

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.

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, 1915:—

**ROADS AND BRIDGES.—TOTAL GOVERNMENT LOAN EXPENDITURE TO THE
30th JUNE, 1915.**

State, etc. ...	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.*	C'wealth.
Expenditure.	£1,861,738	£469,261	£923,656	£1,520,484	£427,040	£4,639,286	£9,841,465

* Including harbours, rivers, and lighthouses.

The following table shews the annual expenditure from loans on roads and bridges by the central Governments in each State and in the Commonwealth during the year 1901 and from 1910 to 1915:—

**ROADS AND BRIDGES.—LOAN EXPENDITURE BY STATE GOVERNMENTS,
1901-2 and 1910-15.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1901-2 ...	150,777	47,104	...	185	740	77,536 ¹	276,342
1910-11 ...	...	183	...	...	52,296	80,816	133,295
1911-12 ...	...	...	...	...	35,414	145,556	180,970
1912-13 ...	53,263	...	...	...	37,037	183,625 ²	273,925
1913-14 ...	23,553	...	...	17,838	...	191,428 ²	232,819
1914-15 ...	8,609	274,362	...	37,910	31,974	424,584	777,439

1. For the calendar year 1902. 2. See note * to previous table.

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 (see Section xxvi. *Local Government*). 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 District Councils. 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 June, 1915, 31 miles of roads, 350 bridges, 55 wharves, 99 jetties, and 14 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.; 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 1914 was approximately 94,796 miles, of which 9762 miles were controlled by municipalities, 79,079 by the shires, and 5945 miles were in the unincorporated areas of the Western Division. The following table gives particulars for the year 1913-14 (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, 1913-14.

Classification.				Metalled. Ballasted. Gravelled etc.	Formed only.	Cleared only.	Natural surface.	Total.
				Miles.	Miles.	Miles.	Miles.	Miles.
Metropolitan...	...	...	...	1,172	353	216	244	1,985
Country municipalities	...	...	...	2,553	1,549	1,851	1,824	7,777
Shires	...	...	...	12,631	9,247	22,076	35,135	79,089
Western Division	...	...	...	91	145	3,160	2,549	5,945
Total	...	...	...	16,447	11,294	27,303	39,752	94,796

(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 1913-14, the latest year for which figures are available, are given in the following table:—

NEW SOUTH WALES.—BRIDGES, CULVERTS, AND FERRIES, 1913-14.

Particulars.	Bridges.		Culverts.		Ferries.
	No.	Length.	No.	Length.	No.
		ft.		ft.	
"National" works	273	*	...	...	13
Metropolitan... ..	127	5,486	748	46,173	...
Country municipalities	647	37,704	3,335	89,943	13
Shires	3,435	202,704	32,394	285,989	99
Western Division (unincorporated)	117	20,576	88	845	3
Total	4,599	*	36,565	422,950	128

* Not available.

(iv.) *Expenditure on Roads and Bridges.* Since the year 1857 the total expenditure by the Roads Department and Roads Trust on roads and bridges is £25,146,612. 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 1915, 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 ROAD DEPARTMENTS AND ROAD TRUSTS, 1857 to 1915.

Period.	Expenditure by Roads Department.	Expenditure by Trustees.	Total.
	£	£	£
1857 to 30th June, 1900	18,714,078	1,258,027	19,972,105
1900-09	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
Total	23,857,921	1,288,691	25,146,612

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, who 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.

(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 half the amount expended on permanent works and maintenance is to be refunded by the municipalities affected.

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 rateable 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, are to be credited to the Country Roads Board Fund.

Up to the 30th June, 1915, there were 6420 miles of declared main roads, agreed to by the councils, and gazetted. In addition, there were 192 miles of proposed main roads not yet gazetted. The total amount of authorized contracts for permanent works was £496,878, affecting 92 municipalities. The expenditure incurred during the year ending 30th June, 1915, including contracts, day labour, and material supplied, amounted to £342,681. The net receipts for the year were £60,368, of which amount the chief items were: motor registration fees, £32,434, and unused roads and water frontages license fees, £23,526.

(ii.) *General and Local Government Expenditure.* The gross amount expended directly by the State Government of Victoria on roads and bridges was £8,724,027 up to the end of June, 1915. 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 1911 to 1915:—

VICTORIA.—EXPENDITURE ON ROADS AND BRIDGES, 1901 and 1911 to 1915.

Financial Year. ¹	Annual Expenditure by State Government.	Municipal Loan Expenditure.		Formation of Private Roads, Streets, Lanes, etc. ²	
		Cities, Towns, and Boroughs.	Shires.	Cities, Towns, and Boroughs.	Shires.
	£	£	£	£	£
1901	72,890	16,844	12,928	18,829	4,521
1911	67,001	41,247	24,978	41,167	5,682
1912	58,917	28,237	31,940	59,845	6,890
1913	73,374	49,743	30,758	51,034	5,566
1914	56,649	57,411	23,749	59,093	11,372
1915	47,898	103,124	40,129	53,365	8,647

1. 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.

2. Including the cost of flagging, asphaltting footpaths, etc., but exclusive of loan expenditure.

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) towns and (b) 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. 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 the section of this book on *Local Government*.

6. **South Australia.**—Under the provisions of the District Councils Acts 1887 to 1904, and the Municipal Corporations Acts 1890 to 1903, and of the Roads Acts 1884 to 1908, 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 main road fund, 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 1908, a number of roads were declared to be main roads.

The total estimated length of streets and roads in South Australia up to the 30th June, 1914, was as follows:—

SOUTH AUSTRALIA.—ESTIMATED LENGTH OF ROADS AND STREETS, 1914.

Particulars.	Woodblocked.	Macadamised.	Other.	Total.
Miles	2	8,436	27,686	36,124

(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 1901-2, and each year from 1910 to 1914 inclusive:—

SOUTH AUSTRALIA.—EXPENDITURE BY CORPORATIONS ON STREETS, ROADS, AND BRIDGES, 1901 and 1910-14.

Year. ¹	District Roads		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Con- struction.	Main- tenance.	From Main Road Grants.	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£
1901	4,906	50,628	7,403	8,738	159	7,745
1910	4,031	70,660	14,392	16,000	1,178	13,999
1911	5,673	63,897	12,935	14,294	1,053	13,634
1912	10,907	59,609	11,477	11,865	322	12,590
1913	31,797	89,830	11,817	13,128	463	13,142
1914	8,909	95,970	12,573	13,516	361	11,949

1. 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 1910-14.

Year ended 30th June.	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Con- struction.	Main- tenance.	From Main Road Grants.	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£
1901	18,026	47,379	72,980	100,077	11,861	67,487
1910	33,853	64,079	106,096	106,221	10,752	76,150
1911	44,289	63,811	110,397	111,182	24,660	82,115
1912	54,342	68,108	119,331	123,154	20,414	102,759
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

7. Western Australia.—In Western Australia the construction, maintenance, and management of roads and bridges throughout the State, except those within the boundaries of municipalities, are under the control of District Road Boards, constituted by the Roads Act 1911.

(i.) *District Roads and Bridges.* Under the provisions of this Act 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 and sixpence 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. 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 Act 1906. 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 Road District Boards since the 1st January, 1910 :—

WESTERN AUSTRALIA.—PARTICULARS OF ROADS UNDER CONTROL OF DISTRICT ROADS BOARDS, 1910 to 1914.

Year ended the 30th June.	Area.	Revenue.				Expenditure.	Length of Roads.*				No. of Bridges and Culverts.	
		From Rates.	From Grants and Subsidies.	From other Sources.	Total.		Cleared only.	Formed only.	Metalled or otherwise Constructed.	Total.	Bridges.	Culverts.
Sq. m.	£	£	£	£	£	Miles.	Miles.	Miles.	Miles.	No.	No.	
1910 ...	975,793	54,115	61,301	14,201	129,617	114,947	14,167	4,622	2,958	21,747	678 ¹	4,853 ⁴
1911 ...	975,800	59,302	100,126	16,474	175,902	141,015	15,169	4,874	3,119	23,162	653	5,211
1912 ...	975,809	70,397	64,774	36,497	171,668	196,576	16,484	4,555	3,432	24,471 ²	719 ²	5,808 ³
1913 ...	975,815	80,551	60,687	29,770	171,008	184,587	19,236	4,429	3,651	27,316 ³	721 ⁴	6,157 ⁴
1914 ...	975,815	93,705	63,671	46,023	203,399	187,800	19,921	4,626	3,804	28,351 ³	731 ¹	6,450 ¹

* Approximate only.

1. Exclusive of two Boards which have not supplied the information. 2. Exclusive of five Boards. 3. Exclusive of four Boards. 4. Exclusive of three Boards.

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 1910-14.**

Year ended the 31st October.	No. of Municipalit ^s .	Length of Streets and Roads.*					Revenue.		Expenditure.	
		Paved, M't'll'd or Gr'y'll'd	Form'd only.	Clear'd only.	Not Clear'd	Total.	From Rates.	From Grants.	Works and Impr'v- ments.	Street Light'g and Wat'r'g
		Miles.	Miles.	Miles.	Miles.	Miles.	£	£	£	£
1901	42	195	30	149	137	511	78,021	66,850	111,256	15,969
1910	42 ¹	525	104	309	297	1,235	138,719	13,336	87,998	30,965
1911	42	521	105	292	294	1,202	144,933	27,944	75,697	30,341
1912	36 ²	529	103	278	312	1,221	148,538	25,902	78,576	27,322
1913	33	544	95	267	266	1,172	153,966	19,382	159,445	26,089
1914	33	551	95	258	256	1,160	153,686	13,142	225,099	19,055

* Approximate only.

1. Exclusive of three municipalities which have not supplied the information. 2. Including particulars of four municipalities which were dissolved during the year.

8. **Tasmania.**—In 1906 all the existing Road Trusts and Main Road Boards were abolished by the Local Government Act, which 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 and Main Road Boards by the Roads Act of 1884. The whole State is divided into municipal districts, 49 rural and 2 city, each rural district being under the control of a warden and councillors, and deemed to be a road district and a main road district for the purposes of the Roads Act 1884.

(i.) *Mileage of Roads and Number of Bridges.* The following table gives particulars for the year 1914 as to length of roads and number of bridges and culverts under the control of the municipalities:—

TASMANIA.—ROADS AND BRIDGES IN MUNICIPALITIES, 1914.

Roads.			Bridges.	Culverts.
Macadamised or Gravelled.	Other.	Total.		
Miles. 5,825	Miles. 4,982	Miles. 10,807	No. 1,120*	No. 19,702*

* Last available figures.

(ii.) *Revenue and Expenditure.* The following table gives particulars for the year 1914 of the revenue and expenditure of municipal councils in respect of roads and bridges:—

TASMANIA.—ROADS AND BRIDGES, REVENUE AND EXPENDITURE, 1914.

Revenue.				Expenditure.
From Government.	Rates.	All other. ¹	Total.	
£ 14,416	£ 51,012	£ 163,260	£ 228,688	£ 202,602

1. Including current receipts from loans. 2. Municipal "Works and Services."

§ 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 issue for last year 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.

