia	6	3	8	11	12	1	17	0	22	0	24	0
Tasmania	7	1	11	3	12	6	..		..		..	
Average	6	1	9	6	12	2	14	10	17	6	19	6
Average per ton-mile d.	1.46		1.14		0.73		0.59		0.52		0.47	

(a) Wheat is carried at a lower rate than that specified above for agricultural produce.

The next table shews for each State the ordinary mileage rates charged per ton for hauls of different distances in respect of (a) the highest-class freight, and (b) the lowest-class freight :—

ORDINARY GOODS MILEAGE RATES ON STATE RAILWAYS, 1918.

State.	Charge per Ton for a Haul of—											
	50 Miles.		100 Miles.		200 Miles.		300 Miles.		400 Miles.		500 Miles.	
HIGHEST-CLASS FREIGHT.												
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
New South Wales	29	11	58	5	101	9	128	11	139	9	150	7
Victoria	23	9	46	6	87	9	120	0	147	6	175	3
Queensland	44	2	80	7	145	2	a209	9	a242	0	a255	7
South Australia	29	10	57	4	107	9	148	1	183	4	213	7
Western Australia	41	1	71	1	125	10	171	9	209	4	240	8
Tasmania	33	9	54	0	100	0	..		..		..	
Average	35	5	61	4	111	5	155	8	184	5	207	2
Average per ton-mile d.	8.50		7.36		6.68		6.23		5.53		4.97	
LOWEST-CLASS FREIGHT.												
New South Wales	4	4	5	7	6	5	8	4	10	7	12	10
Victoria	3	0	4	6	6	8	8	10	9	10	10	8
Queensland	4	10	9	2	15	9	20	1	24	6	28	10
South Australia	3	8	6	11	11	0	12	4	14	0	15	8
Western Australia	5	0	8	4	14	2	19	2	23	4	27	6
Tasmania	2	10	5	7	8	6	..		..		..	
Average	3	11	6	8	10	5	13	9	16	5	19	1
Average per ton-mile d.	0.95		0.80		0.63		0.55		0.49		0.46	

(a) Maximum freight on highest class goods to Western stations is 200 shillings per ton.

The classification of commodities varies in the several States. Generally, the highest-class freight includes expensive, bulky, or fragile articles, while the lowest-class comprises many ordinary articles of merchandise, such as are particularly identified or connected with the primary industries of each State.

In New South Wales, for example, the highest-class freight comprises such articles as boots, drapery, drugs, groceries, furniture, liquors, crockery and glassware, cutlery, ironmongery, confectionery, and carpets. In the same State the lowest-class freight includes agricultural produce, ores, manures, coal, coke, shale, firewood, limestone, stone, slates, bricks, screenings, rabbit-proof netting, timber, and posts and rails.

18. **Numbers and Description of Rolling Stock, 1917–18.**—The following table shews the rolling stock in use on the State Government railways in each State, classified according to gauge :—

ROLLING STOCK ON STATE GOVERNMENT RAILWAYS IN EACH STATE, CLASSIFIED ACCORDING TO GAUGE, 1917–18.

State.	Gauge.					Total.
	5 ft. 3 in.	4ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
LOCOMOTIVES.						
New South Wales ..	..	1,282	..	..	..	1,282
Victoria	797	..	..	17	..	814
Queensland ..	..	..	654	..	4	658
South Australia ..	241	..	244	..	..	485
Western Australia ..	..	..	424	..	..	424
Tasmania	..	..	73	..	7	80
Total ..	1,038	1,282	1,395	17	11	3,743

	Ordinary.	Motors.		Ordinary.	Motors.			Ordinary.	Motors.
PASSENGER VEHICLES.									
New South Wales ..	..	..	1,659	..	..	..	..	1,659	..
Victoria	1,599	3	..	..	..	34	..	1,633	3
Queensland ..	..	..	..	780	10	..	7	787	10
South Australia ..	375	1	..	137	3	..	..	512	4
Western Australia ..	..	..	..	378	..	..	..	378	..
Tasmania	..	..	..	167	2	..	6	173	2
Total ..	1,974	4	1,659	1,462	15	34	13	5,142	19
VEHICLES, OTHER THAN PASSENGER.									
New South Wales ..	..		22,859	..		..	..	22,859	
Victoria	20,035		..	..		254	..	20,289	
Queensland ..	..		..	14,255		..	134	14,389	
South Australia ..	4,085		..	5,506		..	..	9,591	
Western Australia ..	..		..	10,100		..	..	10,100	
Tasmania	..		..	1,739		..	77	1,816	
Total ..	24,120		22,859	31,600		254	211	79,044	

19. **Number of Railway Employees.**—The following table shews the number of employees in the Railway Department of each State in the year 1901 and in each year from 1913 to 1918 inclusive, classified according to (*a*) salaried staff, and (*b*) wages staff.

From these figures it will be seen that there was an increase in the number of persons engaged in the Railway Departments of the several States up to 1914–15, since which year the numbers have fallen. During the period from 1901 to 1918, the total has increased from 42,270 to 85,837, an increase of 43,567, or over 103 per cent. The largest numerical increase for the individual States was that of New South Wales, viz., 21,121. It will be observed, however, that the numbers of employees in 1917–18 were less in all the States, excepting Queensland and Western Australia, than they were in the previous year, the difference amounting to 1,023.

Separate returns for salaried and wages staff are not available for South Australia prior to 1916–17 ; the number of salaried staff is therefore included in the wages staff.

STATE RAILWAYS.—NUMBER OF EMPLOYEES IN RAILWAY DEPARTMENTS, 1901 AND 1913 TO 1918.

State.	1900–1.		1913–14.		1914–15.		1915–16.		1916–17.		1917–18.	
	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.
		(a)										
New South Wales	1,372	11,747	3,422	31,810	3,649	33,096	4,148	34,634	4,590	30,726	4,870	29,370
Victoria ..	1,432	10,524	2,598	22,169	2,661	24,314	2,428	20,500	2,344	17,126	2,380	16,859
Queensland ..	994	4,633	2,301	8,502	2,403	8,286	2,889	9,877	3,024	10,784	3,251	11,090
South Australia *b*	..	3,855	..	8,995	..	10,182	..	10,460	1,057	9,241	1,099	8,904
Western Australia ..	876	5,407	1,079	6,913	1,054	7,093	1,011	6,204	961	5,623	972	5,675
Tasmania ..	178	1,252	224	1,180	218	1,277	222	1,203	233	1,151	221	1,146
All States.	4,852	37,418	9,624	79,569	9,985	84,248	10,698	82,878	12,209	74,651	12,793	73,044

(*a*) Exclusive of gate-keepers with free house only in New South Wales. (*b*) Prior to 1916–17, separate returns for salaried and wages staffs are not available ; the number of salaried staff in the earlier years is included with the wages staff.

20. **Accidents.—Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock on the Government railways in each State for the year 1900–1, and for each of the years 1913–14 to 1917–18 inclusive :—

STATE RAILWAYS.—NUMBER OF PERSONS KILLED AND INJURED, 1901 AND 1913 TO 1918.

State.	1900–1.		1913–14.		1914–15.		1915–16.		1916–17.		1917–18.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales	(*a*)	(*a*)	112	570	78	645	87	710	63	572	59	496
Victoria ..	45	371	45	564	48	558	54	534	32	465	44	561
Queensland ..	13	100	32	454	30	102	26	181	30	280	21	205
South Australia	8	50	19	202	20	172	14	193	11	247	17	189
Western Australia ..	5*b*	205*b*	25	154	14	131	18	131	20	106	13	86
Tasmania ..	1	8	1	42	..	39	10	89	1	4	2	7
All States	..	..	234	1,986	190	1,647	209	1,838	157	1,674	156	1,544

(*a*) Not available. (*b*) Including all accidents which occurred on railway premises as well as those caused through train accidents and movement of rolling stock.

(D) Graphical Representation of Government Railway Development.

1. **General.**—Railways are so important a factor in the development of Australia that it has been deemed desirable to graphically represent the main facts of their progress from 1860 onwards. To this end the graphs shewn on pages 648 to 650 have been prepared. The distribution of the railways is shewn on the map on page 647.

2. **Capital Cost and Mileage Open** (page 648).—The graph shews that the ratio between these elements was, naturally enough, very variable from 1860 to 1870, consequent upon progressive decrease in cost of construction. It then became subject to a more regular change, implying reduction of average cost, though in recent years a slight increase has been in evidence.

3. **Cost per Mile Open.**—The fluctuations in cost per mile open from 1860 are clearly indicated by the graph on page 648. In 1855 the cost per mile open was no less than £28,430; by 1858 it had fallen to £17,752, when it rose again to a maximum of £35,958 in 1862. It then diminished rapidly till 1885—when it reached £10,074 per mile —rose to £10,244 in 1886, then fell slowly till 1888, when it amounted to £10,092 per mile. Again rising, this rate attained to £10,481 in 1892, since when it has, on the whole, been declining, reaching its lowest value, £9,466, in 1911. In 1912, 1913, and 1914 it rose to £9,544, £9,665, and £9,820 respectively, but fell in 1915 to £9,632. In 1916 it rose to £9,895, in 1917 was £9,901, and in 1918 £9,943.

4. **Gross Revenue.**—This graph (page 648) exhibits considerable irregularities, the most striking of which are the maxima at 1892, 1902, 1914, and 1916. The fall commencing in 1892 was in consequence partly of the commercial crisis and partly of the then droughty conditions of several of the States, while that of 1902–3 was due to drought. In the latter case the recovery was very rapid, and there has been a continuous rise up to the year 1914. In 1915, there was a fall amounting to £1,016,421. Since 1915 each year has given an increase over the previous year's figures, those for 1916, 1917, and 1918 being £1,260,646, £813,479, and £1,280,565 respectively.

5. **Working Expenses.**—In this case the graph (page 648) has the same characteristics as those of gross revenue. It should be noted, however, that working expenses have been increasing during the last four years at a greater rate than gross revenue, owing to increases in wages and the higher cost of materials.

6. **Net Revenue.**—This graph (page 648) shews a fairly constant rate of increase up to 1900. Thence to 1903 there was a continuous fall, which was followed by a rapid rise to 1907. In 1911 and 1914 there were maxima, followed by a fall in 1915 and a rise in 1916. In 1917 there was a slight fall, and a substantial rise in 1918.

7. **Percentage of Working Expenses on Gross Revenue.**—This is shewn for each State and for the Commonwealth, from the year 1855, on page 649. The curve for the Commonwealth shews considerable fluctuations, but points also to the fact that, although a slight rise occurred in 1908, there was from 1903 to 1907 a rapid decline in the percentage of working expenses to gross revenue; since 1907, however, there has been a steady increase up to 1915. In 1916 the percentage slightly declined, rose again in 1917, but declined in 1918. In the case of the individual States it will be seen that the curves shew considerable fluctuations, particularly in the early years of the period under review.

8. **Percentage of Net Revenue on Capital Cost.**—For the Commonwealth and States, from the year 1855, this graph is shewn on page 650. After exhibiting somewhat remarkable oscillations in the earlier years, and less marked ones between 1885 and 1900, and also a rapid fall to 1903, the curve for the Commonwealth from that year shews a well-marked increase until the year 1908, a slight fall occurring in that year and in 1909. Maxima were reached in 1865, 1877, 1881, 1907, and 1911—viz., 3.44, 3.71, 4.12, 4.45, and 4.54 per cent. Since 1911 the rate has varied considerably, that for 1918 being 1.52 lower than 1911.

For the individual States the results are in general very satisfactory up to 1911. The greatest maximum percentage attained by each of the States in any year during the period under review is as follows:—New South Wales 5.31 in 1881, Victoria 4.18, Queensland 4.51, and South Australia 6.47 in 1911, Western Australia 11.48 in 1896, and Tasmania 2.49 in 1913. Since 1911 (1913 in the case of Tasmania) the States have shewn varying and declining rates. The effect of the drought of 1915 is discernible, also the rise of wages and higher cost of materials, to which allusion has already been made.

The remarkable maximum for Western Australia in 1896 is consequent upon the large use made of the railways at the time of the development of the Western Australian goldfields.

9. **General Indications of Graphs.**—Reviewing the cost of railways, as a whole, it may be noted that at the undermentioned dates the average cost per mile open was as follows :—

STATE RAILWAYS.—AVERAGE COST PER MILE OF LINE OPEN, 1858 TO 1918.

COMMONWEALTH.

Date	1858.	1868.	1878.	1888.	1898.	1908.	1918.
	£	£	£	£	£	£	£
Cost per mile	17,752	21,742	12,558	10,092	9,906	9,500	9,943

While the sinister influence of the drought of 1902 is strikingly shewn in the curves (*a*) by the fall in the gross and net revenue in 1902–3, (*b*) by the fall in the percentage of net revenue on capital cost, and (*c*) by the increase of working expenses on gross revenue, the rapidity of recovery is even more striking, and serves to indicate the great elasticity of the economic condition of the Commonwealth. Although the percentage of net revenue on capital cost during the year 1917–18 has been exceeded in previous years, nevertheless it is satisfactory that the State Government railways, necessarily constructed largely in accordance with a policy of widespread development of Australia's resources rather than as mere commercial enterprises, and costing so large a sum as £209,602,066 for construction and equipment up to the 30th June, 1918, should yield a return of no less than 3.23 per cent. It should be mentioned that the graphs for the Commonwealth include the Federal railways.

(E) Government Railways Generally.

1. **Rolling Stock.**—In the following table particulars of the numbers of the rolling stock employed on both the Federal and State Government railways are set out, classified according to gauge, as at the 30th June in the years 1901, 1911, 1917, and 1918 respectively, together with the percentage of the numbers for each gauge on the total for the mainland. For geographical reasons the figures for Tasmania are shewn separately from those for the mainland.

ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE GOVERNMENT RAILWAYS AS AT 30th JUNE, 1901, 1911, 1917, AND 1918.

LOCOMOTIVES.

Gauge.	1901.		1911.		1917.		1918.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in.	688	35.23	705	26.84	1,035	28.00	1,038	27.89
4 ft. 8½ in.	495	25.34	903	34.37	1,317	35.63	1,327	35.66
3 ft. 6 in.	765	39.17	1,009	38.41	1,323	35.80	1,335	35.88
2 ft. 6 in.	5	0.26	10	0.38	17	0.46	17	0.46
2 ft. 0 in.	..	..	..	..	4	0.11	4	0.11
Total	1,953	100.00	2,627	100.00	3,696	100.00	3,721	100.00
Tasmania—								
3 ft. 6 in.	64	..	72	..	73	..	73	..
2 ft. 0 in.	7	..	7	..	7	..	7	..
Grand Total	2,024	..	2,706	..	3,776	..	3,801	..

ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE GOVERNMENT RAILWAYS—*continued.*

PASSENGER VEHICLES, INCLUDING THOSE FITTED WITH MOTORS.
(See below.)

Gauge.	1901.		1911.		1917.		1918.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	1,365	49.71	1,618	42.50	1,985	39.84	2,025	39.67
4 ft. 8½ in. ..	610	22.21	1,136	29.84	1,634	32.80	1,690	33.10
3 ft. 6 in. ..	761	27.71	1,032	27.11	1,324	26.58	1,349	26.42
2 ft. 6 in. ..	10	0.37	21	0.55	34	0.68	34	0.67
2 ft. 0 in. ..	..	..	..	..	5	0.10	7	0.14
Total ..	2,746	100.00	3,807	100.00	4,982	100.00	5,105	100.00
Tasmania—								
3 ft. 6 in. ..	163	..	170	..	169	..	169	..
2 ft. 0 in. ..	8	..	6	..	6	..	6	..
Grand Total	2,917	..	3,983	..	5,157	..	5,280	..

PASSENGER VEHICLES FITTED WITH MOTORS, INCLUDED IN TABLE OF PASSENGER VEHICLES ABOVE.

Gauge.	1901.	1911.	1917.	1918.
Mainland—				
5 ft. 3 in. ..	2	..	4	4
3 ft. 6 in. ..	..	2	10	13
Total ...	2	2	14	17
Tasmania—				
3 ft. 6 in. ..	..	..	..	2
Grand Total	2	2	14	19

VEHICLES, OTHER THAN PASSENGER.

Gauge.	1901.		1911.		1917.		1918.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	12,204	31.05	15,430	27.80	23,940	31.00	24,073	30.78
4 ft. 8½ in. ..	11,540	29.36	17,112	30.83	23,109	29.92	23,601	30.17
3 ft. 6 in. ..	15,481	39.38	22,775	41.03	29,812	38.60	30,161	38.56
2 ft. 6 in. ..	82	0.21	190	0.34	252	0.33	254	0.32
2 ft. 0 in. ..	..	..	..	..	119	0.15	134	0.17
Total ..	39,307	100.00	55,507	100.00	77,232	100.00	78,223	100.00
Tasmania—								
3 ft. 6 in. ..	1,389	..	1,618	..	1,721	..	1,739	..
2 ft. 0 in. ..	50	..	71	..	77	..	77	..
Grand Total	40,746	..	57,196	..	79,030	..	80,039	..

In the seventeen years under review the percentages of the numbers of locomotives for each gauge on the total number of locomotives on all Government railways on the mainland have undergone the following changes: on the 5-ft. 3-in. gauge the percentage has fallen by 7.34 per cent., the 4-ft. 8½-in. gauge increased by 10.32, and the 3-ft. 6-in. gauge fallen by 3.29 per cent.

As regards passenger vehicles the alterations are as follow: on the 5-ft. 3-in. gauge the percentage has fallen by 10.04 per cent., the 4-ft. 8½-in. gauge increased by 10.89, and the 3-ft. 6-in. gauge fallen by 1.29 per cent.

In the case of vehicles other than passenger the changes have been small, the 5-ft. 3-in. gauge percentage having fallen 0.27, the 4-ft. 8½-in. gauge risen by 0.81, and the 3-ft. 6-in. gauge fallen by 0.82 per cent.

2. **Railway Mileage Open for Traffic.**—The Government railway mileages open for traffic, classified according to gauge, as at the 30th June in each of the years 1901, 1911, 1917, and 1918, are set out in the following table, which gives as well the percentages of each mileage on the total on the mainland, the figures for Tasmania being shewn separately, as in the case of the preceding table relating to rolling stock:—

RAILWAY (ROUTE) MILEAGE OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS, CLASSIFIED ACCORDING TO GAUGE, AS AT 30th JUNE IN EACH OF THE YEARS 1901, 1911, 1917, AND 1918, WITH PERCENTAGES ON TOTAL FOR MAINLAND.

Gauge.	1901.		1911.		1917.		1918.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
Mainland—								
5 ft. 3 in. ..	3,696.77	30.50	4,023.61	25.78	5,011.81	23.80	5,062.48	23.44
4 ft. 8½ in. ..	2,805.34	23.14	3,717.17	23.82	5,360.13	25.45	5,695.46	26.38
3 ft. 6 in. ..	5,571.02	45.96	7,742.96	49.62	10,536.74	50.03	10,684.08	49.48
2 ft. 6 in. ..	48.25	0.40	121.90	0.78	121.90	0.58	121.90	0.56
2 ft. 0 in. ..	..	..	..	..	29.35	0.14	29.35	0.14
Total ..	12,121.38	100.00	15,605.64	100.00	21,059.93	100.00	21,593.27	100.00
Tasmania—								
3 ft. 6 in. ..	439.33	..	448.93	..	558.08	..	564.42	..
2 ft. 0 in. ..	18.72	..	23.57	..	23.57	..	23.58	..
Grand Total	12,579.43	..	16,078.14	..	21,641.58	..	22,181.27	..

From the above table it will be seen that in the seventeen years from 1901 to 1918 the 5-ft. 3-in. gauge percentage has fallen by 7.06 per cent., the 4-ft. 8½-in. gauge increased by 3.24 per cent., and the 3-ft. 6-in. gauge increased by 3.52 per cent.

3. **Summary of Working of Federal and State Government Railways.**—In the following table a summary is given of the working of all Government railways, both Federal and State, for the year ended 30th June, 1918, fuller particulars of which have been given in the sections B and C of this chapter :—

SUMMARY OF THE WORKING OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS FOR THE YEAR ENDED 30th JUNE, 1918.

Particulars.		Federal Railways.	State Railways.	Total for Commonwealth.
Total mileage open	Miles	1,733.76	20,447.51	22,181.27
Average miles open during the year	,,	1,733.76	20,260.00	21,993.76
Total *train mileage*	,,	849,549	52,680,730	53,530,279
Total cost of construction of lines open	£	10,699,656	*a*209,602,066	*a*220,301,722
Cost per mile	£	6,171	*a*10,263	*a*9,943
Gross revenue	£	277,486	24,045,732	24,323,218
Working expenses	£	381,904	17,278,037	17,659,941
Percentage of working expenses on gross revenue	%	137.63	71.85	72.61
Net revenue	£	— 104,418	6,767,695	6,663,277
Interest payable	£	346,842	8,277,302	8,624,144
Number of passenger journeys	No.	*b*29,780	262,631,785	*b*262,661,565
Tonnage of goods and live stock carried	Tons	*b*172,929	27,112,803	*b*27,285,732
Number of employees at 30th June, 1918—				
Salaried	No.	213	12,793	13,006
Wages	,,	1,077	73,044	74,121
Number of persons killed and injured during the year through train accidents and movement of rolling stock—				
Killed	,,	4	156	160
Injured	,,	158	1,544	1,702

(*a*) Exclusive of lines from Mount Gambier to Victorian border, and from Murrayville to Victorian border. (*b*) Exclusive of Oodnadatta line.
Note.—The sign — denotes a loss on working.

4. **Government Railway Facilities.**—On page 635 *ante* the population per mile of line open for general traffic is given in respect of the States' railways for each State. In the following table is given the mileage of all Government railways, State and Federal, in each State and Territory, per 1,000 of population :—

MILEAGE OF ALL GOVERNMENT RAILWAYS, FEDERAL AND STATE, PER 1,000 OF POPULATION IN EACH STATE AND TERRITORY AS AT 30th JUNE, 1918.

State or Territory.	Population 30th June, 1918.	Length of Line Open (Route).			Mileage per 1,000 of Population.
		State.	Federal.	Total.	
	No.	Miles.	Miles.	Miles.	Miles.
New South Wales	1,910,389	4,679.31	..	4,679.31	2.45
Victoria	1,416,791	4,151.64	..	4,151.64	2.93
Queensland	692,214	5,295.15	..	5,295.15	7.65
South Australia	439,466	2,242.33	1,075.32	3,317.65	7.55
Western Australia	311,121	3,491.08	453.94	3,945.02	12.68
Tasmania	202,842	588.00	..	588.00	2.90
Northern Territory	5,269	..	199.56	199.56	37.87
Federal Territory	2,473	..	4.94	4.94	2.00
Commonwealth	4,980,565	20,447.51	1,733.76	22,181.27	4.45

(F) Private Railways.

1. **Total Mileage Open, 1917–18.**—As has been stated in a previous part of this section (see A. 8) a number of private railway lines have from time to time been constructed in the Commonwealth. By far the greater proportion of such lines, however, has been laid down for the purpose of hauling timber, sugar-cane, coal, or other minerals, and is not generally used for the conveyance of passengers or for public traffic; in many cases the lines are often practically unballasted and are easily removable, running through bush and forest country in connection with the timber and sugar-milling industries, and for conveying firewood for mining purposes. Many of these lines may perhaps be said to be rather of the nature of tramways than of railways. Private railways referred to herein include (*a*) lines open to the public for general passenger and goods traffic; and (*b*) branch lines from Government railways and other lines which are used for special purposes and which are of a permanent description. Other lines are referred to in the part of this section dealing with Tramways (see § 3, *Tramways*).

The following table gives particulars of private railways in the Commonwealth open for traffic during 1917–18. A classification of these lines according to their gauge has already been given (see page 635).

MILEAGE OF PRIVATE RAILWAYS OPEN, 1917–18.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
For general traffic ..	185.02	24.94	555.77	33.80	278.35	162.86	1,240.74
For special purposes	160.83	46.12	918.48	5.00	680.96	30.85	1,842.24
Total ..	345.85	71.06	1,474.25	38.80	959.31	193.71	3,082.98

2. **Classification of Private Railways.**—The subjoined statement gives particulars regarding private railways, so far as returns are available, in each State for the year 1917–18. In this statement the lines inset are sub-branches from the main branches specified.

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1917–18.

NEW SOUTH WALES.

Railway Lines.	Length and Gauge.				Nature of Traffic Carried, etc.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft 6 in.	2 ft. 0 in.	
	Miles.	Miles.	Miles.	Miles.	
1. MAIN SUBURBAN LINE, N.S.W. GOVT. RLYS.—					
Two branch lines	..	1.50	..	..	Goods
One branch line (Carlingford line) ..	..	0.98	..	..	,,
Total	..	2.48			
2. SOUTH COAST LINE, N.S.W. GOVT. RLYS.—					
Bulli Coal Co.	..	2.64	..	..	Coal
Bellambi Coal Co., Woonona Pit ..	..	3.06	..	..	,,
,, ,, Bellambi Pit ..	..	2.88	..	..	,,
Corrimal-Balgownie Colliery ..	..	1.07	..	..	,,
Mount Keira Colliery	..	1.65	..	..	,,
Mount Kembla Coal Co.	..	7.43	..	..	,,
Hoskin's Wongawilli Colliery ..	..	2.89	..	..	,,
Mount Pleasant Colliery	..	..	3.50	..	,,
Two branches, Metropolitan and Tunnel Collieries	..	1.27	..	..	,,
Total	..	22.89	3.50		