2. **Railway Statistics.**—In previous 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* (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 previous issues of the 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 roughly running parallel to the coast. These are shewn on the map on page 645. In the east, lines radiating from 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 and meeting the main line from Melbourne on the border of South Australia and Victoria. The main interstate line (indicated by a heavier line in the map), which permits of direct communication between the four capital cities—Brisbane, Sydney, Melbourne, and Adelaide—covers a distance from end to end of 1790½ miles. This journey occupies three days, two hours and ten minutes. In the opposite direction the journey occupies three days, three hours and twenty minutes. Both of these are actual times. The distances and the times occupied between the capitals and the duration of stops at Sydney and Melbourne are as follows:—

From—	To—	Distance.	Time (Actual).	Stops at—	
				Sydney.	Melbourne.
		Miles.	h. m.	h. m.	h. m.
Brisbane ...	Sydney ...	725	25 50	9 55	...
Sydney ...	Melbourne ...	582½	16 51	...	3 39
Melbourne ...	Adelaide ...	482½	17 55	...	...
Brisbane ...	Adelaide ...	1,790½	60 36	9 55	3 39
Adelaide ...	Melbourne ...	482½	16 59	...	7 1
Melbourne ...	Sydney ...	582½	17 10	8 40	...
Sydney ...	Brisbane ...	725	25 30	...	...
Adelaide ...	Brisbane ...	1,790½	59 39	8 40	7 1

The longest railway journey which can be undertaken in Australia, on one continuous line of railway, is from Longreach in Queensland to Oodnadatta in South Australia, a total distance of 3303 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.

In the northern parts of Queensland and in the Northern Territory there are also number of 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. 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, 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 passing 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 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. Recently, however, the Queensland Government has purchased two short lengths of line laid on a 2-ft. gauge. In South Australia the broad gauge of Victoria was at first adopted, and the part of the interstate line between Adelaide and the Victorian boundary was constructed to that gauge, so that the line from Melbourne to Adelaide is uniform. In the lines which have been constructed more recently, however, and in the Northern Territory, the South Australian Government has, with a view to economy in construction, adopted a gauge of 3-ft. 6-in. In Western Australia and Tasmania the 3-ft. 6-in. gauge was also adopted. 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, light railways have been constructed in recent years to a gauge of 2-ft. 6-in., whilst in Tasmania short lengths have been laid down to a 2-ft. gauge.

5. 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 transshipments 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 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, 2900 feet in length, and railway communication was thus established between the four capital cities, Brisbane, Sydney, Melbourne, and Adelaide.

The effect of the east to west transcontinental railway now under construction by the Commonwealth Government and to which reference is made in "B" hereof, will be that Western Australia will also be linked to the other States, and an unbroken line of communication established from one end 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.

6. 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. 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 Government railways only, the New South Wales gauge has a mileage of 4134 (4094 of 4 ft. 8½ in. gauge and 40 of 3 ft. 6 in. gauge); Victoria and South Australia have a combined mileage of 4723 of 5 ft. 3 in. gauge; while Queensland, South Australia, Western Australia, and the Northern Territory have together 9952 miles of 3 ft. 6 in. gauge. 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 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 is that there would be no necessity for the alteration of tunnels, cuttings, bridges, or viaducts.

In 1897 a conference was held between the Railway Commissioners of New South Wales, Victoria, and South Australia to consider and report upon the unification of the railway gauges of these States. In their report the Commissioners estimated the cost of converting all the lines in the three States to a 5 ft. 3 in. gauge at £4,260,000, and to one of 4 ft. 8½ in. at £2,360,500. In 1903 the question was again brought up, more particularly with regard to the proposed transcontinental line, and the Engineers-in-Chief reported in favour of a gauge of 4 ft. 8½ in. At the Premiers' Conference, held in January 1912, the subject was again under consideration, but no decision was come to.

In November 1912, another conference of railway engineers, representing the six States and the Federal Government, was held, and the question of unification of gauge was again discussed. The necessity for such a step was emphasised, and a conclusion was come to that the relative advantages of the 5 ft. 3 in. and 4 ft. 8½ in. gauges, from the point of view of efficiency and economy of working, were approximately equal, and that the determination of the most suitable gauge should be made on the basis of cost. Owing, however, to the fact that track mileage, ton mileage, and wage, had at the time increased 90, 200, and 50 per cent. respectively since 1897, together with a correspondingly large increase in the cost of material, the Conference estimated the cost of converting all lines to a 5 ft. 3 in. gauge at £51,659,000 and to a 4 ft. 8½ in. gauge at £37,164,000. It recommended that the latter gauge should be adopted, and pointed out

that the longer the work of conversion was delayed, the greater the cost would become. An alternative scheme by which the main trunk lines and more important branches should be converted was also proposed, as possibly meeting immediate requirements, and being, from a Federal point of view, perhaps a more attractive proposition than any other which could be suggested at the present time. The estimated cost of this limited scheme was £12,142,000. The subject was again under discussion at the Premiers' Conference, held in Melbourne in April 1914, when it was decided to refer the matter to the Interstate Commission, that the latter body might furnish a report as to the benefits of unification, its cost, and the apportionment of such cost.

In May 1915 another Premiers' Conference took place at Sydney, and the uniform gauge question again received consideration, with the result that the following resolution was carried without dissent:—"That . . . two leading railway experts, preferably from outside Australia, should be forthwith appointed by the Government of the Commonwealth and the mainland States to . . . report on—(1) the need of a uniform gauge, (2) the most suitable gauge, (3) the best method of carrying out uniformity, (4) what benefits would result to the Commonwealth and to the States, and (5) the probable cost."

7. **Loading Gauges.**—Allied to the question of the gauges of the railways of Australia is that of the loading gauges which are in use, the loading gauge being the maximum dimensions to which the rolling stock may be constructed. In the following tables will be found particulars of the loading gauges at present in use on the Government railways, State and Federal:—

LOADING GAUGES IN USE ON STATE AND FEDERAL GOVERNMENT RAILWAYS.

PASSENGER ROLLING STOCK.

Railways.	Gauge.	Maximum—					
		Width.	Height ab'v'e Rail Level.	Length over all.		Tare.	
	ft. in.	ft. in.	ft. in.	ft. in.	T.	c.	q.
New South Wales ...	4 8½	9 7½	13 10½	74 4½	44	2	1
Victoria ...	5 3	9 11½	14 0½	74 1½	46	17	2
„ ...	2 6	7 0½	10 4½	31 8	8	11	0
Queensland ...	3 6	9 4	12 9	53 5	26	0	0
„ ...	2 0	6 3¾	10 0	22 0	3	0	0
South Australia ...	5 3	10 4½	14 1½	74 1½	37	11	2
„ ...	3 6	9 4½	12 1	62 6	24	18	0
Western Australia ...	3 6	8 10	12 7	60 4	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 ...	4 8½	10 6	14 6	75 0	58	0	0

GOODS ROLLING STOCK.

Railway.	Gauge.	Maximum—					
		Width.	Height ab'v'e Rail Level.	Length over all.	Tare.	Carrying Capacity.	
	ft. in.	ft. in.	ft. in.	ft. in.	T.	c.	q.
New South Wales ...	4 8½	9 8	13 6	60 11	20	10	3
Victoria ...	5 3	9 7½	13 5	55 4½	20	6	0
" ...	2 6	6 5½	9 7½	27 3½	7	12	2½
Queensland ...	3 6	8 0	12 0	45 5	11	10	0
" ...	2 0	6 6	9 0	22 0	4	10	0
South Australia ...	5 3	10 0½	12 10½	48 6	16	0	0
" ...	3 6	8 6	12 1	38 9	11	15	0
Western Australia ...	3 6	8 10	12 6	44 9	17	18	0
Tasmania ...	3 6	8 10	11 0	40 10	12	5	0
" ...	2 0	6 0	6 6	27 0	5	15	2
Federal ...	4 8½	10 6	14 6	45 0	15	0	0

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

8. 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 practically the whole of the railway traffic in the Commonwealth is in the hands of the various State Governments. A large proportion of the private lines which are at present running have been laid down for the purpose of opening up forest lands or mining districts, and are not generally used for the conveyance of passengers or the public conveyance of goods. (See E. *Private Railways*, hereinafter.)

Mileage of Government and Private Lines, 1855 to 1915. 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 1915. 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; 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 all cases taken for the calendar year:—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OPEN 1855 to 1915.

Year.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	C'wlth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1855	14	2½	...	6½	...	...	...	23½
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	2,656	2,425	145	10,123
1900-1... ..	2,926	3,238	2,904	1,736	1,984	3,618	145	13,551
1910-11	4,027	3,574	4,390	1,993	3,208	675	145	18,012
1912-13	4,197	3,698	4,936	2,202	3,827½	729	145	19,734½
1913-14	4,251	3,886	5,213	2,357	3,910	766½	146	20,529½
1914-15	4,444	3,936½	5,449½	2,955	4,553	779½	146	22,263½

1. To the 31st December. The line between Goolwa and Port Elliot was opened in 1854 as a horse tramway, but now forms part of the railway system. 2. To the 31st December, 1891. 3. 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 following periods from June 1891 to June 1901, and from June 1901 to June 1911, were 343 and 452 miles respectively. Since June, 1911, the average annual length opened for traffic has been 850 miles.

9. Comparative Mileage of Government and Private Lines, 1915.—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 of course 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, 1915; those given for private lines are to the 31st December, 1914 :—

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARATIVE MILEAGE OF GOVERNMENT LINES, OF PRIVATE LINES AVAILABLE FOR GENERAL TRAFFIC, AND OF PRIVATE LINES NOT SO AVAILABLE, 1914-15.

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.
	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	¹ 4,139	181	4,320	124	4,444
Victoria...	3,875	24½	3,899½	37	3,936½
Queensland ...	4,888	⁴ 497½	5,335½	114	5,449½
South Australia ...	² 2,921	...	2,921	34	2,955
Western Australia	³ 3,610	277	3,887	666	4,553
Tasmania ...	533	163½	696½	83	779½
Northern Territory	146	...	146	...	146
Total ...	20,062	1,143½	21,205½	1,058	22,263½

1. Including the Queanbeyan-Canberra Line (5 miles). 2. Including the Port Augusta-Oodnadatta Line (478 miles), and Kalgoorlie-Port Augusta Line (286 miles). 3. Including the Kalgoorlie-Port Augusta Line (278 miles). 4. Exclusive of Mount Garnet Line (33 miles), included in mileage of Queensland Government Railways.

10. Comparative Railway Facilities in Different States, 1915.—The area of territory and the population per mile of line open to the public for general traffic (including both Government and private lines) on the 30th June, 1915, are shewn in the subjoined statement for each State and also for the Commonwealth :—

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARISON OF RAILWAY FACILITIES IN DIFFERENT STATES, 1915.

State or Territory.	Population, 30th June, 1915.	Area.	Per Mile of Line Open.	
			Population.	Area.
	Number.	Sq. miles.	Number.	Sq. miles.
New South Wales ¹ ...	1,871,398	310,372	421	69.84
Victoria ...	1,426,415	87,884	362	22.33
Queensland ...	689,678	670,500	126	123.04
South Australia ...	438,195	380,070	148	128.62
Western Australia ...	322,526	975,920	71	214.35
Tasmania ...	198,417	26,215	255	33.63
Northern Territory ...	4,448	523,620	30	3,586.44
Total ...	4,951,077	2,974,581	222	133.61

1. Including Federal Territory.

11. Classification of Lines according to Gauge, 1914-15.—The subjoined tables shew the total mileage, exclusive of sidings and cross-overs, of (i.) Commonwealth Government railways, given in the State in which situated; (ii.) State Government railways; (iii.) Private railways open to the public for general traffic; and (iv.) Private lines used for special purposes, classified according to gauge. Particulars of Government railways are up to 30th June, 1915, of private railways open for general traffic to the 31st December, 1914, and of private railways open for special purposes to the 31st December, 1913.

**GOVERNMENT AND PRIVATE RAILWAYS.—CLASSIFICATION ACCORDING
TO GAUGE, 1914-15.**

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.	
FEDERAL RAILWAYS.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
South Australia ...	...	286	478	...	...	...	764
Western Australia ...	...	278	...	...	...	...	278
Northern Territory...	...	...	146	...	...	...	146
Federal Territory ...	...	5	...	...	...	...	5
Total... ..	...	569	624	...	...	...	1,193
STATE RAILWAYS.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ...	...	4,094	40	...	...	...	4,134
Victoria ...	3,753	...	...	...	122	...	3,875
Queensland ...	...	...	4,809	...	...	29	4,838
South Australia ...	970	...	1,187	...	...	...	2,157
Western Australia ...	...	...	3,332	...	...	...	3,332
Tasmania ...	...	...	509	...	...	24	533
Total... ..	4,723	4,094	9,877	...	122	53	18,869
PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ...	45	74	36	...	...	26	181
Victoria ...	14	...	...	10½	...	...	24½
Queensland ...	...	...	405½	...	...	91½	497½
South Australia ...	...	...	...	...	...	...	...
Western Australia ...	...	...	277	...	...	...	277
Tasmania...	...	...	153½	...	...	10	163½
Total... ..	59	74	872½	10½	...	127½	1,143½
PRIVATE RAILWAYS OPEN FOR SPECIAL PURPOSES.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ...	...	120½	3½	...	...	...	124
Victoria ...	37	...	...	...	...	...	37
Queensland ...	...	...	65½	...	...	48½	114
South Australia ...	...	...	34	...	...	...	34
Western Australia ...	...	...	598½	...	...	1 67½	666
Tasmania ...	...	...	68½	...	...	14½	83
Total... ..	37	120½	769½	...	...	130½	1,058
ALL RAILWAYS.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ...	45	4,288½	79½	...	...	26	4,439
Victoria ...	3,804	...	...	10½	122	...	3,936½
Queensland ...	...	...	5,280	...	...	169½	5,449½
South Australia ...	970	286	1,699	...	...	...	2,955
Western Australia ...	...	278	4,207½	...	...	1 67½	4,553
Tasmania ...	...	...	731	...	...	48½	779½
Northern Territory...	...	...	146	...	...	...	146
Federal Territory ...	...	5	...	...	...	...	5
GRAND TOTAL ...	4,819	4,857½	12,143	10½	122	311½	22,263½

1. Including 21 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 also been constructed connecting Canberra, in the Federal Territory, with the New South Wales railway system at Queanbeyan.

2. **Darwin to Pine Creek Railway.**—This line at first came under the jurisdiction of the Department of External Affairs, and was worked under the Administrator of the Northern Territory. On the 1st July, 1915, the management of the line was handed over to the Commonwealth Railway Department.

Particulars as to the working of this line prior to its passing under the control of the Commonwealth Government will be found in 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 is now under construction, while the connecting line from Katherine River to Oodnadatta is in course of survey.

3. **Port Augusta to 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. 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. **Port Augusta-Kalgoorlie Line.**—The Transcontinental Railway Bill, passed in 1907 by the Federal Houses of Parliament, 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 of the preliminary survey may be seen on reference to the map on page 645 hereof; 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 1063 miles, was £3,988,000. In September, 1911, a Bill was introduced into the Commonwealth Parliament to authorise the construction of the line, and 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. A commencement was also made at Kalgoorlie, and it was estimated that the line, which is being built from both ends, and has a gauge of 4 ft. 8½ in., would be completed in three years. The delay in its progress has been caused by the war, difficulties having arisen in obtaining supplies of materials. At the 30th June, 1915, 286 miles had been laid in the South Australian division, and 278 miles in the Western Australian division. It should be mentioned that owing to deviations from the original route the length of this line will on completion have a length of about 1053 miles, a saving of about 10 miles.

5. **Queanbeyan-Canberra Railway.**—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, for the time being, agreed with the Commonwealth Government to work it. The line was opened for Commonwealth departmental goods traffic on 25th May, 1914.

The Queanbeyan-Canberra railway connects with the New South Wales railway system at Queanbeyan, and is 4 miles 75 chains in length, in addition to which the sidings cover $2\frac{3}{4}$ miles.

6. **Summary of Federal Railways.**—The following table shews the railway lines under the control of the Commonwealth at 30th June, 1915, together with the lines under construction and those which have been or are being surveyed:—

COMMONWEALTH GOVERNMENT RAILWAYS, 30th JUNE, 1915.

Terminals.	Miles.
OPEN FOR TRAFFIC.	
Darwin to Pine Creek (Northern Territory)	146
Port Augusta to Oodnadatta (South Australia)	478
Queanbeyan (New South Wales) to Canberra (Federal Territory)	5
Kalgoorlie to 278 mile	278
Port Augusta to 286 mile	286
 Total opened for traffic	 1,193
UNDER CONSTRUCTION.	
Kalgoorlie (Western Australia) to Port Augusta (South Australia)	489 $\frac{1}{2}$
Pine Creek to Katherine River (Northern Territory)	54 $\frac{1}{2}$
 Total under construction	 544
SURVEYED OR BEING SURVEYED.	
Katherine River to Bitter Springs (Northern Territory)	65
Katherine to Mataranka (Northern Territory)	265
Mataranka to Daly Waters (Northern Territory)	367
Bitter Springs (Northern Territory) to Oodnadatta (South Australia)	965
Pines to Coward Springs (South Australia)	148
Kingoonya to Oodnadatta (near) (South Australia)	176
Newcastle Waters (Northern Territory) to Camooweal (Queensland)	360
Canberra (Federal Territory) to Jervis Bay (New South Wales)	135
Canberra (Federal Territory) to Yass (New South Wales)	40
 Total surveyed or being surveyed	 2,521

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, expenditure, train mileage, number of passenger journeys, and tonnage of goods and live stock carried on the Federal lines during the undermentioned periods:—

KALGOORLIE—PORT AUGUSTA.

Year ended June 30.	Average Miles Open.	Cost of Construction.	Revenue.	Expenditure.	Train Miles run.	No. of Pass. Journeys.	Tonnage of Goods and Live Stock.
1915	370	£ 2,846,090	£ 139,612	£ 147,846	497,553	12,234	282,471

PORT AUGUSTA—OODNADATTA.

1911	4239	2,151,309	429,954	433,150	490,031	1 ...	1 ...
1912	478	2,151,710	57,939	72,569	214,323	1 ...	14,071
1913	478	2,153,323	75,955	89,068	281,739	1 ...	15,302
1914	478	2,153,438	77,263	97,081	296,044	1 ...	1 ...
1915	478	2,155,156	67,340	109,982	273,488	1 ...	1 ...

CANBERRA—QUEANBEYAN.

1915	5	45,486	1,088	1,626	26,000	1 ...	1 ...
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DARWIN—PINE CREEK.

1911	472	1,040,734	45,620	46,707	415,046	41,130	4935
1912 ³	145	1,040,702	11,363	13,398	30,323	1,791	1,895
1913 ³	145	1,040,702	14,703	13,845	31,278	1,249	2,781
1914 ³	146	1,040,702	17,566	16,643	30,087	2,739	3,615
1915	146	1,040,702	21,545	26,099	39,652	3,857	11,995

1. Not available. 2. Estimated. 3. The figures for 1912, 1913 and 1914 are for the calendar years 1911, 1912 and 1913. 4. For six months only.

8. Number and Description of Rolling Stock, 1915.—The following table shows 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, 1914-15.

Railway.	Gauge.		Total.
	4 ft. 8½ in.	3 ft. 6 in.	

LOCOMOTIVES.

Kalgoorlie-Port Augusta ...	24	...	24
Port Augusta-Oodnadatta ...	...	1	...
Canberra-Queanbeyan ...	2	...	...
Darwin-Pine Creek ...	...	5	5
Total ...	24	5	29

PASSENGER VEHICLES.

Kalgoorlie-Port Augusta ...	11	...	11
Port Augusta-Oodnadatta ...	...	1	...
Canberra-Queanbeyan ...	2	...	...
Darwin-Pine Creek ...	...	4	4
Total ...	11	4	15

See page 633 for notes 1 and 2.

CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK ON FEDERAL RAILWAYS, 1914-15—continued.

Railway.	Gauge.		Total.
	4 ft. 8½ in.	3 ft. 6 in.	
ALL OTHER VEHICLES.			
Kalgoorlie-Port Augusta	534	...	534
Port Augusta-Oodnadatta ... ..	...	...¹	...
Canberra-Queanbeyan ... ..	...²	...	...
Darwin-Pine Creek ... ..	...	138	138
Total	534	138	672

1. South Australian Government railway locomotives and rolling stock used. 2. 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, 1915, classified according to (a) salaried staff, and (b) wages staff.

FEDERAL RAILWAYS.—NUMBER OF EMPLOYEES ON RAILWAYS, 1914-15.

Railway.	1914-15.	
	Salaried Staff.	Wages Staff.
Kalgoorlie-Port Augusta	226	3,501
Port Augusta-Oodnadatta ... ..	...¹	... ¹
Canberra-Queanbeyan	1	3
Darwin-Pine Creek	9	90
Total	236	3,594

1. Worked by South Australian 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, 1911-1915.

Railway.	1911.*		1911-12.		1912-13.		1913-14.		1914-15.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Kalgoorlie-Port Augusta ... ..	...	...	...	...	...	...	2	3	13	34
Port Augusta-Oodnadatta	1	1	...	1	...	2	...	13	2	2
Canberra-Queanbeyan ... ..	...	...	...	...	...	...	...	...	...	...
Darwin-Pine Creek ... ..	...	1	...	...	...	...	...	...	...	...
Total	1	2	...	1	...	2	2	16	15	36

* To 30th June.

(c) State Railways.

1. **Mileage Open, 1901 to 1915.**—The following table shews the length of State railways open for traffic on the 30th June in the years 1901-2 and 1910-15 :—

STATE RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, 1901-2 AND 1910-15.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1901-2 ...	3,026	3,302	2,801	1,736	1,360	1,462	145	12,832
1909-10 ...	3,641	3,491	3,661	1,912	2,145	469	145	15,464
1910-11 ...	3,758	3,523	3,868	1,457	2,376	470	³ ...	15,452
1911-12 ...	3,832	3,622	4,123	1,460	2,598	496	...	16,131
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	...	17,708 ²
1914-15 ...	4,134	3,875	4,838	2,157	3,332	533	...	18,869

1. To the 31st December, 1902. 2. Including the mileage (478) of the Port Augusta to Oodnadatta line to 31st December, 1910 (see page 630). 3. Taken over by Commonwealth Government, 1st January, 1911 (see page 630).

The following statement shews the actual mileage opened for traffic in the year 1914-15, and also the annual average increase in mileage opened since 1905 in each State :—

STATE RAILWAYS.—MILEAGE OPENED ANNUALLY.

Mileage.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'with.
Mileage opened during 1914-15 ...	167	40½	268	312	365	14	1166½
Average annual mileage increase (1906 to 1915) ...	74½	48	170	41	172	7	512½

(i.) *New South Wales.* During the year ended 30th June, 1915, the following lines were opened for traffic :—Finley to Tocumwal (11 miles); Parkes to Peak Hill (31½ miles); Garah to Mungindi (40½ miles); Galong to Boorowa (17½ miles); Taree to Wauchope (47½ miles); Muswellbrook to Denman (15½ miles); and increases by deviations (3½ miles)—a total of 167 miles.

(ii.) *Victoria.* The following lines were opened for traffic during 1914-15 :—Rushworth to Colbinabbin (12½ miles); and Swan Hill to Piangil (27½ miles)—a total of 40½ miles.