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1917-18—*continued.*

NEW SOUTH WALES—*continued.*

Railway Lines.	Length and Gauge.				Nature of Traffic Carried, etc.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 0 in.	
	Miles.	Miles.	Miles.	Miles.	
3. SOUTHERN LINE, N.S.W. GOVT. RLYS.—					
Warwick Farm	..	0.83	..	..	Race-course traffic
Goondah-Burrinjucka	..	..	..	26.25	General
Total	..	0.83	..	26.25	
4. WESTERN LINE, N.S.W. GOVT. RLYS.—					
Prospect Gravel Co., two branches ..	..	4.54	..	..	Metal
Commonwealth Oil Corporation's line from Newnes Junction ..	..	33.00	..	..	General
Three colliery branches at Eskbank	..	1.85	..	..	Coal
Two branches at Eskbank ..	..	1.04	..	..	Goods
Two colliery branches at Lithgow ..	..	1.25	..	..	Coal
Cadia branch	..	10.79	..	..	Ore and goods
Branch colliery line at Irondale ..	..	0.47	..	..	Coal
Commonwealth Portland Cement Co.'s branch lines	..	5.00	..	..	Goods
Branch colliery line at Cullen Bullen	..	1.40	..	..	Coal
Two branch lines to mines (Tallawong and Coombing)	..	2.70	..	..	Ore
Total	..	62.04			
5. NORTHERN LINE, SYDNEY TO NEWCASTLE, N.S.W. GOVT. RLYS.—					
Seven branch colliery lines, Fassifern, Teralba, Cockle Creek, South Wallsend Junction and Adamstown	..	7.60	..	..	Coal
West Wallsend and Seaham Colliery Branch line	..	5.75	..	..	General
Redhead Railway, Adamstown to Belmont	..	2.41	..	..	Coal
Four branch lines ..	..	9.09	..	..	General
Branch lines at Teralba and Sulphide Junction	..	2.91	..	..	„
Total	..	2.64	..	..	Gravel, coal and ore
	..	30.40			
5a. NORTHERN LINE, NEWCASTLE TO MURRURUNDI, N.S.W. GOVT. RLYS.—					
Newcastle Coal Mining Co. ..	..	2.82	..	..	Coal
Old Burwood Colliery	..	6.35	..	..	„
A.A. Co.'s Sea Pit	..	2.27	..	..	„
Lambton Colliery	..	2.18	..	..	„
Waratah Coal Co.	..	4.55	..	..	„
Newcastle Wallsend Coal Co. ..	..	4.56	..	..	„
Two branch lines.. ..	..	1.89	..	..	„
Six branch lines	..	5.13	..	..	Goods
Hexham-Minmi	..	6.08	..	..	General
Five branch lines	..	16.94	..	..	Coal
Ashton Fields Colliery	..	3.67	..	..	„
South Maitland Railways Ld., East Greta Junction to Stanford Merthyr	..	7.36	..	..	General
Two branch lines.. ..	..	1.74	..	..	Coal
Aberdare Rly., Aberdare Junction to Cessnock	..	12.08	..	..	General
Twelve branch lines ..	..	24.14	..	..	Coal
Rutherford Race-course	..	0.87	..	..	Race-course traffic
Six branch lines at Greta, Branxton, Rix's Creek, Rosedale Siding and Nundah	..	5.21	..	..	Coal
Branch line at Temple Court ..	..	0.66	..	..	Goods
Three branch colliery lines at Wilga, Curlewis and Gunnedah ..	..	7.29	..	..	Coal
Total	..	115.79			
6. SILVERTON TRAMWAY—					
Broken Hill and Cockburn ..	..	..	36.67	..	General
7. DENILIQUIN-MOAMA LINE	45.00	..	..	..	„
Total for State, 345.85 miles. Total	45.00	234.43	40.17	26.25	

a Owned and worked by the Public Works Department.

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1917-18—*continued.*

VICTORIA.

Railway Lines.	Length and Gauge.			Nature of Traffic Carried, etc.
	5 ft. 3 in.	3 ft. 0 in.	2 ft. 0 in.	
	Miles.	Miles.	Miles.	
1. KERANG TO KOONDROOK TRAMWAY	13.94	..	..	General
2. ALTONA BAY RAILWAY—				
Williamstown Race-course and pit at Altona	2.83	..	..	General
3. MCIVOR TIMBER AND FIREWOOD CO., TOOBORAC	26.00	..	..	Firewood
4. YARRA JUNCTION TO POWELLTOWN	..	11.00	..	General
5. ALEXANDRA TO RUBICON FOREST	..	..	13.00	Merchandise and timber
6. LA LA EXTENSION TO BIG PAT'S CREEK ..	..	4.29	..	Timber
Total for State, 71.06 miles. Total ..	42.77	15.29	13.00	

QUEENSLAND.

Railway Lines.	Length and Gauge.			Nature of Traffic Carried, etc.
	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
BRANCHES FROM GOVERNMENT RAILWAYS.	Miles.	Miles.	Miles.	
1. SOUTH COAST LINE—				
Beaudesert Tramway to Rathdowney and Tabooba Junction to Lamington ..	33.00	..	..	General
Nerang Central Mill	..	..	11.00	Sugar
Blue Metal Co.	2.46	..	..	Mineral
Lahey's Ld. from Canungra	14.50	..	..	Timber
Belmont Shire Council	4.39	..	..	General
Australian Meat Export Co.	1.64	..	..	Live stock and meat
Public Works Department	0.28	..	..	Building materials
2. MAIN LINE—				
Mount Crosby Water Supply (Tivoli) ..	5.00	..	..	Coal
Fifteen colliery branches	13.36	..	..	"
Three timber branches	3.74	..	..	Timber
Redbank Freezing Works	0.45	..	..	Meat
Marburg Sugar Mill	1.04	..	0.50	Sugar
Five branch lines	1.28	..	..	Various
3. SOUTHERN LINE AND BRANCHES—				
Tannymorel Colliery	3.50	..	..	Coal
Queensland Cement and Lime Co. ..	3.90	..	..	Limestone
4. WESTERN LINE AND BRANCHES—				
Three colliery branches	1.44	..	..	Coal
Munro's Tramway to Perseverance ..	..	10.00	..	Timber and farm produce
Pechey's Siding	0.25	..	..	Timber
5. NORTH COAST LINE (south of Rockhampton)—				
Buderim Tramway	..	7.00	..	General
Mapleton Tramway	..	..	13.00	"
Moreton Central Sugar Mill	..	..	12.00	"
Mount Bauple Sugar Mill	9.44	..	8.00	Sugar
Maryborough Sugar Factory	0.31	..	..	"
Walkers' Limited	0.66	..	..	Ironwork
Harbours and Rivers Dept. (Urangan)	0.70	..	..	Building materials
Goodwood Sugar Mill	..	..	2.25	Sugar
Millaquin Sugar Mill and Refinery ..	2.25	..	9.35	"
Woongarra Tramway	12.19	..	..	General
Qunaba Sugar Mill	..	..	10.47	Sugar
Doolbi Sugar Mill	..	..	14.00	"
Isis Central Sugar Mill	2.97	..	14.50	"
Childers Sugar Mill	..	..	33.75	"
Waterview Plantation	1.05	..	..	"
Miara Sugar Mill	..	..	0.50	"
Fairymead Sugar Mill	7.17	..	2 40	"
Avondale Sugar Mill	3.39	..	..	"
Invicta Sugar Mill	8.70	..	14.50	General and sugar
Bingera Sugar Mill	8.50	..	26.50	Sugar
Gin Gin Sugar Mill	..	..	22.56	"
Three colliery lines	3.36	..	..	Coal
Ten branch lines	3.76	..	..	Various
6. CENTRAL LINE AND BRANCHES—				
Mount Morgan G. M. Co. (eight branches) ..	5.00	..	..	Mineral
Central Queensland Meat Export Co. ..	0.85	..	..	Meat
Gladstone Meat Works Ld.	0.29	..	..	"
Ambrose Limeworks Ld.	1.10	..	..	Cement
Treasury Department	1.09	..	..	Explosives
D. McLaughlen Co.	0.93	..	..	Wool, etc.
W. Queensland Meat Co.	0.43	..	..	Meat
Six branches	3.85	..	..	Coal
Fifteen branches	1.66	..	..	Various
Aramac Tramway from Barcaldine ..	41.00	..	..	General

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1917–18—*continued.*

QUEENSLAND—*continued.*

Railway Lines.	Length and Gauge.			Nature of Traffic Carried, etc.
	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
	Miles.	Miles.	Miles.	
7. MACKAY LINE AND BRANCHES—				
Racecourse Central Mill (four branches) ..	1.99	..	5.00	Sugar
Melbourne-Mackay Sugar Co.	0.52	..	10.00	,,
Pleystowe Central Mill	1.24	..	35.00	,,
Marian Central Mill	0.93	..	37.50	,,
Cattle Creek Central Mill	0.30	..	5.00	,,
North Eton Central Mill	0.98	..	21.00	,,
Homebush Sugar Mill	..	..	29.00	,,
Farleigh Sugar Mill	1.24	..	40.00	,,
Plane Creek Central Mill	0.58	..	44.50	,,
Mackay Harbour Board	0.87	..	..	General
Colonial Sugar Co.	0.23	..	..	Sugar
Crocker's Wharf Line	0.12	..	..	Goods
8. GREAT NORTHERN RAILWAY—				
Townsville to Cloncurry—				
Queensland Meat Export and Ag. Co. ..	2.25	..	..	Meat
Burdekin Meat Preserving Co. ..	1.16	..	..	,,
Mills Day Dawn United G.M. Co. ..	1.16	..	..	Mining
Ten branch lines	1.38	..	..	Various
Three branch lines	1.04	..	..	Mining
Kalamia Sugar Mill	..	..	17.50	Sugar
Hughenden to Winton—				
Three branch lines	0.71	..	..	Various
Cloncurry to Selwyn—				
Hampden-Cloncurry Copper Mines ..	5.37	..	..	Mining
Macgregor Tramway to Ballara ..	22.13	..	..	General and minerals
Seven branch lines	0.68	..	4.00	Mining
Malbon to Dajarra—				
Four branch lines	0.40	..	..	Various
Cloncurry to Mount Cuthbert—				
Three branch lines	1.88	..	..	Mining
Oona to Dobbyn—				
Mt. Cuthbert Co. (2 lines)	4.92	..	..	,,
Mt. Elliott Co. (2 lines)	1.76	..	..	,,
Townsville Jetty Branch—				
Four branch lines	0.94	..	..	Various
Townsville Gas Co.	0.68	..	..	Coal and coke
9. NORTH COAST RAILWAY (portions north of Rockhampton)—				
Proserpine to Bowen—				
Proserpine Central Sugar Mill ..	0.83	..	50.00	Sugar and cane
Bowen to Townsville—				
Pioneer and Inkerman Sugar Mills ..	38.50	..	18.50	,, ,,
Australian Meat Export Co.	5.75	..	..	Meat
Drysdale Brothers	1.01	..	..	,,
Four branch lines	1.04	..	..	Various
Mooliba to Cairns (Cairns line)—				
Babinda Sugar Mill	1.20	..	27.00	Sugar
Mulgrave Central Mill (4 lines) ..	0.40	..	15.50	,,
Hambledon Sugar Mill	1.75	..	37.50	,,
Three branch lines	0.42	..	..	Various
10. INNISFAIL RAILWAY—				
Goondi Sugar Mills	..	..	35.25	Sugar
South Johnstone Sugar Mill	..	..	35.50	,,
Mourilyan Sugar Mill	..	..	21.00	,,
Twenty-six branch lines	..	..	0.86	Various
11. CAIRNS RAILWAY AND BRANCHES—				
Cairns to Ravenshoe line—				
Chillagoe Railway	102.73	..	..	General
Cairns Harbour Board	0.71	..	..	,,
Nine branch lines	0.95	..	..	Various
Tolga-Tarzali line—				
One branch line	0.06	..	..	,,
Chillagoe Railway—				
Stannary Hills Tramway	..	..	21.00	General
Irvinebank Tramway	..	..	14.00	,,
Etheridge Railway	143.00	..	..	,,
Four branch lines	4.84	..	..	Various
12. NORMANTON RAILWAY—				
Forsythe's Siding	0.58	..	..	
LINES NOT CONNECTED WITH GOVERNMENT RAILWAYS—				
Victoria Sugar Mill (Ingham)	..	..	69.75	General and sugar
Macnade Sugar Mill (Ingham)	..	..	52.50	,, ,,
Port Douglas to Mossman and Mowbray River ..	..	..	19.00	General
Mossman Central Mill	..	..	24.00	Sugar
Total for State, 1,474.25 miles. Total ..	570.11	17.00	887.14	

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1917–18—*continued.*

SOUTH AUSTRALIA.

Railway Lines.	Length and Gauge.		Nature of Traffic Carried, etc.
	3 ft. 6 in.	2 ft. 0 in.	
	Miles.	Miles.	
BROKEN HILL PROPRIETARY CO.'S LINE—			
Iron Knob to Hummock's Hill, Spencer's Gulf ..	33.80	..	General and carriage of ironstone
MARION BAY LINE—			
Jetty to mine	..	5.00	Mining products
Total for State 38.80 miles. Total	33.80	5.00	

WESTERN AUSTRALIA.