(iii.) *Queensland.* The increase of 268 miles in the mileage opened for traffic in 1914-15 was due to the opening of the following lines :—Geraldton line and branches, 2-ft. gauge (21 miles); Cooladdi to Cheepie (28 miles); Maher to Jandowae (28 miles); Cloncurry to Koolamarra (42 miles); Gilligulgul to Juandah (19 miles); Benlidi to Emmet (26 miles); Mount Garnet Tramway (33 miles, by purchase); Wowan to Rennes (15 miles); Mourilyan Tramway and Extension, 2-ft. gauge (8 miles); Kurukan to Rollingstone (9 miles); Dimbulah to Mount Mulligan (30 miles); and Kandanga to Brooloo (9 miles).

(iv.) *South Australia.* The lines opened for traffic in this State during the year 1914-15 were on the 3 ft. 6 in. gauge from Yeelanna to Mount Hope (23 miles), and Minnipa Hill to Thevenard (112½ miles); and on the 5 ft. 3 in. gauge, from Marino to Willunga (22½ miles); Karoonda to Waikerie (73½ miles); Karoonda to Peebinga (65½ miles); Eudunda to Robertstown (13½ miles), and a deviation at Goolwa involving an increase of 1 mile—a total of 312 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 have undergone a reduction 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 630.)

(v.) *Western Australia.* The following new sections of railway were taken over from the Public Works Department during the year 1914-15 and opened for public traffic:—Corrigin to Bruce Rock ($37\frac{1}{2}$ miles); Wongan Hills to Mullewa ($198\frac{3}{8}$ miles); Williminning to Kondinia ($73\frac{1}{2}$ miles), and Brookton to Corrigin ($55\frac{1}{2}$ miles)—a total of 365 miles.

(vi.) *Tasmania.* During the year 1914-15 the Staverton branch was opened for traffic—a distance of 14 miles.

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 at head of page 634 gives the actual 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 1910-15 inclusive:—

STATE RAILWAYS.—AVERAGE MILEAGE WORKED, TRAIN MILES RUN, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1901 and 1910-15.

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust. 2	West. Aust.	Tasmania.	N. Ter.	All States.
AVERAGE MILEAGE WORKED.								
1901-2	2,953	3,265	2,801	1,736	1,356	5 468	145	12,724
1910-11	3,710	3,505	3,735	1,676	2,286	478	8 73	15,523
1911-12	3,799	3,543	3 4,144	1,460	2,471	503	7 ...	15,920
1912-13	3,872	3,639	3 4,351	1,534	2,733	508	...	16,687
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
TRAIN MILES RUN (,000 OMITTED).								
1901-2	11,649	11,285	5,666	4,196	4,508	5 903	30	38,237
1910-11	17,007	12,973	9,367	5,856	4,963	1,041	8 15	51,222
1911-12	18,521	13,836	10,327	6,029	5,227	1,047	7 ...	54,987
1912-13	19,184	14,235	11,464	6,343	5,623	1,006	...	57,855
1913-14	20,550	15,029	11,346	6,731	5,565	1,001	...	60,222
1914-15	20,420	15,303	11,989	5,581	5,404	1,005	...	59,702
NUMBER OF PASSENGER JOURNEYS (,000 OMITTED).								
1901-2	30,885	57,465	1 8,421	9,643	8,158	5 762	4	115,338
1910-11	60,920	93,796	14,791	16,620	14,828	1,682	8 1	202,638
1911-12	70,707	104,235	17,081	18,353	16,390	1,715	7 ...	228,481
1912-13	79,490	111,614	19,999	19,382	17,920	1,650	...	249,855
1913-14	86,328	116,612	22,253	19,810	19,208	1,708	...	265,919
1914-15	88,774	117,260	24,258	18,831	18,635	1,751	...	269,509
TONNAGE OF GOODS AND LIVE STOCK CARRIED (,000 OMITTED).								
1901-2	6,468	3,434	1,882	1,392	1,888	5 6 407	2	4 15,473
1910-11	10,355	4,968	3,295	2,731	2,489	364	8 1	24,203
1911-12	10,910	5,298	3,494	2,782	2,542	470	7 ...	25,496
1912-13	11,666	5,150	3,798	3,016	2,866	465	...	26,961
1913-14	13,246	5,816	4,301	3,103	3,170	409	...	30,045
1914-15	11,921	5,410	4,971	2,076	2,524	408	...	27,310

¹ These figures are partly estimated, the actual returns excluding journeys by season ticket holders.

² Exclusive of the Port Augusta-Oodnadatta line as from the 1st January, 1911.

³ Including the Etheridge railway 143 miles in length.

⁴ Exclusive of live stock returns for Tasmania.

⁵ For the calendar year 1902. The average mileage worked is larger than the actual mileage open, owing to the fact that the Government railways have running powers over certain private lines.

⁶ Exclusive of live stock.

⁷ Taken over by Commonwealth Government, 1st January, 1911 (see page 632).

⁸ For six months only.

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 645 hereafter. 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 above in dealing with the history of construction of the railways. The subjoined summary shews concisely the gauge and length of the main and branch

STATE RAILWAYS, 1914-15.

Particulars.	Suburban.	Length, including Suburb'n.	Gauge.
	Miles.	Miles.	ft. in.
1. NEW SOUTH WALES.			
(i.) The Northern line and branches—			
(a) Main line. Strathfield-Wallangarra ...	73½	488½	4 8½
(b) Branch lines ...	18½	584	4 8½
(ii.) The North Coast line and branches—			
(a) Main line. West Maitland-Murwillumbah ...	13	312	4 8½
(b) Branch lines ...	...	18	4 8½
(iii.) The Western line and branches—			
(a) Main line. Sydney-Bourke ...	34½	508½	4 8½
(b) Branch lines ...	24¾	848½	4 8½
(iv.) The Southern line—			
(a) Main line. Granville-River Murray ...	20¾	383¾	4 8½
(b) Branch lines ...	...	845	4 8½
(v.) The South-coast (Illawarra) line—			
(a) Main line. Sydney to Nowra ...	32	95	4 8½
(b) Branch lines ...	10	11	4 8½
(vi.) Broken Hill line. Broken Hill-Tarrawingee ...	...	40	3 6
Total ...	226½	4,134½	...
2. VICTORIA.			
(i.) The South-eastern system—			
(a) Main lines. Dandenong-Port Albert ...	...	117½	5 3
Caulfield-Stony Point ...	11½	38¾	5 3
(b) Branch lines ...	...	47½	5 3
(ii.) The Eastern system—			
(a) Main lines. South Yarra-Bairnsdale ...	16	167¾	5 3
(b) Branch lines ...	1½	96	5 3
(iii.) The North-eastern system—			
(a) Main line. Essendon Junc.-River Murray... ..	14¾	187½	5 3
(b) Branch lines ...	1½	538	5 3
(iv.) The Northern system—			
(a) Main line. Melbourne-Echuca ...	20½	156	5 3
(b) Branch lines ...	...	849	5 3
(v.) The North-western system—			
(a) Main line. Sunshine-Serviceton ...	11	280½	5 3
(b) Branch lines ...	...	425	5 3
(vi.) The Western and South-western system—			
(a) Main line. Footscray-Port Fairy ...	16½	183½	5 3
(b) Branch lines ...	...	507¾	5 3
(vii.) Metropolitan District—			
(a) Richmond-Healesville line ...	17	37½	5 3
(b) Branch lines ...	4½	32½	5 3
(c) Port Melbourne, St. Kilda, Sandringham, Burnley - Darling, Deepdene - Burwood, Hurst Bridge, Whittlesea, Fawkner, Williamstown lines, etc. ...	77¾	18½	2 6
Total ...	192	3,875	...

Particulars.					Length.	Gauge.
3. QUEENSLAND.					Miles.	ft. in.
(i.) The Southern division—						
(a)	The Southern line.	Ipswich-Wallangarra	...	...	221	3 6
(b)	The Western line.	Gowrie Junction-Cunnamulla	...	...	569	3 6
(c)	The South-western line.	Warwick-Dirranbandi	...	...	256	3 6
(d)	The Nth.-coastline.	Northgate Junction-235 mls. 14 chs.	...	...	234	3 6
(e)	The South-coast line.	Sunnybank-Tweed Heads	...	...	62	3 6
(f)	Suburban lines	...	...	...	73	3 6
(g)	Branch lines	...	...	...	934	3 6
(ii.) The Central division—						
(a)	The Coast line.	235 miles 14 chains-Rockhampton	...	...	183	3 6
(b)	The Central line.	Archer Park-Longreach	...	...	445	3 6
(c)	Branch lines	...	...	...	426	3 6
(iii.) The Northern division—						
(a)	Mackay line	...	...	...	83	3 6
(b)	Bowen line	...	...	...	70	3 6
(c)	The Great Nthn. Rlwy.	Townsville-Selwyn branches	...	...	841	3 6
(d)	Geraldton and Mourilyan Tramway	...	...	...	29	2 0
(e)	Cairns line	...	...	...	186	3 6
(f)	Mount Mulligan Railway	...	...	...	30	3 6
(g)	Mount Garnet Railway	...	...	...	32	3 6
(h)	Cooktown line	...	...	...	68	3 6
(i)	Normanton line	...	...	...	96	3 6
Total					4,838	...
4. SOUTH AUSTRALIA.						
(i.) The Midland system—						
(a)	Main line.	Adelaide-Terowie	...	...	140	5 3
(b)	Branch lines	...	...	...	142	5 3
(ii.) The Northern system—						
(a)	Terowie-Quorn	...	...	...	94½	3 6
(b)	Other lines	...	...	...	455	3 6
					5	5 3
(iii.) The Southern system—						
(a)	Main line.	Adelaide-Serviceton	...	...	194½	5 3
(b)	Branch lines	...	...	...	190	5 3
(iv.) The South-eastern system—						
(a)	Wolseley-Mount Gambier	...	...	...	112	3 6
(b)	Branch lines	...	...	...	113	3 6
(v.)	Port Broughton line	...	...	...	10	3 6
(vi.) The Eyre Peninsula system—						
	Port Lincoln-Cape Thevenard and Branches	...	...	...	402½	3 6
(vii.) Murray Lands lines. Tailm Bend-Faringa, and branch line...					298	5 3
Total					2,156½	...
5. WESTERN AUSTRALIA.						
(i.) Eastern railway—						
(a)	Main line.	Fremantle-Northam	...	...	78	3 6
(b)	Branch lines	...	...	...	78½	3 6
(ii.) South-western railway—						
(a)	East Perth-Picton Junction	...	...	...	110	3 6
(b)	Branch lines	...	...	...	498½	3 6
(iii.) Great Southern railway—						
(a)	Main line.	Spencer's Brook-Albany Jetty	...	...	280	3 6
(b)	Branch lines	...	...	...	531½	3 6
(iv.) Eastern Goldfields railway—						
(a)	Main line.	Northam-Laverton and Leonora	...	...	533½	3 6
(b)	Branch lines	...	...	...	156½	3 6
(v.) East Northern-Mullewa railway—						
(a)	Main line	...	...	...	263	3 6
(b)	Branch lines	...	...	...	112½	3 6
(vi.) Northern railway—						
(a)	Main line.	Geraldton-Meekatharra	...	...	333½	3 6
(b)	Branch lines	...	...	...	208½	3 6
(vii.) Hopetoun-Ravensthorpe railway					33½	3 6
(viii.) Port Hedland-Marble Bar					114½	3 6
Total					3,332	...

Particulars.				Length.	Gauge.
6. TASMANIA.				Miles.	ft. in.
(i.)	Main line.	Hobart-Evandale Junction	...	124 $\frac{1}{2}$	3 6
(ii.)	Derwent Valley line.	Bridgewater-Glenora	...	30 $\frac{1}{2}$	3 6
(iii.)	Apsley line.	Brighton Junction-Apsley	...	26	3 6
(iv.)	Parattah-Oatlands line	...	...	4 $\frac{1}{2}$	3 6
(v.)	Fingal line.	St. Mary's-Conara	...	46 $\frac{3}{4}$	3 6
(vi.)	Western line.	Launceston-Burnie	...	134 $\frac{1}{2}$	3 6
(vii.)	Chudleigh line	...	...	12 $\frac{1}{2}$	3 6
(viii.)	North-eastern line.	Launceston-Scottsdale	...	71 $\frac{1}{2}$	3 6
(ix.)	Sorell-Bellerive line	...	...	14 $\frac{1}{2}$	3 6
(x.)	Zeehan line.	Regatta Point-Zeehan	...	29 $\frac{1}{2}$	3 6
(xi.)	Staverton line	...	...	14	3 6
(xii.)	North-east Dundas tramway.	Zeehan-Williamsford	...	20 $\frac{1}{2}$	2 0
(xiii.)	Comstock tramway	...	...	4 $\frac{1}{4}$	2 0
Total				533	...
GRAND TOTAL OF STATE RAILWAYS				18,868 $\frac{3}{4}$	...

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 previous Year Books (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 and Proposed Lines, 1915.**—The following statement gives particulars up to the 30th June, 1915, of the mileage of State railways (a) under construction, and (b) authorised for construction but not commenced:—

MILEAGE UNDER CONSTRUCTION AND AUTHORISED, 30th JUNE, 1915.¹

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	All States.
Mileage under construction	1,128 $\frac{1}{2}$	304 $\frac{1}{2}$	503	178 $\frac{1}{4}$	170 $\frac{1}{4}$	20	2,304 $\frac{1}{2}$
Mileage authorised	148 $\frac{1}{4}$	52 $\frac{3}{4}$	1,549	107 $\frac{1}{4}$	246	...	2,103 $\frac{1}{4}$

¹ For similar statistics of Federal Railways see page 631.

(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 lines under construction on 30th June, 1915, were those from *Wauchope* to *Kempsey* (30 $\frac{1}{2}$ miles), *Kempsey* to *Macksville* (30 $\frac{1}{2}$ miles), *Coff's Harbour* to *Raleigh* (13 $\frac{1}{2}$ miles),

and Glenreagh to South Grafton (28 miles). These lines, when completed, will form an alternative main route between Newcastle and Brisbane. Other lines under construction are as follow:—Glenreagh to Dorriggo (42 miles), Forbes to Stockinbingal (83½ miles), Wagga to Tumberumba (76½ miles), Condobolin to Broken Hill (370 miles), Denman to Merriwa (33 miles), Dunedoo to Coonabarabran (76½ miles), Wyalong to Lake Cudgellico (70½ miles), Dubbo to Werris Creek (157½ miles), Barellan to Mirool (32 miles), Tullamore to Tottenham (33 miles), Nimmitabel to Bombala (40 miles), and Flemington to Belmore, and Wardell Road to Glebe Island and Darling Island (11½ miles). (b) *Victoria*. In this State the following lines were under construction by the Board of Land and Works on the 30th June, 1915:—5 ft. 3 in. gauge: Bairnsdale to Orbost (60 miles), Heywood to Mumbannar (39½ miles), Tallangatta to Cudgewa (42½ miles), Elmore to Cohuna (57½ miles), Hamilton to Cavendish (15½ miles), Cavendish to Toolando (44 miles), Neerim South to Tooronga River (14 miles), Lorquon to Yanac-Yanac (18½ miles), and Linton to Skipton (12½ miles), making in all 304½ 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 1198 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 Wallal, Blackall, Winton, and Malbon, in such a manner that they will form junctions with a line to be made running north-westerly from Tobermory to Camooweal. These extensions, together with the north-westerly line, will make an aggregate distance of 1282 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, 1915, the following lines were under construction:—Logan Village to Canungra (21 miles), Drayton deviation (11 miles), Sarina to Koumala (13 miles), Yaamba to Kunwarara (22 miles), Oakley to Mount Russell (19 miles), Enoggera to Terror's Creek (24 miles), Malanda to Millaa-Millaa, first section (9 miles), Munbilla to Mount Edwards (16 miles), Kingaroy to Tarong (19 miles), Tumoulin to Cedar Creek (5 miles), Roma to Orallo (29 miles), Koolamarr to Mount Cuthbert (28 miles), Mount Morgan to Dawson Valley, third section (25 miles). Of the Great Western Railway the following parts are under construction:—Section A: From Cheepie to Bulloo River (48 miles); Section B: From Emmet to near Welford (32 miles); Section C: From Winton to Elderslie (38 miles); Section D: From Duchess to Carbine Creek (23 miles). The following parts of the North Coast Railway are under construction:—Section A: Kunwarara to Marlborough (18 miles); Section B: Koumala to Carmila Creek (26 miles); Mackay to St. Helens (31 miles); Section D: From Rollingstone to Ingham (34 miles); Section E: From Mooliba to Innisfail (12 miles). (d) *South Australia*. In this State the lines under construction on the 30th June, 1915, were as follow:—Pinnaroo to the Victorian Border (3½ miles), Mt. Gambier to the Victorian Border (12 miles), Riverton to Spalding (51½ miles), Salisbury to Long Plains (34½ miles), Paringa to Renmark (2½ miles), Balhannah to Mount Pleasant (22 miles), Palmer to Sedan (20 miles), Nuriootpa to Truro (10 miles), 5 ft. 3 in. gauge; Booleroo Centre to Wilmington (22½ miles), 3 ft. 6 in. gauge. (e) In *Western Australia* the following lines were in course of construction by the Public Works Department on the 30th June, 1915:—Wyalkatchem to Mount Marshall (52 miles), Wagin to Bowelling (62½ miles), Bolgart Extension (34½ miles), and Kukerin to Lake Grace (21 miles). (f) *Tasmania*. At 30th June, 1915, the line from Burnie to Flowerdale, 20 miles long, was under construction.

(ii.) *Lines Authorised for Construction.* (a) *New South Wales*. In addition to the North coast railway extension between Glenreagh and Dorriggo (42 miles), the construction of lines from Macksville to Raleigh (20½ miles), and Coff's Harbour to

Glenreagh (26½ miles)—(part of the North Coast railway)—Coonabarabran to Burren Junction (95 miles), and Sydenham to Botany (6 miles) had been authorised up to 30th June, 1915. (b) In *Victoria* the following lines were authorised, but their construction had not been commenced up to the end of June, 1915:—5 ft. 3 in. gauge: White Cliffs to Yelta (9¾ miles), Koo-wee-rup to McDonald's Track (30¾ miles), and Alberton to Won Wron (12¼ miles)—a total of 52¾ 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 Bulloo River (120 miles); Section B, from near Welford (251 miles); Section C, from Elderslie (324 miles); and Section D, from Carbine Creek (269 miles); and in the North Coast Railway, Section A, from Marlborough to St. Lawrence (60 miles); Section B, from Carmila Creek to St. Lawrence, and St. Helens to Midge Point (32 miles); Section C, from Midge Point to Proserpine (13 miles); Section D, from Ingham to near Cardwell (19 miles); Section E, from Innisfail to near Cardwell (71 miles). The following lines were also authorised for construction: Inglewood to Texas and Silverspur (44 miles), Rockhampton to Alton Downs (18 miles), Mount Edwards to Maryvale (28 miles), Lanefield to Rosevale (17 miles), Gatton to Mount Sylvia (11 miles), Murgon to Proston (26 miles), branch to Windera (12 miles), Juandah to Taroom (42 miles), Dirranbandi extension (52 miles), Goondoon towards Kalliwaa Creek (31 miles), Mundubbera to the Northern Burnett (32 miles), Malanda to Millaa Millaa—second section—(8 miles), extension beyond Tara (50 miles), and Mount Russell to Cecil Plains (19 miles). (d) In *South Australia* it is proposed to electrify the Adelaide-Glenelg (6½ miles) line at an estimated cost of £115,000, and also in newly-settled districts to construct light lines to be run by District Councils. (e) In *Western Australia* the following lines were authorised for construction up to the 30th June, 1915:—Busselton-Margaret River (38 miles), Esperance northward (60 miles), Dwarda-Narrogin (33 miles), Kondinin-Merredin (89 miles), and Nyabing-Pingerup (26 miles).

6. Cost of Construction and Equipment of State Railways.—The total cost of construction and equipment of the State railways of the Commonwealth at the 30th June, 1915, amounted to £187,139,867, or to an average of £9918 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.—COST OF CONSTRUCTION AND EQUIPMENT TO 30th JUNE, 1915.

State.			Length of Line Open.	Total Cost of Construction and Equipment.	Average Cost per Mile Open.	Cost per Head of Population.
			Miles.	£	£	£
New South Wales	...	...	4,134	64,008,436	15,483	34.25
Victoria	...	...	3,875	51,518,792	13,295	36.12
Queensland	...	...	4,838	33,405,877	6,905	48.44
South Australia	...	...	2,157	16,597,139	7,695	37.88
Western Australia	...	...	3,332	16,980,712	5,096	52.65
Tasmania	...	...	533	4,628,911	8,685	23.33
Total	...	...	18,869	187,139,867	9,918	37.85

It will be seen that the lowest average cost per mile open is in Western Australia, and is only £5096, which is less than one-third of the highest average cost, namely, £15,483 in New South Wales, compared with an average of £9918 for all the State Government railways. In Western Australia there have been comparatively few engineering

difficulties to contend with, moreover the system has been adopted in that State of giving contractors the right to carry traffic during the period of their contracts, with the result that, at all events in all goldfields railway contracts, the cost of construction has been considerably lessened.

In the above table the figures for Queensland relating to cost of construction and equipment do not agree with those contained in the report of the Railway Commissioner for that State. The amount in the report is given as £35,464,770, which includes discount and flotation charges on loans allocated to railways, but as no other State includes this depreciation of loan capital, it is necessary to exclude it in order to place the cost of railway construction in all States on the same basis.

(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 £1750 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 over one thousand four hundred miles of the "pioneer" lines have been opened in New South Wales, the average cost ranging from about £2000 to £7500 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, the average cost of which, to the end of June, 1915, was £3786. In Victoria also the cost of construction has been greatly reduced in recent years. The total cost to the 30th June, 1915, of the narrow gauge (2 ft. 6 in.) lines, having a length of one hundred and twenty-two miles, was only £331,282, which gives an average cost per mile of only £2718. In the other States also the cost of construction per mile has been 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 :—

**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	70.94	40.11	111.05	3,846,446	34,638	1876
Sydney to Kiama ...	4 8½	25.46	72.23	97.69	3,845,376	39,363	1887
Homebush to Waratah ...	4 8½	95.71	...	95.71	3,527,130	36,851	1889
VICTORIA—							
Melbourne to Bendigo ...	5 3	100.89	...	100.89	4,927,955	48,845	1862
N. Geelong to Ballarat ...	5 3	41.45	11.98	53.43	1,936,105	36,236	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 £39,416, whereas the average cost of the 322.16 miles referred to in the next table was £1842.

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

Line.	Gauge.	Length.	Total Cost.	Average Cost per Mile.	Date of Opening.
	ft. in.	Miles.	£	£	
NEW SOUTH WALES—					
Parkes to Condobolin ...	4 8½	62.75	132,496	2,111	1898
Burren Junction to Collarenebri	4 8½	42.55	103,771	2,439	1906
VICTORIA—					
Wangaratta to Whitfield ...	2 6	30.49	39,846	1,307	1899
Wycheproof to Sealake ...	5 3	47.89	84,272	1,760	1895
Ultima to Chillingollah ...	5 3	20.14	33,667	1,672	1909
QUEENSLAND—					
Dalby to Bell ...	3 6	23.50	38,216	1,626	1906
Mahar to Jandowae ...	3 6	28.24	57,548	2,038	1914
SOUTH AUSTRALIA—					
Wandilo to Glencoe ...	3 6	9.13	11,620	1,273	1904
Cummins to Yeelanna ...	3 6	8.82	15,110	1,712	1909
WESTERN AUSTRALIA—					
Southern Cross to Bullfinch ...	3 6	22.04	36,821	1,674	1911
Narrogin to Wickepin ...	3 6	26.61	40,142	1,515	1909

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 preceding table.