Railway Lines.	Length and Gauge.			Nature of Traffic Carried, etc.
	3 ft. 6 in.	2 ft. 0 in.	1 ft. 8in.	
	Miles.	Miles.	Miles.	
1. MIDLAND RAILWAY—				
Joining Government lines at Midland Junction and Walkaway	278.35	..	..	General
2. W.A. GOLDFIELDS FIREWOOD SUPPLY CO.'S LINE—				
From Kurrawang into bush	102.00	..	..	Firewood
3. KALGOORLIE AND BOULDER FIREWOOD CO.'S LINE—				
Goodwood Railway, from Lake Side into bush	50.00	..	..	,,
Lancefield Railway into bush	..	36.00	..	,,
4. W.A. TIMBER AND FIREWOOD CO. LD. LINE—				
Kurramia Railway, from Kalgoorlie–Kanowna Railway into bush	70.00	..	..	,,
5. SONS OF GWALIA GOLD MINING CO.'S LINE—				
Railway into bush	..	..	28.00	,,
6. KARRI TIMBER CO.—				
W.A. Jarrah Sawmills Line	43.00	..	..	Timber
7. TIMBER CORPORATION CO.'S LINE—				
From Greenbushes to mills and into bush ..	17.50	..	..	,,
8. S.-WEST TIMBER HEWERS' CO-OP. SOCIETY'S LINE—				
From Holyoake into bush	10.00	..	..	,,
9. MILLAR'S TIMBER TRADING CO.'S LINES—				
Upper Darling Range Railway, from Pickering Brook to Canning mills and bush ..	12.00	..	..	,,
Jarrahdale and Rockingham Railway, from Mundijong to Rockingham and bush ..	61.00	..	..	,,
Yarloop Railway to Mills and bush ..	54.00	..	..	,,
Mornington Mills Railway, from Wokalup to mills and bush	40.00	..	..	,,
Ferguson River Railway, from Dardanup to mills and into bush	35.00	..	..	,,
Kirupp Saw Mills into bush	21.00	..	..	,,
Marrinup Saw Mills into bush	9.00	..	..	,,
Jarrah Woods Saw Mills into bush ..	14.85	..	..	,,
10. BUNNING BROS. LD. LINES—				
Argyle Mill	11.00	..	..	,,
Collie	16.00	..	..	,,
Preston Valley	5.50	..	..	,,
Perth Jarrah Lion Mills	8.25	..	..	,,
Wandoo Line, Muja	0.86	..	..	,,
11. NORTH DANDALUP S.M. RAILWAY—				
To mill and bush	12.00	..	..	,,
12. SWAN SAW-MILL RAILWAY—				
From Lowden to mill and bush	11.00	..	..	,,
13. BUCKINGHAM BROS. S.M. RAILWAY—				
From Muja to bush	4.50	..	..	,,
14. WILGARRUP KARRI AND JARRAH CO.'S LINE—				
Railway into bush	8.50	..	..	,,
Total for State, 959.31 miles. Total ..	895.31	36.00	28.00	

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1917-18—*continued.*

TASMANIA.

Railway Lines.	Length and Gauge.		Nature of Traffic Carried, etc.
	3 ft. 6 in.	2 ft. 0 in.	
	Miles.	Miles.	
1 EMU BAY RAILWAY CO.'S LINES—			
Burnie to Waratah	47.66	..	General
Guildford to Zeehan	49.68	..	,,
Rayna to Dundas	5.60	..	,,
2. MOUNT LYELL MINING AND RAILWAY CO.'S LINES—			
Regatta Point to Queenstown	22.13	..	,,
Linda to Kelly Basin	27.80	..	,,
3 HUON TIMBER CO.'S LINE	29.10	..	Timber
4. ZEEHAN TRAM CO.'S LINE—			
Emu Bay Railway to British Queen	..	1.75	Minerals and occasionally passengers
5. MAGNET SILVER MINING CO.'S LINES—			
Magnet Junction to Magnet	..	9.99	Minerals and passengers
Total for State, 193.71 miles. Total ..	181.97	11.74	

SUMMARY OF MILEAGE OF PRIVATE RAILWAYS ACCORDING TO GAUGE, 1917-18.

PRIVATE RAILWAYS.

State.	Gauge.							Total for States.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	3 ft. 0 in.	2 ft. 6 in.	2 ft. 0 in.	1 ft. 8 in.	
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	45.00	234.43	40.17	..	..	26.25	..	345.85
Victoria ..	42.77	..	..	15.29	..	13.00	..	71.06
Queensland ..	..	..	570.11	..	17.00	887.14	..	1,474.25
South Australia	..	..	33.80	..	..	5.00	..	38.80
Western Australia	..	..	895.31	..	..	36.00	28.00	959.31
Tasmania ..	..	..	181.97	..	..	11.74	..	193.71
Total ..	87.77	234.43	1,721.36	15.29	17.00	979.13	28.00	3,082.98

3. **New South Wales.**—In this State the mileage of private railways open to the public for general traffic at the end of 1917 was 185.02, and of lines used for special purposes, 160.83 miles. Most of these lines were constructed primarily for the purpose of conveying coal from the mines to the Government railway systems. Particulars for the year 1917-18 of the operations of lines open for general traffic are given, so far as available, in the table on page 690.

(i) *Private Railways Open for General Traffic.* The most important of the lines open for general traffic are as follows:—(*a*) *The Deniliquin-Moama Line.* In 1874 permission was granted by the New South Wales Government to the Deniliquin and Moama Railway Company to construct a line forty-five miles long from Deniliquin in the Riverina district, to Moama, connecting with the Victorian Railway system at the Murray Bridge, near Echuca. The line was opened in 1876, the land required being granted by the Government. (*b*) *The Cockburn-Broken Hill Line.* This line is owned by the Silverton Tramway Company. It was opened in 1888, and connects Broken Hill with the South Australian railway system, having a total length of 36.67 miles. (*c*) *East Greta Lines.* These lines, belonging to the East Greta Coal Mining Company, run from

East Greta Junction, on the Northern line of the Government railways, to Stanford Merthyr, a distance of 7.36 miles, and from Aberdare Junction to Cessnock, 12.08 miles —a total of 19.44 miles. (*d*) *The New Redhead Coal Company's Railway.* The lines owned by this company branch from the Northern line of the Government railways, and run from Adamstown to Burwood Extended Colliery, thence to Belmont, and from Burwood Junction to Dudley Boundary and branches, a total distance of 12.00 miles. The lines are worked by the Railway Department, coal wagons being supplied in part by the coal companies using the line. The colliery companies using the line pay a way-leave for right to run their coal over the line, and the Railway Commissioners allow the New Redhead Company a proportion of the revenue from the passenger and goods traffic. (*e*) *The Seaham Coal Company's Railway.* This line runs from Cockle Creek to West Wallsend and Seaham Collieries, and has a total length of 5.13 miles. (*f*) *Hexham-Minmi Railway.* This line branches from the Northern line of the Government railways at Hexham, and has a length of 6.08 miles. (*g*) *The Commonwealth Oil Corporation's Railway.* This line runs from Newnes Junction on the Great Western line of the Government railways to the company's refinery, a distance of 33 miles. The Shay geared type of locomotive is in use on this line. (*h*) *The Warwick Farm Line* is a short line, 0.83 of a mile in length, connecting the Government line near Liverpool with the Warwick Farm Racecourse. Government rolling stock is used. (*i*) *The Goondah–Burrinjuck Line* is a line 26.25 miles in length built and worked by the Public Works Department in connection with the reservoir at Burrinjuck.

In addition to the lines referred to above, legislative sanction was obtained in 1890 for the construction of a private line from the flux quarries at Tarrawingee to the Broken Hill line, a distance of 40.09 miles. The line was purchased by the Government in 1901, and is operated by the Silverton Tramway Company under lease from the Chief Commissioner, who pays the working expenses and receives the ordinary earnings and one-half the net receipts on special and holiday traffic. The mileage of this line is included in that of the Government railways, and it has a gauge of 3 feet 6 inches.

4. **Victoria.**—In Victoria there are two private railways open for general traffic. (*a*) Kerang-Koondrook tramway, opened in 1889. The cost of construction of this line to the end of September, 1918, was £39,229, paid out of a loan advanced by the Victorian Government. The total length is 13.94 miles. The line is at present controlled by the Kerang Shire Council, but proposals have been made for its transfer to the Railway Department. (*b*) Yarra Junction to Powelltown. This line has a length of 11 miles, and is worked mainly for timber purposes.

A line running from Elsternwick to Oakleigh, a distance of about 5 miles, was constructed by a private company many years ago. It was never in general use, having only an occasional train running over it on special occasions, and has since been partially dismantled.

5. **Queensland.**—In this State private railways open for general traffic may be grouped under two heads :—(i) Lines constructed primarily for mining purposes or for the transport of sugar-cane, and (ii) Shire tramways.

(i) *Mining Railways.* (*a*) *The Chillagoe Railway.* The most important of these is the Chillagoe railway, constructed under the Mareeba to Chillagoe Railway Act 1897, and opened in 1901. This line runs from Mareeba, on the Cairns railway, to Mungana, a distance of 102.73 miles. (*b*) *The Stannary Hills Line.* This line branches from the Chillagoe railway at Boonmoo and runs to Rocky Bluff, *via* Stannary Hills, a total distance of 21 miles. The gradients on this line, which has a gauge of 2 feet, range as high as 1 in 27, while the radius of some of the curves is as low as 1¼ chains. An additional length of 8 miles has been surveyed with a view to extending the line.

(ii) *Shire Tramways.* Under Part XV. of the Local Authorities Act of 1902 provision is made whereby not less than one-third of the ratepayers in any district may petition the local authority to apply to the Governor for the constitution of a tramway

area. The Governor may define the area and may also approve of the plans and specifications of the proposed tramway. The amount which may be advanced by the Government for the construction or purchase of a tramway may not exceed a sum equal to £5,000 for every mile of its length. As regards repayment of loans, no sum need be paid during the first three years, but after the expiration of that period the principal and interest must be repaid by half-yearly instalments on the basis provided for by the "Local Works Loans Act 1880 to 1899." For the purpose of raising the money to pay these instalments the local authority may levy a rate upon all ratable property within the tramway area. The money required for the tramway may be raised by the local authorities by the issue of debentures.

6. **South Australia.**—In this State there is one private railway open for general traffic, that owned by the Broken Hill Proprietary Company, running from Iron Knob to the seaboard near the head of Spencer's Gulf, a distance of 33.80 miles. The line is utilised for the carriage of ore for use in connection with the smelting works at Port Pirie and the steel works at Newcastle. There is also a line from Marion Bay, having a length of 5 miles, used for mining purposes.

7. **Western Australia.**—Owing to the difficulty experienced at one time by the Government in constructing lines urgently required for the development of the country, private enterprise was encouraged to undertake the work of construction on the land-grant principle, and two trunk lines were thus constructed. The greater part of the private lines now open, however, have been constructed in connection with the timber industry. (i) *The Midland Railway.* This line is 278.35 miles in length, and runs from the Midland Junction, ten miles from Perth, to Walkaway, where it joins the Government line running to Geraldton. It was constructed under a concession of 12,000 acres of land per mile of line constructed, to be selected along the entire route of the railway. (ii) *The Great Southern Railway.* This line, which was built by private enterprise under the land-grant system, is 242 miles in length, and was acquired by the Government by purchase on the 1st January, 1897. The total price paid for all the interests of the private company and of the original concessionaire, was £1,100,000, which was divided by the Government for book-keeping purposes into £300,000 for the land and £800,000 for the railway. (iii) *Millar's Timber Trading Company's Lines.* These lines have mostly been built under special timber concessions and leases. There were, at latest date available, in all eight lines situate in various parts of the State extending into the bush, whence logs are brought to the mills. The total length of these lines was approximately 256.85 miles. (iv) *Other Lines.* There are also several other lines in various parts of the State used chiefly in connection with the timber industry. These are specified in the tabular statement on page 686.

8. **Tasmania.**—In this State there are three private lines open for general traffic, all of which are situated in the western part of the island.

(i) *The Emu Bay Railway Company.* The lines owned by this company run from Burnie to Waratah, from Guildford to Zeehan, and from Rayna to Dundas, and have a total length of 102.94 miles.

(ii) *The Mount Lyell Mining and Railway Company.* The Mount Lyell railway runs from Regatta Point, Strahan, to Queenstown, and the North Mount Lyell line from Kelly Basin to Linda. The former line, 22.13 miles in length, was constructed in 1895–6, while the latter line, 27.80 miles long, was taken over from the North Mount Lyell Copper Company on the amalgamation of the two companies in 1903. The line from Kelly Basin to Linda is now worked only intermittently.

(iii) *The Magnet Silver Mining Company's Railway.* This line runs from Magnet Junction, near Waratah, on the Emu Bay Company's line, to Magnet, a distance of 9.99 miles.

9. **Operations of Private Railways, 1917-18.**—The tabular statement given below shews particulars, so far as returns are available, for the year 1917-18, of all private railways open to the public for general traffic in the Commonwealth :—

PARTICULARS OF PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC, 1917-18.