(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 1910 to 1915 is shewn in the following table :—

**STATE RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT,
1901-2 and 1910-15.**

TOTAL COST.

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West. Aust.	Tas.	N. Ter.	All States
	£	£	£	£	£	£	£	£
1901-2	40,565,073	40,613,734	20,119,143	12,769,999	7,410,426	3,840,747	1,018,700	126,337,772
1910-11	50,863,449	43,882,338	25,898,841	12,258,174	12,019,927	4,079,831	...	149,002,560
1911-12	53,139,612	45,543,054	27,751,227	12,810,815	13,233,093	4,253,013	...	156,730,814
1912-13	57,003,036	46,989,111	29,895,220	14,035,437	14,913,128	4,400,292	...	167,236,224
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

COST PER MILE OPEN.

	£	£	£	£	£	£	£	£
1901-2	13,405	12,300	7,183	17,428	5,449	3,313	7,124	9,860
1910-11	13,534	12,456	6,696	8,411	5,060	8,675	...	9,643
1911-12	13,867	12,574	6,731	8,766	5,094	8,583	...	9,716
1912-13	14,505	12,884	6,824	8,307	5,225	8,679	...	9,773
1913-14	15,157	12,834	6,962	8,260	5,350	8,664	...	9,986
1914-15	15,483	13,295	6,905	7,695	5,096	8,635	...	9,918

1. Including the Port Augusta-Oodnadatta line.

2. To the 31st December, 1902.

3. Transferred to Commonwealth Government, 1st January, 1911 (see page 630).

(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 the years 1910-11 to 1914-15.

STATE RAILWAYS.—LOAN EXPENDITURE, 1901-2 and 1910-15.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£000.	£000.	£000.	£000.	£000.	£000.	£000.
1901-2 ¹	2,244	483	751	122	579	81 ²	4,260
1910-11	2,127	1,230	1,686	591	748	82	6,464
1911-12	2,851	1,703	2,855	789	1,317 ¹	120 ¹	9,635
1912-13	3,614	1,231	2,067	1,207	1,949	116 ¹	10,184
1913-14	4,903	2,362	1,679	1,489	1,228 ¹	146 ¹	11,807
1914-15	4,394	2,810	1,739	1,285	670	228 ¹	11,126

1. Including Tramways. 2. For the calendar year 1902.

The following statement shews the total loan expenditure to the 30th June, 1915 :—

STATE RAILWAYS.—TOTAL LOAN EXPENDITURE IN EACH STATE TO 30th JUNE, 1915.

State, etc.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
Expenditure	68,594,086	50,124,838	35,306,560	18,803,862	16,618,860	5,044,382	194,492,588

1. 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 1910 to 1915 inclusive :—

STATE RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED, AND PER TRAIN MILE RUN, 1901-2 and 1910-15.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
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TOTAL GROSS REVENUE.

	£	£	£	£	£	£	£	£
1901-2 ...	3,668,686	3,367,843	1,382,179	1,085,175	1,521,429	¹ 233,211	12,522	11,271,045
1910-11 ...	6,042,205	4,896,210	2,730,430	2,015,182	1,844,419	277,916	² 5,907	17,812,269
1911-12 ...	6,491,473	5,218,967	3,032,858	2,090,563	1,884,604	312,786	...	19,031,251
1912-13 ...	6,748,985	5,205,442	3,321,672	2,222,436	2,037,853	327,113	...	19,863,501
1913-14 ...	7,742,241	5,560,958	3,660,022	2,337,251	2,237,011	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

GROSS REVENUE PER AVERAGE MILE WORKED.

	£	£	£	£	£	£	£	£
1901-2 ...	1,242	1,031	493	625	1,122	¹ 498	86	886
1910-11 ...	1,629	1,397	719	1,202	807	582	² 81	1,147
1911-12 ...	1,709	1,473	732	1,430	763	622	...	1,195
1912-13 ...	1,743	1,430	763	1,449	732	644	...	1,190
1913-14 ...	1,956	1,484	812	1,238	776	629	...	1,253
1914-15 ...	1,877	1,341	810	861	665	603	...	1,134

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	¹ 61.99	99.27	70.74
1910-11 ...	85.27	90.58	69.96	82.59	89.19	64.06	² 91.51	83.46
1911-12 ...	84.12	90.53	70.48	83.22	86.53	71.73	...	83.06
1912-13 ...	84.43	87.77	69.54	84.09	86.98	78.00	...	82.40
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

1. For the calendar year 1902.

2. See Commonwealth Government Railways (page 631).

3. For six months only.

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 1910-15, classified according to the three chief sources of receipts. The total of the three items specified has already been given in the preceding paragraph.

COACHING, GOODS, AND MISCELLANEOUS RECEIPTS, 1901-2 and 1910-15.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	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
1910-11	2,385,725	2,354,855	934,541	641,651	596,593	144,132	³ 1,850	7,059,347
1911-12	2,691,741	2,624,493	1,069,533	697,775	630,673	152,304	⁴ ...	7,866,519
1912-13	2,940,230	2,762,163	1,153,384	733,159	646,218	160,792	...	8,395,946
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
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
1910-11	3,585,424	2,457,678	1,771,876	1,322,339	1,174,075	124,354	³ 3,098	10,438,844
1911-12	3,715,707	2,506,982	1,940,596	1,345,879	1,173,844	148,199	⁴ ...	10,831,207
1912-13	3,705,375	2,352,638	2,140,503	1,441,859	1,299,019	154,522	...	11,093,916
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
MISCELLANEOUS RECEIPTS.								
1901-2	37,053	68,163	84,511	34,453	41,611	6,954	1,494	274,239
1910-11	71,056	83,677	24,013	51,192	73,751	9,430	³ 959	314,078
1911-12	84,025	87,492	22,729	46,909	80,087	12,283	⁴ ...	333,525
1912-13	103,380	90,641	27,785	47,418	92,616	11,799	...	373,639
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

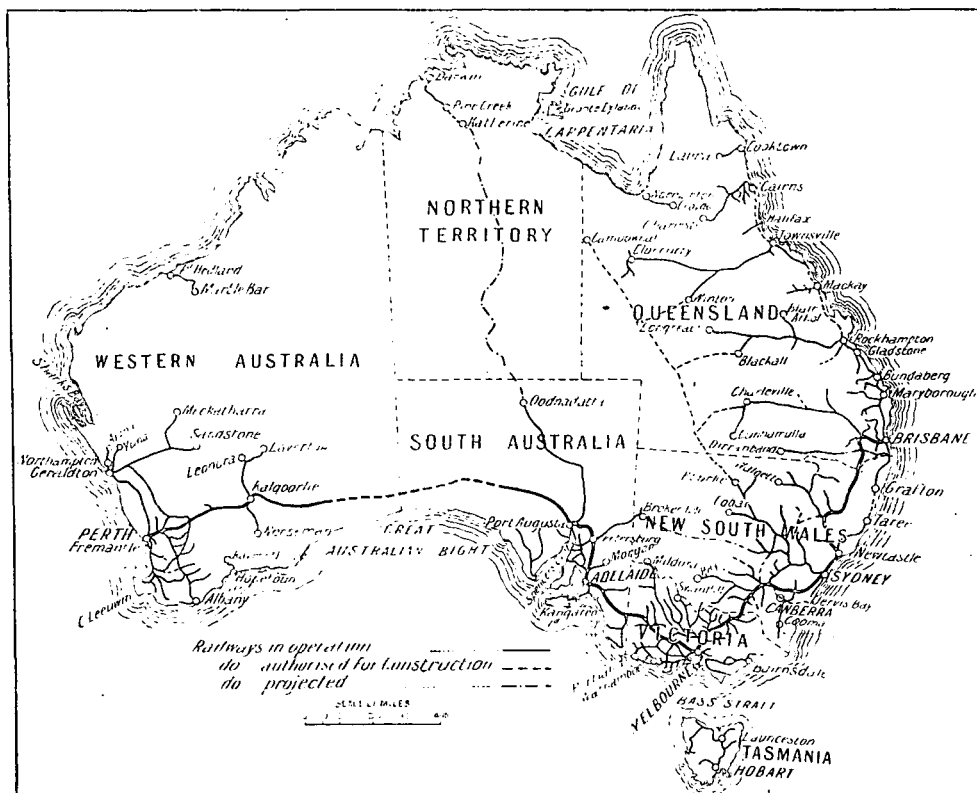
¹ Tasmanian figures for 1902 are for year ended the 31st December. ² Exclusive of Port Augusta-Oodnadatta line as from 1st January, 1911 (see page 631). ³ For six months only. ⁴ See Commonwealth Government railways for total gross revenue (page 631).

(i.) *New South Wales.* The total earnings for the past year amounted to £7,616,511, a decrease of £125,730 as compared with the previous year. An increase of £78,782 took place in the coaching traffic, but a decrease of £204,512 occurred in the receipts from goods and live stock and miscellaneous.

(ii.) *Victoria.* In Victoria, traffic receipts shew a decrease of £399,885 as compared with the previous year. This was due to a drop of £73,032 and £335,040 in the receipts from coaching and goods and live stock traffic respectively, though there was an increase of £8187 in miscellaneous receipts.

(iii.) *Queensland.* In Queensland, the increase in 1914-15 in gross earnings, £171,981 above 1913-14, is to some extent accounted for by the opening of new lines. The increases in earnings were in respect of passengers £27,495 and general merchandise £156,594, miscellaneous receipts shewing a drop of £12,108.

THE GOVERNMENT RAILWAY SYSTEMS OF THE COMMONWEALTH.