Line	Miles Open (Route).	Capital Cost.	Gross Revenue.	Expenses.		Train Miles.	Passenger Journeys.	Tons of Goods, etc.	No of Employees.	Rolling Stock.		
				Working.	Interest, etc.					Locos.	Coaches.	Other Vehicles.
	No.	£	£	£	£	No.	No.	Tons.	No.	No.	No.	No.
NEW SOUTH WALES.												
C'wealth Oil Corp'r'n	33.00	194,500	4,984	5,728	(b)	14,403	1,382	12,281	18	(d)5	3	69
Denilliquin-Moama..	45.00	162,672	20,363	11,107	(b)	38,266	12,689	51,822	44	4	6	63
East Greta Railway	19.44	394,135	75,935	54,553	23,269	317,846	705,914	69,654	210	19	28	40
Goond'h-Burrinj'k(g)	26.25	80,756	2,751	(f)7,950	(h)	39,120	4,225	8,873	34	4	3	28
Hexham-Minmi ..	6.08	(b)	470	590	..	3,072	5,630	1,040	6	1	4	1
New Redhead Co.	12.00	102,000	(b)	(b)	(b)	(b)	(b)	(b)	..	..	..	..
Seaham Colliery Co.	5.75	25,000	927	786	..	7,196	14,524	9,320	9	2	2	2
Silverton Tramway	36.67	476,887	132,468	65,153	..	95,695	47,852	590,619	234	20	1	676
Warwick Farm ..	0.83	5,700	(b)	(b)	(b)	(b)	(b)	(b)	(c)	(c)	(c)	(c)
Total(a) ..	185.02	1,441,650	237,898	145,867	23,269	515,598	792,216	743,609	555	55	47	879
VICTORIA.												
Kerang-Koondrook(e)	13.94	39,229	4,137	2,613	1,789	20,440	17,124	20,750	14	2	2	9
Yarra J.-Powelltown	11.00	46,684	4,099	3,617	..	(b)	(b)	(b)	8	2	2	32
Total(a) ..	24.94	85,913	8,236	6,230	1,789	20,440	17,124	20,750	22	4	4	41
QUEENSLAND.												
Aramac-Barcaldine	41.00	86,206	8,891	4,806	3,307	24,000	6,058	1,607	14	2	2	2
Beaudesert(k) ..	33.00	93,559	12,337	10,651	..	(b)	14,090	11,585	27	1	3	1
Belmont Tramway	4.39	18,006	1,601	1,824	834	10,165	36,959	23,451	(c)	(c)	(c)	(c)
Buderim	7.00	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Irvinebank ..	14.00	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Chillagoe Railway	102.73	420,276	21,118	16,371	..	51,222	13,589	25,572	67	8	2	86
Douglas-Mossman	19.00	48,166	5,460	4,884	2,078	12,000	7,800	8,846	12	2	3	21
Etheridge ..	143.00	457,175	12,336	15,619	11,250	24,490	3,123	4,562	(c)	(c)	(c)	(c)
Invicta Mill ..	8.70	20,067	1,717	933	1,016	2,648	1,749	..	(c)	(c)	(c)	(c)
Lucinda Pt. to Stone R. and Lg. Pocket	53.50	(b)	(b)	(b)	(b)	(b)	15,496	46,417	(b)	3	3	84
Green Hills to Hambledon Junc. ..	4.13											
Macgregor ..	22.13	66,328	3,941	3,156	j1,213	7,947	2,763	21,283	9	(c)	(c)	(c)
Mapleton ..	15.00	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Moreton Central S.M.	8.50	14,337	753	403	166	1,674	8,228	684	2	1	2	1
South Johnstone Central S.M. ..	46.50	170,000	4,108	2,400	..	5,472	14,400	5,200	8	4	3	6
Stannary Hills ..	21.00	64,320	1,840	2,763	..	6,331	1,196	4,153	7	1	2	76
Woongarra ..	12.19	36,828	1,133	1,245	717	(b)	17,527	7,045	4	(c)	(c)	(c)
Total(a) ..	555.77	1,495,268	75,235	65,055	20,581	145,949	142,978	160,405	150	22	20	277
SOUTH AUSTRALIA.												
Iron Knob ..	33.80	(b)	(b)	(b)	(b)	63,426	570	304,963	37	5	3	110
WESTERN AUSTRALIA.												
Midland Railway(g)	278.35	2,036,855	92,845	64,619	(b)	257,625	49,299	76,254	235	17	18	402
TASMANIA.												
Emu Bay Railway	i102.94	616,878	47,526	32,263	20,423	88,547	36,192	33,791	111	10	6	155
Magnet Railway ..	9.99	18,750	319	2,380	(b)	3,120	1,119	417	7	3	1	6
Mt. Lyell Railway..	22.13	216,086	32,480	25,502	(b)	37,271	21,493	72,186	100	7	7	117
Nth Mt. Lyell Rly.	27.80	316,638	5,157	5,718	(b)	10,676	4,039	17,669	20	4	4	56
Total(a) ..	162.86	1,168,352	85,482	65,863	20 423	139,614	62,843	124,063	238	24	18	334
Total for C'wealth	1,240.74	6,228,038	499,696	347,634	66.062	1,142,652	1,065,030	1,430,044	1237	127	110	2043

(a) Incomplete. (b) Not available. (c) Worked by Government. (d) Including one motor car.
(e) For year ended 30th September, 1918. (f) Including interest. (g) For year ended 30th June, 1918.
(h) Included in working expenses. (i) Including 47.66 miles owned by the Emu Bay and Mount Bischoff Railway Company. (j) Rent. (k) For year ended 31st December, 1916.

10. **Comparative Railway Statistics.**—On page 634 *ante* a table is given shewing the railway facilties in 1917–18 in the States, in the Northern Territory, and in the Commonwealth, the railway mileage open for traffic being compared both with the area and population.

In the table below, the comparative railway statistics of a like character are given in respect of the principal countries of the world at certain dates. The latter have been taken so that the latest accurate figures for both population and railway mileage could be brought into relation.

COMPARATIVE RAILWAY STATISTICS IN RESPECT OF CERTAIN COUNTRIES IN EUROPE, ASIA, AFRICA, NORTH AND SOUTH AMERICA, AND AUSTRALASIA, AT THE UNDERMENTIONED DATES.

Country.	Year.	Miles of Railway.	Population.	Area in Square Miles.	Miles of Railway.	
					Per 1,000 of Population.	Per 1,000 Sq. Miles of Territory.
Europe—						
United Kingdom ..	1915	23,709	44,481,494	121,633	0.53	194.93
Austria	1913	14,512	29,193,293	115,882	0.50	125.23
Belgium	1912	5,401	7,571,387	11,373	0.71	474.90
Denmark	1916	2,550	2,921,362	(c)15,042	0.87	169.53
France	1911	a30,709	39,602,258	207,054	0.78	148.31
Germany	1914	39,439	67,812,000	208,780	0.58	188.90
Greece	1914	1,365	4,821,300	41,933	0.28	32.55
Hungary	1912	13,333	21,134,862	125,609	0.63	106.15
Italy	1916	11,722	36,546,437	110,632	0.32	105.95
Netherlands ..	1916	2,382	6,583,227	12,582	0.36	189.32
Norway	1914	1,967	2,440,500	124,643	0.81	15.78
Portugal	1911	1,780	5,957,985	35,490	0.30	50.16
Russia	1913	35,987	143,114,300	1,997,309	0.25	18.02
Spain	1914	9,377	20,500,287	(b)190,050	0.46	49.34
Sweden	1916	9,297	5,757,566	173,035	1.61	53.73
Switzerland	1915	3,537	3,880,500	15,976	0.91	221.40
Asia—						
India	1911	32,839	315,156,396	1,802,629	0.10	18.22
Russia	1913	10,586	27,787,800	6,641,587	0.38	1.59
Africa—						
Egypt	1917	2,874	12,569,000	350,000	0.23	8.21
Union of South Africa	1911	7,848	5,973,394	473,100	1.31	16.59
America, North—						
Canada	1914	30,795	8,075,000	3,729,665	3.81	8.26
Mexico	1912	15,804	15,501,684	785,881	1.02	20.11
United States ..	1916	264,378	102,017,312	2,973,890	2.59	88.90
America, South—						
Argentina	1914	21,880	7,885,237	1,153,119	2.70	18.97
Brazil	1915	16,294	26,542,402	3,290,564	0.61	4.95
Chile	1915	5,015	3,641,477	289,829	1.38	17.30
Australasia—						
Australia	**1918**	**25,264**	**4,980,565**	**2,974,581**	**5.07**	**8.49**
New Zealand ..	1918	3,012	1,104,783	104,751	2.73	28.75

(*a*) Including lines of "local" interest. (*b*) Exclusive of Balearic and Canary Islands.
(*c*) Exclusive of Faroe Islands.

It will be seen from the above table that per 1,000 of population the Commonwealth of Australia had the greatest mileage (in 1918), 5.07 miles; the next in magnitude being Canada (1914) with 3.81 miles, New Zealand (1918) with 2.73 miles, Argentina (1914) with 2.70 miles, and the United States (1916) with 2.59 miles.

The least mileage per 1,000 of population is shown in the case of India (1911) with 0.10 mile, followed by Egypt (1917) with 0.23 mile of railway.

With regard to the mileage per 1,000 square miles of territory, Belgium (1912) with 474.90 miles was easily first, followed by Switzerland (in 1915) with 221.40 miles, the United Kingdom (in 1915) with 194.93 miles, the Netherlands (in 1915) with 189.32 miles, and Germany (in 1914) with 188.90 miles.

The least mileage open per 1,000 square miles is that of Asiatic Russia (in 1913) with 1.59 miles, the next being 4.95 miles in the case of Brazil (1915).

The mileages in the Commonwealth of Australia and the Dominion of Canada per 1,000 square miles of territory are very close to each other, being 8.49 miles (1918) and 8.26 miles (1914) respectively, the latter being less than a tenth of the United States, 88.90 miles (in 1916).

§ 3. Tramways.

1. **General.**—Tramway systems are in operation in all the States of the Commonwealth, and in recent years considerable progress has been made in the adoption of electrical traction, the benefit of which is now enjoyed by a number of the principal towns of the Commonwealth.

In many parts of Australia private lines used for special purposes, in connection with the timber, mining, sugar, or other industries are often called tramways, but they are really private railways, the traffic on which has nothing in common with that of the street tramways for the conveyance of passengers, which are dealt with in the present section.

(i) *Total Mileage Open and Classification of Lines.* The following tables shew the total mileage of tramway lines open for general passenger traffic in each State and in the Commonwealth for the year 1917–18, and also in the Commonwealth as a whole for the years 1908–9 to 1917–18, classified (*a*) according to the motive power utilised and (*b*) according to the nature of the authority by which the lines are controlled :—

TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC IN EACH STATE AND IN THE COMMONWEALTH, 1917–18.

Nature of Motive Power and Controlling Authority.	N.S. Wales.	Victoria.	Q'land.	South Australia.	Western Australia.	Tasmania.	C'wealth.
ACCORDING TO MOTIVE POWER.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric	154.37	92.17	41.58	65.66	50.62	22.00	426.40
Steam	74.48	1.15	6.00	..	12.17	26.81	120.61
Cable	..	46.04	..	..	..	..	46.04
Horse	..	0.62	..	*a*17.36	14.39	8.75	41.12
Total ..	228.85	139.98	47.58	83.02	77.18	57.56	634.17
ACCORDING TO CONTROLLING AUTHORITY.							
Government ..	225.35	49.46	..	*a*17.36	53.77	26.50	372.44
Municipal ..	..	55.71	6.00	65.66	8.66	22.00	158.03
Private	3.50	34.81	41.58	..	14.75	9.06	103.70
Total ..	228.85	139.98	47.58	83.02	77.18	57.56	634.17

(*a*) 16.36 miles included in South Australian Government railway mileage.

TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC IN THE COMMONWEALTH, 1908-9 TO 1917-18.

Nature of Motive Power and Controlling Authority.	1908–9.	1909–10.	1910–11.	1911–12.	1912–13.	1913–14.	1914–15.	1915–16.	1916–17.	1917–18.
According to Motive Power.										
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric ..	238.76	272.57	297.34	322.24	345.07	365.39	386.30	404.76	422.89	426.40
Steam	62.97	76.41	96.66	91.78	91.65	108.65	112.50	112.50	113.06	120.61
Cable	46.04	46.04	46.04	46.04	46.04	46.04	46.04	46.04	46.04	46.04
Horse	79.79	70.00	60.61	51.44	50.51	54.51	53.05	42.97	44.11	41.12
Total ..	427.56	465.02	500.65	511.50	533.27	574.59	597.89	606.27	626.10	634.17
According to Controlling Authority.										
Government ..	196.74	217.69	241.72	247.61	256.96	309.44	319.50	322.75	371.58	372.44
Municipal ..	55.80	68.79	78.69	82.86	102.85	114.55	129.86	143.32	158.13	158.03
Private	175.02	178.54	180.24	181.03	173.46	150.60	148.53	140.20	96.39	103.70
Total ..	427.56	465.02	500.65	511.50	533.27	574.59	597.89	606.27	626.10	634.17

2. **New South Wales.**—In this State the tramways, with but few comparatively unimportant exceptions, are the property of the Government, and are under the control of the Railway Commissioners.

(i) *Government Tramways.* In Sydney and suburbs the Government tramways are divided into distinct systems. There were in June, 1918, seven such systems in operation within the metropolitan area, the most important being the city and suburban lines, 112.78 miles in length (206.30 miles single track); the North Shore line, 21.14 miles in length (36.41 miles single track); the Ashfield to Mortlake line, 8.48 miles in length (15.12 miles single track); Manly to the Spit, Brookvale, and Narrabeen, 10.72 miles in length (15.47 miles single track); and Rockdale to Brighton-le-Sands, 1.25 miles in length (single track). The last-mentioned line was purchased from a private company and opened for traffic on 7th June, 1914. All of these systems are now operated by electricity. There are two systems on which the motive power used is steam, namely—(*a*) from Kogarah to Sans Souci, 5.56 miles in length (6.98 miles single track), and (*b*) from Arncliffe to Bexley, 2.62 miles long (single track).

There are also Government steam tramways in operation at Newcastle, Broken Hill, Parramatta, from East to West Maitland, and from Sutherland to Cronulla. The gauge of line on all the Government tramways is 4 ft. 8½ in.

(*a*) *Sydney Tramways.* In October, 1862, a horse tramway, 1¾ miles long, was opened for traffic in Sydney. Owing to the rails being laid higher than the road surface, the inconvenience thus caused to other traffic necessitated its removal under the authority of an Act passed in November, 1865, and it was not until the 15th September, 1879, that the first steam tramway was opened, running from Bridge-street to Hay-street *via* Elizabeth-street. In the following few years the steam tramways were considerably extended. The electric system was commenced by the opening of a section of the North Sydney lines on the 20th September, 1893. This was followed by the opening of the Ocean-street-Rose Bay line on the 4th October, 1898, and by the opening of the George-street-Pyrmont line on the 8th September, 1899, which introduced the electric system into the city. The tramways in the heart of the city, running along King-street to the suburb of Woollahra, as well as those in North Sydney, were originally worked by underground cables, and have since been converted into electric lines on the overhead trolley system. As already stated the whole of the steam tramways in Sydney and suburbs, with the exception of the Kogarah-Sans Souci and the Arncliffe-Bexley lines, have now been converted into electric lines, and provision for the extra power required for the electrification of the former of these lines has been made at the central power station.