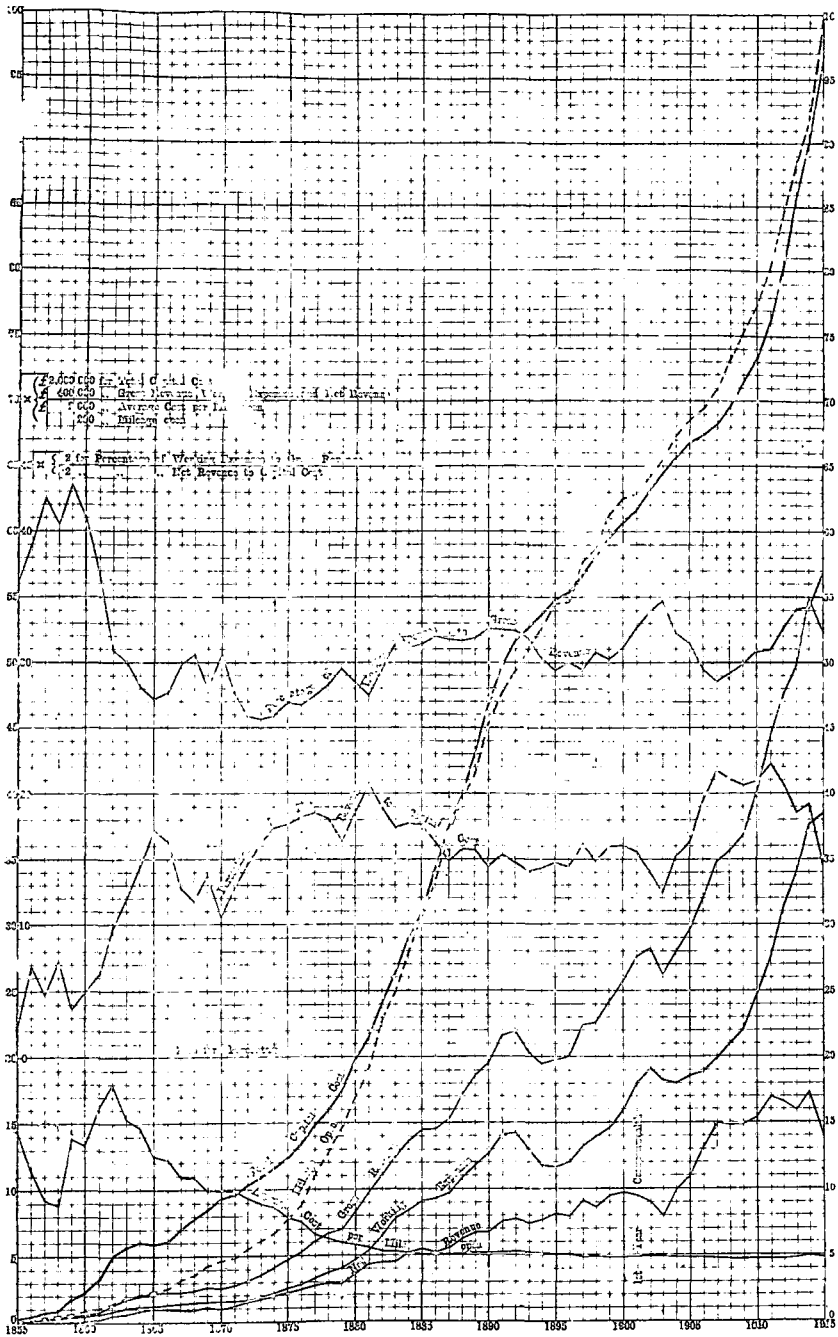
EXPLANATION OF MAP.—The continuous lines denote the existing railway lines of Australia, the heavier lines being the main routes.

Of the two transcontinental lines, viz., one joining the railways of South and Western Australia—and thus connecting continuously by railway Queensland, New South Wales, Victoria, South Australia, and Western Australia, and one connecting Oodnadatta in South Australia with Pine Creek in the Northern Territory, the former has been commenced, 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 Hay ...	460	Adelaide to Broken Hill ...	335
Townsville to Selwyn ...	552	" Nimmittel ...	291	" Oodnadatta ...	688
Rockhampton to Longreach	425	" Melbourne (17 hrs.)	582½	Perth to Laverton ...	586
Brisbane to Cunnamulla ...	604	Adelaide to Melbourne (17 hrs.)	482½	" Meekatharra ...	597
Brisbane to Sydney (24 hrs.)	725	Melbourne to Merbein ...	358	" Albany ...	340
Newcastle to Inverell ...	405	" Swan Hill ...	215	Hobart to Launceston ...	133
Sydney to Bourke ...	508	" Murrayville ...	357		

GRAPHS SHEWING THE FINANCIAL POSITION OF THE GOVERNMENT RAILWAYS OF
THE COMMONWEALTH, 1855 TO 1915.



(See page 666.)

(For explanation of graph see next page.)

EXPLANATION OF GRAPHS.—In the preceding 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 £2,000,000.

In the three lighter curves, representing (i.) gross revenue, (ii.) working expenses, and (iii.) net revenue, the vertical height of each small square denotes £100,000. For the curve of average cost per mile open, the vertical side of the small square denotes £2000. The mileage open is shown by a dotted curve, the vertical side of each square representing 200 miles.

For the percentages a new zero is taken at "20" on the scale for the general diagram. The vertical height of each square represents 2 per cent. in the curves shewing the percentage of working expenses to gross revenue. For the curve of percentage of net revenue to capital cost, the vertical height of each square represents only 0.2, that is to say, the vertical scale is ten times that of the preceding curve.

GRAPHS SHEWING PERCENTAGES OF WORKING EXPENSES TO GROSS REVENUE FOR GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 TO 1915.

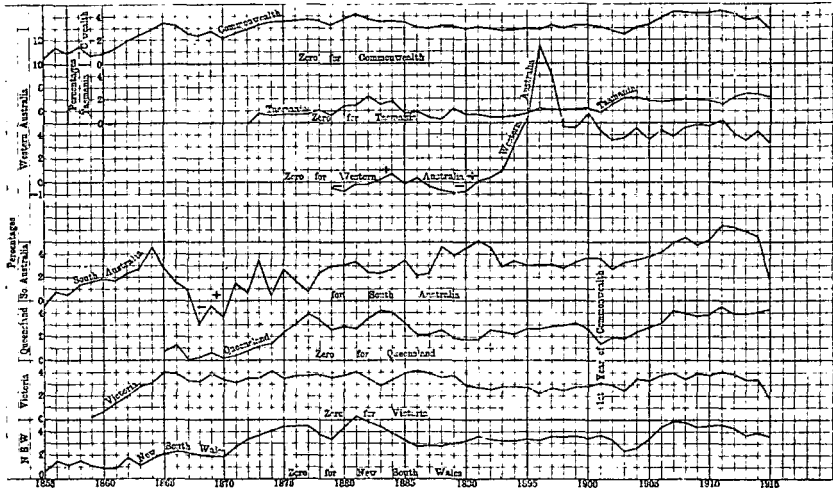


(See page 651.)

EXPLANATION OF GRAPHS.—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 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.

GRAPHS SHEWING PERCENTAGES OF NET REVENUE TO CAPITAL COST OF GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 to 1915.



(See page 654.)

EXPLANATION OF GRAPHS.—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 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.

(iv.) *South Australia.* In this State every item of traffic with the exception of mails, parcels, etc., and live stock gave a decreased return on the figures of the previous year; the principal decreases being in minerals (£335,418), wheat (£78,146), and general goods (£76,473).

(v.) *Western Australia.* In this State the earnings in 1914-15 shewed a decrease of £198,767 as compared with 1913-14. Of this sum, £138,009 was in respect of goods, and £46,539 for passenger traffic, the live stock receipts shewing an increase of £13,853.

(vi.) *Tasmania.* The gross revenue in 1914-15 shews a decrease of £6903 as compared with the previous year. The decrease is confined to passenger traffic, the earnings from goods and live stock traffic being the same as in the previous year.

The following table shews for the year 1914-15 the percentage which each class of receipts bears to the total gross revenue:—

**PERCENTAGE OF REVENUES FROM VARIOUS SOURCES ON TOTAL REVENUE,
1914-15.**

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching traffic receipts ...	43.53	54.17	33.52	38.30	30.00	48.79	42.63
Goods and live stock traffic receipts ...	55.22	43.95	65.67	60.10	65.63	47.59	55.67
Miscellaneous receipts ...	1.25	1.88	0.81	1.60	4.37	3.62	1.70

9. Coaching Traffic Receipts per Average Mile Worked, per Passenger-train Mile, and per Passenger Journey.—The subjoined table shews the receipts from coaching traffic per average mile of line worked, per passenger-train mile, and per passenger journey in each State and for all States for the year ended the 30th June, 1915:—

**STATE RAILWAYS.—COACHING TRAFFIC RECEIPTS PER MILE WORKED, PER
PASSENGER-TRAIN MILE, AND PER PASSENGER JOURNEY, 1914-15.**

State.	Number of Passenger-Train Miles. ¹	Number of Passenger Journeys.	Coaching Traffic Receipts.			
			Gross.	Per Average Mile Worked.	Per Passenger-Train Mile.	Per Passenger Journey.
	No.	No.	£	£	d.	d.
New South Wales ...	10,098,959	88,774,451	3,315,294	817	78.79	8.96
Victoria ...	8,270,901	117,259,926	2,795,673	727	81.12	5.72
Queensland ...	3,387,064	24,257,552	1,284,595	272	91.02	12.71
South Australia ...	2,814,983	18,831,273	668,403	330	56.99	8.52
Western Australia ...	2,236,740	18,635,327	617,553	199	66.26	7.95
Tasmania ...	454,353	1,750,905	157,726	294	83.31	21.62
Total ...	27,263,000	269,509,434	8,839,244	483	77.81	7.87

1. 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 ...	1,353,920	Western Australia ...	1,198,146
Victoria ...	2,590,960	Tasmania ...	654,899

The preceding table shews that, in all the States, there is a considerable difference in the amount of the average receipts per passenger journey. This amount ranges from 5.72 pence in Victoria, where there is a large metropolitan suburban traffic, to 21.62 pence in Tasmania. The difference in these amounts cannot be accounted for by the amounts of rates charged, which are fairly uniform in the several States (see paragraph 17), but is largely due to the different traffic conditions which prevail on various lines in the Commonwealth (see paragraph 14). In order to analyse these figures adequately it would be necessary to have particulars regarding the number of passenger-miles, *i.e.*, the total distance travelled by passengers, in each State, which particulars are not generally available (see paragraph 15.)

The preponderance in the number of passenger journeys 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, 108,721,181 were metropolitan suburban passengers, *i.e.*, were carried between stations within twenty miles of Melbourne, while in New South Wales the number of suburban passengers between stations within thirty-four miles of Sydney, including the Richmond line, and of Newcastle, including Branxton, was 79,914,452. 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 1914-15 being 272,659,500. In Melbourne, on the other hand, the number of passengers carried on the cable tramways systems during the same period was 87,707,934; the number carried on the St. Kilda-Brighton, Prahran-Malvern and the North Melbourne tramways 24,216,892, and the number carried by motor-bus services 6,796,404, making a total of 118,721,230. This is exclusive of 352,189 passengers carried by the omnibuses of the Melbourne Tramway and Omnibus Company. This matter is referred to hereinafter. (See paragraph 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, 1915:—

STATE RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS PER MILE WORKED, PER GOODS-TRAIN MILE, AND PER TON CARRIED, 1915.

State.	Number of Goods-Train Miles. 1	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 ...	10,321,064	11,920,881	4,206,234	1,037	97.81	84.68
Victoria ...	7,032,308	5,410,045	2,268,375	589	77.42	100.63
Queensland ...	8,601,457	4,970,873	2,516,380	532	70.21	121.49
South Australia ...	2,765,696	2,076,280	1,049,074	518	91.04	121.26
Western Australia ...	3,168,074	2,523,859	1,350,740	436	102.33	128.45
Tasmania...	550,792	408,069	153,845	287	67.04	90.48
Total...	32,439,391	27,310,007	11,544,648	631	85.41	101.45

1. 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 ...	1,353,920	Western Australia ...	1,198,146
Victoria	2,590,960	Tasmania ...	654,899

From the preceding table it may be seen that the average cost of freight per ton ranges from 84.68 pence in New South Wales to 128.45 pence in Western Australia. The remarks made in the preceding paragraph (9) hereof with regard to the average fare paid per passenger and to passenger-miles, apply equally to the average amount of freight paid per ton and to ton-miles.

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 also the percentage of these expenditures upon the corresponding gross revenues in each State for 1901-2 and for each year 1910-15:—

STATE RAILWAYS.—TOTAL WORKING EXPENSES AND PERCENTAGES OF WORKING EXPENSES UPON GROSS REVENUES, 1901-2 and 1910-15.