(*b*) *Other Tramway Systems.* In Newcastle the first section of the tramways, from Perkins-street to Plattsburg, was opened on 31st December, 1887; the total length open on the 30th June, 1918, was 34.07 miles (44.42 miles single track). At Broken Hill and Parramatta the first sections of the tramways were opened in 1902. On the 30th June, 1918, the mileage open at Broken Hill amounted to 10.05 miles (11.44 miles single track), and at Parramatta to 6.69 miles (single track). The line from East to West Maitland, 4.59 miles long (single track), was opened in February, 1909, and the line from Sutherland to Cronulla, 7.40 miles long (single track), on the 12th June, 1911. Further particulars are given below.

(*c*) *Particulars of all Government Tramways.* The following table shews the total length, the capital cost, the gross revenue, working expenses, net earnings, and the percentages of working expenses on gross revenue, and of net earnings on capital cost, for the financial years 1901–2 and 1913 to 1918 :—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF GOVERNMENT TRAMWAYS, 1901–2 AND 1913 TO 1918.

Year ended 30th June—	Total Length of Lines Open (Route).	Capital Expended on Lines Open.	Gross Revenue.	Working Expenses.	Net Earnings.	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost.
	Miles.	£	£	£	£	%	%
1901–2 ..	103.94	2,829,363	631,757	541,984	89,773	85.79	3.19
1913–14 ..	212.16	7,628,653*a*	1,934,164	1,669,033	265,131	86.29	3.66
1914–15 ..	219.81	7,970,293*a*	1,986,060	1,611,287	374,773	81.13	4.70
1915–16 ..	220.83	8,166,423*a*	1,991,628	1,602,650	388,978	80.47	4.76
1916–17 ..	223.98	8,309,629*a*	2,008,539	1,691,367	317,172	84.21	3.82
1917–18 ..	225.35	8,470,091*a*	1,992,641	1,603,260	389,381	80.46	4.60

(*a*) £47,455 of this sum has been paid from the Consolidated Revenue, and no interest is payable thereon.

The net result, after providing for all working expenses and £348,546 for interest on the capital invested, was a profit of £40,835 in 1917–18 as compared with a loss of £18,189 in the preceding year. During the year 1917–18, 255,740,808 passengers were carried, a decrease of 39,562,906 as compared with the previous year. This large decrease was owing to the strike on the railways and tramways, which extended from 2nd August to 8th September, 1917.

(*d*) *Particulars of Different Systems of Government Tramways.* In the subjoined statement particulars are given of the working of the electric and steam tramways in Sydney, and of other tramways under Government control in 1917–18 :—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF VARIOUS GOVERNMENT TRAMWAYS, 1917–18.

Line.	Length.		Total Cost.	Gross Revenue.	Working Expenses.	Interest.	Profit or Loss.(*a*)	Percentage of Working Expenses on Gross Revenue.
	Route.	Track.						
	Miles.	Miles.	£	£	£	£	£	%
Sydney and Suburban—								
Electric	154.37	274.55	7,738,377	1,847,868	1,457,349	318,794	+ 71,725	78.87
Steam	8.18	9.61	51,134	12,915	14,953	2,127	− 4,165	115.78
Total	162.55	284.16	7,789,511	1,860,783	1,472,302	320,921	+ 67,560	79.12
Parramatta .. Steam	6.69	6.69	40,214	8,476	9,115	1,675	− 2,314	107.54
Sutherland to Cronulla „	7.40	7.40	51,379	10,411	10,080	2,141	− 1,810	94.69
Newcastle .. „	34.07	44.42	458,630	93,993	89,003	18,408	− 13,418	89.01
East to West Maitland „	4.59	4.59	38,906	4,324	5,072	1,620	− 2,368	117.30
Broken Hill .. „	10.05	11.44	91,451	14,654	17,688	3,781	− 6,815	120.70
Total	225.35	358.70	8,470,091	1,992,641	1,603,260	348,546	+ 40,835	80.46

(*a*) + indicates a profit; − indicates a loss.

The total capital cost shewn in the preceding table was made up as follows :—

CAPITAL COST OF NEW SOUTH WALES GOVERNMENT TRAMWAYS AS AT 30th JUNE, 1918.

Permanent Way.	Rolling Stock.	Power-houses, Sub-stations, and Plant.	Machinery.	Work-shops.	Furni-ture.	Store Advances Account.	Total.
£	£	£	£	£	£	£	£
4,237,612	1,821,213	1,824,217	137,195	223,462	2,392	224,000	8,470,091

The average cost per mile open was £18,804 for permanent way and £18,782 for all other charges, making a total of £37,586 per mile.

During the year 1917–18, two new extensions, amounting in all to a length of 1.37 miles, were opened for traffic.

(e) *Sydney Electric Tramways.* The current for the operation of the city and suburban tramways is generated at the power-houses at Ultimo and White Horse Bay, which have been erected at a total cost of £1,824,217, including the cost of the sub-stations and plant. The total output of the power-houses, for both lighting and traction purposes, during the year 1917–18 was 83,224,507 kilowatt-hours, of which the direct-current supply was 170,940, and the alternating current 83,053,567 kilowatt-hours. The following table gives particulars of the working of the electric tramways for the financial years 1913–14 to 1917–18 :—

NEW SOUTH WALES.—PARTICULARS OF SYDNEY ELECTRIC TRAMWAYS, 1913–14 TO 1917–18.

Year ended 30th June—	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Route.	Track.				
	Miles.	Miles.	£	Kilowatt-hours.	No.	No.
1914 ..	145.74	252.34	7,054,832	86,187,367	26,973,702	290,547,553
1915 ..	150.04	261.09	7,349,866	81,591,224	25,406,807	269,633,638
1916 ..	151.05	266.18	7,526,701	81,688,434	25,008,055	272,048,293
1917 ..	152.99	270.84	7,615,110	80,608,220	23,955,722	275,180,334
1918 ..	154.37	274.55	7,738,377	73,384,629	20,618,808	239,442,696

Year ended 30th June—	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Working Expenses on Gross Revenue.	Number of Cars in Use.	Number of Persons Employed.
	£	£	£	%		
1914	1,781,063	1,520,185	260,878	85.35	1,396	9,195
1915	1,834,022	1,469,227	364,795	80.11	1,430	8,743
1916	1,838,708	1,452,470	386,238	78.99	1,402	9,308
1917	1,853,399	1,535,423	317,976	82.84	1,398	9,295
1918	1,847,868	1,457,349	390,519	78.87	1,398	8,463

(ii) *Private Tramways.* A private steam tramway passes through the township of Parramatta. Commencing at the park gates, it runs as far as the Duck River, a distance of 3½ miles, where it connects with the Parramatta River steamers, conveying passengers and goods to and from Sydney. This line, the gauge of which is 4 ft. 8½ in., was opened for traffic in 1883. In 1917 the number of tram miles run was 18,200, and the number of passengers conveyed 99,354.

(iii) *Sydney Harbour Ferries.* As the ferry services on the waters of Port Jackson are mainly supplementary to the suburban railway and tramway systems, it has been thought advisable to include them here rather than under Shipping. Returns for the year 1917–18

were received from three companies, and shew that these companies had 67 boats in commission, which were licensed to carry a total of 45,336 passengers, or an average of 677 per boat and per trip. The total number of passengers carried during the year is stated as 32,201,753, an average of 88,224 per day. In addition to the ordinary passenger traffic there are two lines providing for vehicular traffic, which afford the only rapid means of transit for such traffic between the city and the northern suburbs. The three companies employed during the year a total of 1,081 persons. The gross revenue during 1917-18 amounted to £361,821, and the expenditure to £292,701, thus giving a net revenue of £69,120. The services are well managed, and the boats constructed during recent years—double-ended screwboats—are claimed to be superior in size and equipment to boats employed on similar service in any part of the world.

3. **Victoria.**—In Melbourne there are several tramway systems carried on under the control of various authorities, the most important being the cable system worked by the Melbourne Tramway and Omnibus Company up to the 1st July, 1916, and since that date by the Melbourne Tramway Board, to which reference will be made further on. There are also six lines of electric tramways, viz. :—(*a*) St. Kilda to Brighton, belonging to the Government and under the control of the Railway Commissioners; (*b*) an electric tramway between Sandringham and Black Rock, 2.38 miles in length, which has been constructed by the Railway Department and was opened for traffic on 11th March, 1919; (*c*) Flemington Bridge to the Saltwater River and Keilor-road, owned by a private company; (*d*) lines connecting Prahran, Windsor, St. Kilda and Elsternwick with Glen Huntly, Caulfield, Malvern, Glenferrie and Kew, controlled by the Prahran and Malvern Tramways Trust; (*e*) lines from Queensberry-street, Melbourne, to Bell-street, Coburg, and Moreland-road to Baker's-road, Fawkner, owned by the Melbourne, Brunswick, and Coburg Tramways Trust, and (*f*) Prince's-bridge to Burwood; Burke-road to Boundary-road, Wattle Park; and Bridge-road, Richmond, to Power-street, owned by the Hawthorn Tramways Trust. There is also a cable tramway, 2¼ miles in length, between Clifton Hill and Preston, owned by the Northcote municipality. There is a short steam tramway, about 1 mile long, at Sorrento, and there are also systems of electric tramways at Ballarat, Bendigo, and Geelong, constructed and run by private companies. A number of tramways has been constructed for special purposes in various parts of the State under the provisions of the Tramway Act 1890. These, however, correspond to the description of private railways referred to in sub-section 1 hereof. A tramway to the Zoological Gardens, with horse traction, is operated by the Melbourne Tramway Trust.

(i) *Melbourne Cable Tramways.* A short account of the formation of the Melbourne Tramway and Omnibus Company, and of the Tramway Trust, will be found in previous issues of this book. (See Year Books No. 7, page 652, and No. 9, page 679.) The company was required by the original Act, as amended in 1892, to complete the tramways by the end of the year 1893, and in return a thirty-two years' lease of the tramways was granted to it, dating from the 1st July, 1884—when the liability for interest on the loans commenced—and expiring on the 1st July, 1916. The total amount the Trust was empowered to borrow was £1,650,000, which was raised in London by means of debentures bearing interest at 4½ per cent. The premiums received amounted to £55,794, making a total of £1,705,794. This amount had been expended by the end of the year 1893, when further loan expenditure ceased. Up to the 30th June, 1918, the total cost of construction and equipment of the tramways amounted to £1,991,720. The first line—that to Richmond—was opened to traffic on the 11th November, 1885, and the work being rapidly pushed on, the other lines were opened at short intervals, and the whole system was completed in 1891. The complete system consisted of 43.68 miles of double-track cable lines, using constantly over 90 miles of wire rope, and 4.47 miles of horse tram line. Of the latter, 1.79 miles were transferred to the Kew Council in November, 1914, and 2.06 miles to the Hawthorn Tramway Trust in January, 1916, for electrification, leaving 0.62 mile of horse tramway at Royal Park. The gauge of track is 4 feet 8½ inches. The company also had omnibuses at work for many years down to 3rd May, 1916, when the East Brunswick line of omnibuses ceased running owing to the construction of an electric tramway along the route.

(*a*) *Particulars of Working.* The subjoined statement shews the tram mileage, the number of passengers carried, and the revenue and expenditure for the years 1901–2 and 1914 to 1918 :—

MELBOURNE CABLE TRAMWAYS.(*b*)—PARTICULARS OF WORKING, 1901–2 AND 1914 TO 1918.

Year ended 30th June—	Mileage Open (Route).			Mileage Run during Year.				Number of Passengers Carried.			
				Tram.		Omnibus.	Total.	Tram.		Omnibus.	Total.
	Cable.	Horse.	Total.	Cable.	Horse.			Cable.	Horse.		
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	No.	No.	No.	No.
1902	43.68	4.47	48.15	8,878,222		348,661	9,226,883	46,443,016		818,556	47,261,572
1914	43.68	4.47	48.15	12,056,510		95,528	12,152,038	91,438,777		430,008	91,868,785
1915	43.68	2.68	46.36	11,887,462		90,458	11,977,920	87,707,934		352,189	88,060,123
1916	43.68	0.62	44.30	11,977,916		68,569	12,046,485	96,290,131		412,812	96,702,943
1917	43.68	0.62	44.30	12,413,485	10,444	..	12,423,929	(*a*)	(*a*)	..	103,118,377
1918	43.68	0.62	44.30	12,822,147	10,882	..	12,833,029	112,754,979	279,178	..	113,034,157

Year ended 30th June—	Traffic Revenue.				Working Expenses.				Percentage of Working Expenses on Revenue.	No. of Employees at end of Year.
	Tram.		Omnibus.	Total.	Tram.		Omnibus.	Total.		
	Cable.	Horse.			Cable.	Horse.				
	£	£	£	£	£	£	£	£	%	No.
1902 ..	447,548		8,779	456,327	(*a*)		(*a*)	269,554	59.07	(*a*)
1914 ..	766,426		1,794	768,220	423,156		1,186	424,342	55.37	2,004
1915 ..	734,177		1,468	735,645	(*a*)		(*a*)	425,831	57.89	1,959
1916 ..	807,356		1,721	809,077	(*a*)		(*a*)	435,423	53.82	1,992
1917 ..	(*a*)	(*a*)	..	841,784	(*a*)	(*a*)	..	462,132	54.90	2,104
1918 ..	902,471	549	..	903,020	513,717	735	..	514,452	56.97	2,273

(*a*) Not available. (*b*) Exclusive of Northcote Cable Tramway.

(*b*) *Transfer of Cable Trams.* On the 30th December, 1915, the Victorian Government appointed a Tramway Board of five members to take over the tramways as from 1st July, 1916, and in due course the Board entered into possession of the tramway properties. The amount of compensation to be paid to the company in respect of the rolling-stock, car-houses, and other assets handed over by it to the Tramway Board was the subject of arbitration and of an eventual appeal to the Privy Council, which upheld the award by Mr. Justice Cussen under which a sum of £335,000 with interest at 5 per cent. from the 1st July, 1916, was payable to the company.

An action by the Tramway Board against the company to recover a sum of £587,915, for alleged breaches of the terms of the lease of the cable tramways was, after several days had been spent in part hearing the case, settled out of court by agreement between the parties.

(*c*) *Metropolitan Tramway Board.* On the 7th of January, 1919, the Royal assent was given to the Melbourne and Metropolitan Tramways Act 1918. Under this Act the tramways will be controlled by a Board consisting of seven members to be

appointed by the Governor in Council, one of such members to be chairman of the Board, who will be appointed for a term of five years, the rest of the members of the Board being appointed for a term of three years.

On the day appointed by Order of the Governor in Council for the first meeting of the Board the old Tramway Board of 1916 will cease to exist, and the new Board will take over the Melbourne cable tramway system and the Royal Park horse tramway.

On a day to be proclaimed by the Governor in Council within six months of the first meeting of the new Board, the following Tramway Trusts will be dissolved and cease to exist and the new Board will succeed to them :—

(i) The Prahran and Malvern Tramways Trust.

(ii) The Hawthorn Tramways Trust.

(iii) The Melbourne, Brunswick, and Coburg Tramways Trust.

(iv) The Fitzroy, Northcote, and Preston Tramways Trust.

(v) The Footscray Tramways Trust.

In addition, the new Board is to take a transfer of the Northcote Council cable tramway, and power is given for the acquisition of the North Melbourne electric tramway by agreement or compulsorily.

The whole of the staff exclusively employed by the various tramway bodies will be taken over together with all the liabilities and assets at the date on which the various undertakings are vested in the Board.

Under the Act power is given to the new Board for the following purposes, and others :—

(*a*) Issue of a loan by way of Inscribed Stock or Debentures of a sum not exceeding £750,000.

(*b*) Preparation of a general scheme for the future development of tramways in the metropolis.

(*c*) Provision of public parks and places of recreation.

(*d*) Payment to the consolidated revenue of certain sums in respect of the Queen's Memorial Infectious Diseases Hospital, the Metropolitan Fire Brigades Board, and the Licensing Act 1916.

(*e*) Disposal of any available surpluses from year to year.

(*f*) Levying a rate upon the property of the metropolis in the event of a deficit in the operations of the Tramway Board.

(*g*) Acquisition of land for tramway purposes.

In June, 1919, appointments of the Chairman and other members of the Metropolitan Tramway Board were made by the Governor in Council, and 1st November, 1919, fixed as the day appointed for the Board to take over control of the tramways.

(ii) *Electric Tramways.* As already mentioned, there are in Melbourne six electric tramway systems, namely (*a*) the St. Kilda-Brighton line, (*b*) the Sandringham-Black Rock line, (*c*) the North Melbourne tramways, (*d*) the Prahran-Malvern Tramways Trust system, (*e*) the Melbourne, Brunswick and Coburg Tramways Trust system, and (*f*) the Hawthorn Tramways Trust system.

(*a*) *The St. Kilda–Brighton Line.* Under the St. Kilda and Brighton Electric Street Railway Act 1904, the Board of Land and Works was authorised to construct a tramway from St. Kilda to Brighton. The amount of interest payable on the cost of the

land acquired for the tramway was guaranteed by the municipalities of St. Kilda and Brighton for a period of twenty years, and authority was given by the Act to the municipalities to levy either a general or special rate not exceeding one shilling in the pound for the purpose of paying the guarantee. The profit, if any, during the first twenty years is to be set off in reduction of the guarantee. The line was opened for traffic between St. Kilda and Park-street, Middle Brighton, on the 7th of May, 1906, and the extension to Brighton Beach was opened on the 22nd of December following. The capital cost to the 30th June, 1918, exclusive of rolling stock, was £109,970, and of rolling stock £49,016, making a total of £158,986. The gauge of track is 5 ft. 3 in. The subjoined statement gives particulars of the working of this line for the financial years ended the 30th June, 1914 to 1918 :—

ST. KILDA-BRIGHTON ELECTRIC STREET TRAMWAY, 1914 TO 1918.

Year ended 30th June—	Mileage Open (Route).	Capital Cost.	Car Mileage.	Passengers Carried.	Gross Revenue.	Working Expenses.	Interest.	Net Profit or Loss. *a*
		£			£	£	£	£
1914	5.16	95,494	541,449	2,390,949	20,516	20,850	3,333	— 3,667
1915	5.16	101,726	577,468	2,718,972	22,614	19,905	3,428	— 719
1916	5.16	132,300	597,819	3,126,984	25,580	22,844	4,697	— 1,961
1917	5.16	156,242	572,735	3,450,442	27,919	20,502	6,250	+ 1,167
1918	5.16	158,986	521,525	3,854,677	31,614	23,653	6,359	+ 1,602

a Profit is indicated by + , loss by —.

The average fare paid per passenger was 1.96 pence in 1917–18 as against 1.93 pence in 1916–17. The gross revenue in 1917–18 was 14.55 pence per passenger car mile and £3,063 per mile of single track open.

(*b*) *The Sandringham-Black Rock Line.* This line has a length of 2.38 miles and, as already mentioned, was opened for traffic on 11th March, 1919. No further particulars as to it are at present available.

(*c*) *The North Melbourne Tramways*, extending through the northern suburbs to the Saltwater River and to Keilor-road, were constructed by a private company, and were opened for traffic on the 11th October, 1906. The route and track mileage for year ended 30th September, 1918, were 7.51 and 11.43 miles respectively, the gauge of line being 4 feet 8½ inches. The number of passengers carried during the same period was 3,542,092. The current used during the year for traction purposes was 799,750 kilowatt-hours, while the number of persons employed was 119.

(*d*) *The Prahran and Malvern Tramways Trust.* The lines have been constructed under the control of a trust, which now consists of seven members appointed from the councils of Prahran, Malvern, St. Kilda, Caulfield, Hawthorn, Kew, and Camberwell. At the 30th September, 1918, the total route mileage open was 35.15 miles, the total track mileage being 68.38 miles, and the total capital cost £793,342. The gauge of the track is 4 ft. 8½ in. The current is supplied by the Melbourne Electric Supply Company Limited at a price varying according to the consumption of current and the price of fuel. Any surplus revenue, after providing for operating expenses, interest, sinking fund and renewal reserve, is to be paid to the municipal councils interested in proportion to the car mileage run in their respective districts. The first section of the lines was opened for traffic on 31st May, 1910. During the year ended 30th September, 1918, the current used for traction purposes was 6,485,745 kilowatt-hours, and the number of tram miles

run was 3,021,021, the number of passengers carried 28,370,193, the gross revenue £204,692, and the working expenses £148,428. The number of cars in use was 89, and the number of persons employed 508.

(*e*) *The Melbourne, Brunswick and Coburg Tramways Trust.* The first section of these tramways, that between Moreland-road and Bell-street, was opened for traffic on 27th April, 1916. At the 30th September, 1918, the route and track mileages open for traffic were 7.03 and 12.29 miles respectively. During the year ended 30th September, 1918, the current used for traction purposes was 1,146,599 kilowatt-hours, the tram miles run 659,296, the number of passengers carried 5,404,247, the gross revenue £36,075, and the working expenses £24,786. Eighteen cars were in use, and the number of persons employed was 94.

(*f*) *The Hawthorn Tramways Trust.* The first section of these tramways, that from Princes Bridge to Power Street, Hawthorn, was opened for traffic on 6th April, 1916, and on 30th September, 1918, the route and track mileages in operation were 11.17 and 18.00 miles respectively. During the year ended 30th September, 1918, the current used for traction purposes was 2,491,644 kilowatt-hours, the tram miles run 958,684, number of passengers carried 9,369,746, the gross revenue £69,348, and the working expenses £51,286. The number of cars in use was 32, and the number of persons employed 186.

(*g*) *The Ballarat and Bendigo Electric Tramways* are under the control of a private company, and run along the main streets and to and from the outlying suburbs of the two cities. The total length of lines open for traffic is 21.25 route miles and 25.86 track miles, the gauge being 4 ft. 8½ in. During the year ended 31st December, 1918, 5,020,872 passengers were carried, the gross revenue being £47,475, and the working expenses £34,833. The number of cars in use was 55, and the number of persons employed 136.

(*h*) *The Geelong Electric Tramways,* which are privately owned, were opened for traffic on the 14th March, 1912, and up to the 31st August, 1918, the cost of construction and equipment, exclusive of generating plant, totalled £60,645. The system has a route and track mileage of 4.90 and 5.67 miles respectively, the gauge being 4 ft. 8½ in. The car mileage for the year ending on the last-mentioned date was 229,203 miles, and the number of passengers carried 1,458,899. For the same period the revenue was £16,034, and the expenditure £12,500.

(*i*) *Particulars of Working of all Electric Tramways.* The following table gives particulars of the working of all electric tramways in Victoria for each year from 1914 to 1918 inclusive :—

VICTORIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1914 TO 1918.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated at Central Stations for Traction Purposes.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	Number of Cars in Use.	Number of Employees.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1914	61.85	1,082,824	6,591,628	4,110,787	28,071,661	212,036	156,404	181	735
1915	69.47	1,299,786	7,445,978	4,358,030	30,150,912	223,056	164,313	193	811
1916	83.91	1,765,854	9,553,034	5,327,895	39,928,454	288,206	206,367	235	1,009
1917	89.08	1,861,771	11,910,707	6,462,318	51,586,576	373,594	271,315	255	1,074
1918	92.17	1,939,887	13,169,343	6,775,538	57,020,726	432,921	318,163	268	1,167

4. **Queensland.**—In this State there is a system of electric tramways running through the streets of the city and suburbs of Brisbane and controlled by a private company which has its head office in London. The total length of the Brisbane system was 41.58 route miles at the end of the year 1918. There is also a steam tramway in operation at Rockhampton having a length of 6 route miles.

(i) *Brisbane Electric Tramways.* These tramways are run on the overhead trolley system, the voltage of the line current being 550. The total cost of construction and equipment to the end of the year 1916 was £1,468,906, the gauge of line being 4 ft. 8½ in. The following table gives particulars of these tramways for the calendar years 1901 and 1914 to 1918.

QUEENSLAND.—BRISBANE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING, 1901, AND 1914 TO 1918.

Year.	Mileage Open for Traffic (Route).	Cost of Construction and Equipment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	Number of Cars in Use.	Number of Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1901	25.00	(*a*)	3,192,955	2,756,443	16,183,801	111,483	64,710	79	375
1914	38.20	1,437,550	10,002,034	4,111,908	48,162,065	348,406	194,960	154	825
1915	40.20	1,476,866	11,563,696	4,339,863	49,695,313	372,383	233,761	161	803
1916	40.45	1,468,906	9,272,709	4,286,802	51,029,668	364,745	216,607	172	921
1917	41.58	(*b*)1,468,906	8,964,113	4,377,104	51,860,308	371,850	257,035	172	1,121
1918	41.58	(*b*)1,468,906	9,453,441	4,379,679	57,456,832	412,569	264,858	173	1,103

(*a*) Not available. (*b*) Figures for 1916.

(ii) *Rockhampton Municipal Tramways.* These tramways were opened for traffic in 1909, the motive power being steam. The length of line is 6 route miles, and the gauge 3 ft. 6 in. The capital cost to 31st December, 1918, was £42,000. During the year 1,650,242 passengers were carried, the revenue being £12,415, and working expenses £9,410. The number of the staff at end of year was 38.

(iii) *Sugar-Mill Tramways.* In various parts of Queensland there are tramways used in connection with the sugar-milling industry, chiefly for the purpose of hauling cane to the mills. Some of these lines are of a permanent nature, running through sugar-cane plantations, while others are portable lines running to various farms.

5. **South Australia.**—Up to the year 1906 the tram service in the principal streets of Adelaide and suburbs was a horse system run by various private companies. Power to acquire these lines, and to provide for their extension and management by means of a Trust, was given to the Government by the Municipal Tramways Trust Act 1906. In accordance with the provisions of the Act, a Trust consisting of eight members, of whom two were nominated by the Governor, two elected by the City Corporation, and two each by the Suburban Corporations and the District Councils involved, was formed in 1907, and a length of 49 route miles of horse traction tramways was purchased from the private companies for a sum of £282,582. On the 10th March, 1909, the electric car system was inaugurated on the Kensington route. At the end of July, 1918, a length of 65.66 route miles had been electrified and opened for traffic, the corresponding length of track opened being 111.97 miles. The cost of construction and equipment on the 31st July, 1918, was £1,751,943. The following table gives particulars of the tramways for the years ended 31st July, 1914 to 1918 :—

SOUTH AUSTRALIA.—ADELAIDE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING, 1914 TO 1918.

Year.	Mileage Open for Traffic (Route).	Capital Cost.	Current Used for Traction Purposes.	Car Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	No. of Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1914	51.86	1,396,638	9,838,252	5,325,660	43,797,227	328,810	202,503	170	1,073
1915	54.42	1,451,989	9,428,315	4,914,357	42,287,503	309,915	191,070	170	1,045
1916	54.42	1,486,546	9,286,910	4,719,043	43,141,885	322,759	193,965	170	1,120
1917	64.46	1,703,151	10,382,667	4,954,848	45,431,691	338,361	211,662	170	1,200
1918	65.66	1,751,943	10,758,897	5,359,776	46,466,258	414,836	250,586	174	1,099

There are also in South Australia 19¾ miles of Government horse tramways in country districts, worked in connection with the railway system, and used for passenger service. The subjoined statement gives various particulars of these lines:—

SOUTH AUSTRALIA.—PARTICULARS OF HORSE TRAMWAYS, 1917 TO 1918.

GOVERNMENT TRAMWAYS.

Particulars.	Length.	Gauge.	Nature of Traffic.
	Miles.	ft. in.	
Moonta, Moonta Bay, and Hamley Flat	(a)5.15	5 3	Passengers and goods
Gawler	(a)1.20	5 3	,, ,,
Victor Harbour and Breakwater ..	1.00	5 3	,, ,,
Dry Creek and Magazine	1.00	2 0	Explosives
Magazine and Broad Creek	1.50	2 0	,,
Port Broughton and Mundoora ..	(a)10.01	3 6	Passengers and goods

(a) Included in mileage of Government railways.

6. **Western Australia.**—Apart from the electric tramways, there are in this State several tramways, amounting in all on the 30th June, 1918, to a length of 26½ miles, which are the property of the Government. Of these the most important is the line between Roebourne and Cossack, constructed on a 2-ft. gauge and under the control of the Colonial Secretary's Department. The length of this line is 12¼ miles, and it is worked by steam. The remaining 14¼ miles belonging to the Government are made up of several short lengths, worked by steam or horses, in connection with the jetties at certain ports for the purpose of providing the necessary communication between such jetties and the goods sheds or warehouses. Most of these lines are leased at annual rentals, and are under the supervision of the Harbour Master. Their maintenance and improvement is in the hands of the Public Works Department. In addition to these Government lines there are electric tramway systems at Perth, under Government control; at Kalgoorlie and Boulder City, carried on by private companies; and at Fremantle, under municipal control.

(i) *Steam and Horse Tramways.* Particulars as to the working of the Government steam or horse tramways or as to the rents received therefrom are not generally available. The returns of the Roebourne-Cossack steam tramway for the year ended 30th June, 1918, shew that the capital cost of the line to that date was £34,177, the gross revenue for the year being £2,937, and the working expenses £2,241.

(ii) *Electric Tramways.* There are now four towns in Western Australia which enjoy the benefits of electric tramway systems, namely, Perth, Fremantle, Kalgoorlie, and Boulder.

(a) *The Perth Electric Tramways* were opened for traffic by a private company on the 24th September, 1899, and the system has since been extended to many of the suburbs. This tramway system was taken over by the Government on 1st July, 1913, and is now running in conjunction with the Government railways. On the 30th June, 1918, the route and track miles open for traffic were 27.21 and 36.06 miles respectively, the total cost of construction and equipment to that date being £586,900. During the year, 13,979,112 passengers were carried, the gross revenue being £141,470 and the working expenses £108,903. Seventy-three motors were in use, and the number of employees was 321. The gauge of line is 3 ft. 6 in.

(b) *The Fremantle Tramways* were opened in November, 1905, under the control of the municipality. On the 31st August, 1918, there were 8.64 route and 11.55 track miles of line open for traffic, the cost of construction and equipment at that date being

£113,199. This line has a gauge of 3 ft. 6 in. During the year 5,193,974 passengers were carried, the gross revenue being £39,853 and the working expenses £34,080. Twenty-five cars were in use, and the number of employees was 118.

(c) *The Kalgoorlie and Boulder Tramways* are run by a private company, the first line being opened in 1902. At the beginning of 1904 legislative authority was given for the construction of lines in Boulder and suburbs, and in November, 1904, the last section of the Boulder system was completed. At the end of the year 1918 the total mileage of the whole system—in Kalgoorlie and Boulder—amounted to 14¾ route or 20½ track miles, the total cost of construction and equipment being £452,318. During the year 2,044,933 passengers were carried, the gross revenue being £33,688 and the working expenses £26,075. Twenty-five motors and seven trailers were in use, and the number of employees was 64. The gauge of this line is 3 ft. 6 in.

(d) *The Leonora–Gwalia Tramway*, two and a quarter route miles in length, was initially a steam tramway. It was opened for traffic by electrification under municipal control on 5th October, 1908, but is now worked with a petrol motor by a private syndicate. It has a gauge of 3 ft. 6 in.

(e) *Particulars of Working of all Electric Tramways.* The subjoined table shews so far as returns are available, particulars of the working of all electric tramway systems in the State for the years 1901 and 1914 to 1918.

WESTERN AUSTRALIA.—PARTICULARS OF ELECTRIC TRAMWAYS, 1901 AND 1914 TO 1918.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	No. of Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1901	(a)16.50	367,037	(b)	721,056	(b)	46,270	26,673	30	(b)
1914	48.83	1,068,058	(c)4,924,038	2,716,707	17,331,979	184,072	126,586	121	453
1915	50.75	1,092,289	(c)5,045,163	2,793,519	17,568,161	182,935	130,868	121	471
1916	52.98	1,132,169	(c)5,191,398	2,861,959	18,315,719	189,140	139,633	123	573
1917 c	51.61	1,161,478	5,799,337	2,955,503	19,178,047	197,880	153,847	122	526
1918	50.62	1,152,417	6,118,637	3,127,284	21,218,019	215,011	169,058	130	503

(a) For the year 1901 the figures represent miles of single track. (b) Not available.
(c) Exclusive of Leonora tramway.

(iii) *Perth Ferries.* As the Perth ferry services are mainly used for suburban passenger traffic, they are referred to in this section rather than under *Shipping.* Of the twelve boats in service, four are under the control of the Western Australian Government, the other eight belonging to a private company. The number of passengers carried during the year 1917–18 was 910,198, the revenue and expenditure for the same period £10,574 and £9,931 respectively, and the number of persons employed 24.

7. **Tasmania.**—(i) *Tramways.* In Hobart there is a system of electric tramways, the first line of which was opened for traffic in 1893, amounting in all to a length of 13 and 16.24 route and track miles respectively. This was originally owned by a private company, but is now the property of the Hobart Municipal Council. Under the authority of the Launceston Tramway Act of 1906 the Launceston City Council entered into an agreement with a private company for the construction of a system of electric tramways in the city and suburbs of Launceston. The agreement provided that the company was to run the tramways for a period of 25 years, when the council could purchase the lines and stock at cost price; the electric power required was to be supplied by the Council. This agreement, however, lapsed, and the Council has constructed the tramways, and is running them as a municipal undertaking. The system, which was opened on the 16th August, 1911, has a route and track mileage of 9.00 and 11.63 miles respectively. The gauge of track in both these systems is 3 ft. 6 in.

The following table gives particulars of the working of the two systems for the years 1901 and 1914 to 1918 :—

TASMANIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1901 AND 1914 TO 1918.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	Number of Cars in Use.	Number of Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1901*a*	9.00	90,000	(*b*)	321,633	1,734,120	16,097	11,735	20	90
1914	18.91	325,239	1,345,918	908,862	7,147,543	60,885	38,946	49	259
1915	21.43	347,214	1,493,183	999,315	7,462,782	68,170	46,568	60	314
1916	21.95	373,812	1,576,839	1,058,979	7,963,040	73,424	46,758	60	250
1917	21.95	383,219	1,687,407	1,115,090	8,349,789	79,693	49,930	60	259
1918	22.00	389,659	1,913,720	1,192,955	9,785,155	81,918	56,103	60	253

(*a*) Hobart tramways only. (*b*) Not available.

There is also a tramway from Smithton to Marrawah, 26.50 miles in length, operated by the Government. Of this distance 8.75 miles are worked as a horse tram, the rest being for steam traction. In the year ended 30th June, 1918, 400 passengers and 6,000 tons of goods were conveyed, the number of employees being 7.

A private steam tram at Zeehan, 2.06 miles in length, is also in operation. In 1918, 1,321 passengers and 7,176 tons of goods were conveyed, the number of persons employed being 4. There is also a private steam tram running from Tullah to Farrell's Siding, a distance of 7 miles. In 1918, 1,476 passengers and 3,040 tons of goods were conveyed, the number of persons employed being 4.

(ii) *Ferries.* The Hobart ferry service, being of a suburban character, is referred to here rather than under *Shipping*. There is one company controlling a fleet of five boats, and also a ferry operated by the Public Works Department with two boats. In the year 1917–18 the number of passengers carried was 833,103, the revenue £11,301, the working expenses £10,071, and the number of persons employed 37.

8. **Electrical Traction in Commonwealth, 1917-18.**—The subjoined table gives particulars of electric tramways for each State and the Commonwealth. The returns for the Hobart tramways in Tasmania, for the Ballarat and Bendigo tramways in Victoria, for the Kalgoorlie tramways in Western Australia, and for the Brisbane tramways, are for the calendar year 1918; and for other tramways the returns are, generally, for the financial year 1917–18 :—

ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1917–18.

State.	Mileage open for Traffic (Route).	Capital Cost.	Current Generated.	Tram Miles Run.	No. of Passengers Carried.	Gross Revenue.	Working Expenses.	Percentage of Working Expenses on Gross Revenue.	No. of Cars, Motors and Trailers.	No. of Employees.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	%	No.	No.
N.S.W. ..	154.37	7,738,377	73,384,629	20,618,808	239,442,696	1,847,868	1,457,349	78.87	1,398	8,463
Victoria..	92.17	1,939,887	13,169,343	6,775,538	57,020,726	432,921	318,163	73.49	268	1,167
Q'land ..	41.58	*a*1,468,906	9,453,441	4,379,679	57,456,832	412,569	264,858	64.20	173	1,103
S. Aust.	65.66	1,751,943	10,758,897	5,359,776	46,466,258	414,836	250,586	60.41	174	1,099
W. Aust.	50.62	1,152,417	6,118,637	3,127,284	21,218,019	215,011	169,058	78.63	130	503
Tasmania	22.00	389,659	1,913,720	1,192,955	9,785,155	81,918	56,103	68.49	60	253
C'wealth	426.40	14,441,189	114,798,667	41,454,040	431,389,686	3,405,123	2,516,117	73.89	2,203	12,588

(*a*) For year 1916.

The percentage of working expenses on gross revenue for all electric tramways in the Commonwealth was 73.89, the range for the States being 60.41 in the case of South Australia and 78.87 in the case of New South Wales. The latter rate was, however, only slightly higher than that for Western Australia, viz., 78.63.

In the following table particulars are shewn as to the operations of electric tramways in the Commonwealth for the period 1909 to 1918 :—

ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1909 TO 1918.

Year.	Mileage open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.
	Miles.	£	Kilowatt-hours.	No.	No.
1908–9	238.76	7,062,667	(*b*)55,140,437	26,435,716	232,066,948
1909–10	272.24	7,954,192	(*b*)62,178,735	30,482,066	268,251,284
1910–11(*a*)	297.47	8,747,597	(*b*)80,804,252	33,625,344	312,857,166
1911–12	322.24	9,669,808	93,897,694	37,256,203	363,959,404
1912–13	345.07	11,147,493	106,967,982	41,258,696	405,480,511
1913–14	365.39	12,365,142	(*b*)118,894,845	44,147,626	435,058,028
1914–15	386.30	13,013,010	(*b*)116,567,559	42,811,891	416,798,309
1915–16	404.76	13,753,988	(*b*)116,569,324	43,262,733	432,427,059
1916–17(*b*)	421.68	14,197,194	119,352,451	43,820,585	451,586,745
1917–18	426.40	14,441,189	114,798,667	41,454,040	431,389,686

Year.	Gross Revenue.	Working Expenses.	Percentage of Working Expenses on Gross Revenue.	No. of Cars, Motors and Trailers.	No. of Employees.
	£	£	%	No.	No.
1908–9	1,474,802	1,072,390	72.71	1,355	7,420
1909–10	1,731,637	1,297,379	74.92	1,401	8,372
1910–11(*a*)	2,030,533	1,512,473	74.49	1,506	9,329
1911–12	2,345,428	1,775,927	75.72	1,628	11,063
1912–13	2,635,526	2,092,810	79.41	1,864	12,208
1913–14	2,915,272	2,239,584	76.82	2,071	12,548
1914–15	2,990,481	2,235,806	74.76	2,135	12,077
1915–16	3,076,982	2,255,800	73.31	2,162	13,181
1916–17(*b*)	3,214,777	2,479,212	77.12	2,177	13,475
1917–18	3,405,123	2,516,117	73.89	2,203	12,588

(*a*) Exclusive of Leonora tramway (W.A.), with exception of mileage.
(*b*) Exclusive of Leonora tramway.

During the ten years included in the last table the percentage of working expenses on the gross revenue of all electric tramways in the Commonwealth varied from 72.71 in 1908–9 to 79.41 in 1912–13. It then fell each year to 1915–16, when it was 73.31, rose in 1916–17 to 77.12, and fell in 1917–18 to 73.89.