Year.	N.S.W.	Victoria. ¹	Q'land.	S. Aust. ⁴	W. Aust.	Tas.	N. Ter.	All States.
TOTAL WORKING EXPENSES.								
1901-2	£ 2,342,369	£ 2,166,119	£ 992,751	£ 689,517	£ 1,256,370	£ 173,292 ²	£ 34,649	£ 7,655,067
1910-11	3,691,061	3,099,504	1,563,119	1,322,439	1,216,477 ⁵	215,530	6,396 ⁶	11,014,526
1911-12	4,169,591	3,441,903	1,917,366	1,393,987	1,343,977	221,172	...	12,387,796
1912-13	4,644,881	3,589,194	2,150,991	1,393,775	1,506,500	217,357	...	13,502,798
1913-14	5,409,920	3,865,498	2,371,261	1,505,765	1,572,008	232,713	...	14,947,065
1914-15	5,311,162	4,238,411	2,401,679	1,448,495	1,497,826	225,995	...	15,123,568

PERCENTAGE OF WORKING EXPENSES ON GROSS EARNINGS.

	%	%	%	%	%	%	%	%
1901-2	63.85	64.32	71.83	63.54	82.58	74.31 ²	276.70	67.92
1910-11	61.09	63.30	57.25	60.66	65.95	77.55	108.28 ⁵	61.84
1911-12	64.23	65.95	63.22	61.90	71.31	70.71	...	65.33
1912-13	68.82	68.95	64.76	62.71	73.93	66.45	...	68.11
1913-14	69.87	69.51	64.79	64.43	69.65	67.45	...	68.29
1914-15	69.73	82.12	62.67	82.99	72.77	69.91	...	72.93

1. Including amounts paid for pensions and gratuities, and also special expenditures and charges for belated repairs and in reduction of deficiencies. 2. For the calendar year 1902. 3. See Commonwealth Government railways, page 632. 4. Exclusive of the Port Augusta-Oodnadatta line as from 1st January, 1911. 5. Including the cost of the replacement of rolling stock destroyed by fire (£12,657). 6. For six months only.

(i.) *New South Wales.* In this State the total working expenses in 1914-15 amounted to £5,311,162, a decrease of £98,658 as compared with the previous year. This decrease was mainly owing to the reduction of train mileage to meet the loss of traffic in grain and minerals.

(ii.) *Victoria.* In Victoria the increase in working expenses, £372,913, was mainly due to the additional train mileage and to special and abnormal expenses owing to drought, the war, etc.

(iii.) *Queensland.* In this State the working expenses increased from £2,371,261 in 1913-14 to £2,401,679 in 1914-15. The increase is mainly due to the additions to the train mileage owing to the opening of new lines.

(iv.) *South Australia.* In South Australia the working expenses in 1913-14 shewed a decrease of £57,270, viz., from £1,505,765 to £1,448,495. This was due to a heavy drop in train mileage owing to the drought and consequent loss of traffic.

(v.) *Western Australia.* In this case the expenditure was £74,182 lower than in the previous year, caused by a reduction in the train mileage to meet the shortage of traffic caused by the adverse season.

(vi.) *Tasmania.* The working expenses in 1913-14 were £225,995, as compared with £222,713 in the previous year, being an increase of £3282.

In the preceding table it will be observed that there has been an annual increase during the last five financial years in the percentages of the total working expenses to the total gross earnings of the States' railways.

(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 1910-15:—

**STATE RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED AND
PER TRAIN MILE RUN, 1901-2 and 1910-15.**

Year.	N.S.W.	¹ Victoria.	Q'land.	⁴ S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
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WORKING EXPENSES PER AVERAGE MILE WORKED.

	£	£	£	£	£	£	£	£
1901-2 ...	793	663	354	397	927	² 370	238	602
1910-11 ...	995	884	412	729	532	451	³ 88	710
1911-12 ...	1,098	971	463	885	544	440	...	778
1912-13 ...	1,200	986	494	908	541	428	...	809
1913-14 ...	1,367	1,032	526	830	540	424	...	856
1914-15 ...	1,309	1,101	508	715	484	422	...	827

WORKING EXPENSES PER TRAIN MILE RUN.

	d.	d.	d.	d.	d.	d.	d.	d.
1901-2 ...	48.26	46.07	42.05	39.44	66.89	² 46.06	274.67	48.05
1910-11 ...	52.09	57.34	40.05	50.10	58.82	49.68	³ 99.09	51.61
1911-12 ...	54.08	59.70	44.55	51.51	61.71	50.72	...	54.07
1912-13 ...	58.11	60.52	45.03	52.74	64.30	51.83	...	56.01
1913-14 ...	63.18	61.73	50.16	53.69	67.80	53.41	...	59.57
1914-15 ...	62.42	66.47	48.08	62.29	66.51	53.96	...	60.80

¹ Including special expenditure and charges referred to in paragraph 11 hereof. ² For the calendar year 1902. ³ For 6 months only. ⁴ Excluding the Port Augusta-Oodnadatta line as from the 1st of January, 1911 (see page 630).

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 1910-15:—

STATE RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1901-2 and 1910-15.

Year.	N.S.W.	Victoria. ¹	Q'land.	S. Aust. ⁴	W. Aust.	Tas.	N. Ter.	All States.
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MAINTENANCE.

	£	£	£	£	£	£	£	£
1901-2 ...	554,483	490,438	355,615	166,691	246,931	² 58,612	29,001	1,901,771
1910-11 ...	810,196	753,312	499,891	324,616	271,862	65,774	³ 3,796	2,729,447
1911-12 ...	906,001	840,141	562,097	308,479	291,490	63,669	...	2,971,877
1912-13 ...	1,024,215	876,631	601,866	291,361	322,267	58,534	...	3,174,874
1913-14 ...	1,109,749	928,702	649,925	308,244	362,517	57,685	...	3,416,822
1914-15 ...	918,790	838,014	626,798	283,387	346,771	58,253	...	3,072,013

LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.

	£	£	£	£	£	£	£	£
1901-2 ...	1,102,314	845,464	389,766	343,572	670,485	² 63,732	3,210	3,418,603
1910-11 ...	1,770,487	1,263,858	603,976	575,744	593,507	84,787	³ 1,634	4,893,993
1911-12 ...	1,984,997	1,390,378	793,840	631,939	655,795	88,254	...	5,545,203
1912-13 ...	2,162,217	1,465,732	814,827	729,675	747,240	96,300	...	6,105,981
1913-14 ...	2,687,079	1,636,480	1,015,522	803,421	746,822	96,676	...	6,986,060
1914-15 ...	2,755,669	1,716,795	1,051,683	790,672	714,173	99,829	...	7,126,821

TRAFFIC EXPENSES.

	£	£	£	£	£	£	£	£
1901-2 ...	588,938	671,588	226,237	162,626	306,409	² 42,416	2,108	2,000,322
1910-11 ...	968,064	766,784	428,790	296,925	317,068	54,254	³ 778	2,832,663
1911-12 ...	1,133,539	901,024	516,838	325,259	359,025	57,570	...	3,293,255
1912-13 ...	1,343,707	947,868	585,681	346,705	397,274	60,820	...	3,682,055
1913-14 ...	1,491,423	1,066,738	656,406	365,954	415,836	57,731	...	4,054,088
1914-15 ...	1,502,945	1,081,816	671,622	347,427	392,628	57,814	...	4,054,262

OTHER CHARGES.

	£	£	£	£	£	£	£	£
1901-2 ...	96,634	158,629	21,133	16,628	32,545	² 8,472	330	334,371
1910-11 ...	142,314	315,550	30,462	25,154	34,040	10,715	³ 188	558,423
1911-12 ...	145,054	310,260	44,491	25,310	37,667	11,679	...	577,461
1912-13 ...	114,742	298,863	46,617	26,034	39,819	11,703	...	539,878
1913-14 ...	121,569	233,578	49,408	28,146	46,773	10,621	...	490,095
1914-15 ...	133,758	601,786	51,576	26,999	44,254	10,099	...	868,472

1. Including special expenditure and charges referred to in paragraph 11 hereof. 2. For the calendar year 1902. 3. For six months only. 4. Excluding the Port Augusta-Oodnadatta line as from the 1st of January, 1911 (see page 632).

13. **Net Revenue, Total and per Cent. on Capital Cost.**—The following table shews the net sums available to meet interest charges, and 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 1910-15:—

**STATE RAILWAYS.—NET REVENUE AND PERCENTAGE OF NET REVENUE
UPON CAPITAL COST OF LINES OPEN, 1901-2 and 1910-15.**

Year.	N.S.W.	¹ Victoria.	Q'land.	⁴ S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
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NET REVENUE.

	£	£	£	£	£	£	£	£
1901-2	1,326,317	1,201,724	389,428	395,658	265,059	² 59,919	—22,127	3,615,978
1910-11	2,351,144	1,796,706	1,167,311	792,743	627,942	62,386	³ —489	6,797,743
1911-12	2,321,882	1,777,164	1,115,592	796,573	540,627	91,614	...	6,643,455
1912-13	2,104,104	1,616,248	1,170,681	828,661	531,253	109,756	...	6,360,703
1913-14	2,332,421	1,695,460	1,288,761	831,486	685,003	107,455	...	6,940,586
1914-15	2,305,349	922,662	1,430,324	296,883	560,418	97,270	...	5,612,906

PERCENTAGE OF NET REVENUE ON CAPITAL EXPENDITURE.

	%	%	%	%	%	%	%	%
1901-2	3.27	2.96	1.94	2.98	3.58	² 1.56	—1.91	2.86
1910-11	4.62	4.07	4.51	6.47	5.22	1.53	³ —0.05	4.56
1911-12	4.37	3.88	3.95	6.22	4.09	2.15	...	4.23
1912-13	3.69	3.40	3.93	5.90	3.56	2.49	...	3.80
1913-14	3.88	3.44	4.05	5.46	4.32	2.39	...	3.93
1914-15	3.60	1.79	4.28	1.79	3.30	2.10	...	3.00

¹ In addition to ordinary working expenses, special expenditures and charges paid out of each year's gross revenue have been deducted; see paragraph 11 above. ² For the calendar year 1902.

³ For 6 months only. ⁴ Exclusive of Port Augusta-Oodnadatta line as from the 1st of January, 1911 (see page 632).

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

(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 tables:—

**STATE RAILWAYS.—NET REVENUE PER AVERAGE MILE WORKED AND PER
TRAIN MILE RUN, 1901-2 and 1910-15.**

Year.	N.S.W.	¹ Victoria.	Q'land.	⁴ S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
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NET REVENUE PER AVERAGE MILE WORKED.

	£	£	£	£	£	£	£	£
1901-2	449	368	199	228	195	² 128	—153	284
1910-11	634	513	308	473	275	131	³ —7	438
1911-12	611	502	269	545	219	182	...	417
1912-13	543	444	269	540	191	216	...	381
1913-14	589	452	286	458	235	205	...	397
1914-15	568	240	302	147	181	181	...	307

NET REVENUE PER TRAIN MILE RUN.

	d.	d.	d.	d.	d.	d.	d.	d.
1901-2	28.87	25.56	16.50	22.53	14.11	² 15.93	—175.40	23.16
1910-11	33.18	33.24	29.91	32.49	30.37	14.38	³ —7.58	31.85
1911-12	30.09	30.83	25.93	31.71	24.82	21.01	...	29.00
1912-13	26.32	27.25	24.51	31.35	22.67	26.17	...	26.39
1913-14	27.24	27.07	27.26	29.64	29.54	25.77	...	27.66
1914-15	27.10	14.47	28.63	12.77	24.89	23.23	...	22.56

1. In addition to ordinary working expenses, special expenditure and charges paid out of each year's gross revenue have been deducted; see paragraph 11 above. ² For the calendar year 1902.

³ For six months only. ⁴ Exclusive of Port Augusta-Oodnadatta line as from the 1st of January, 1911 (see p. 630).

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

14. **Traffic Conditions.**—Reference has already been made to the difference in the traffic conditions on many of the lines of the Commonwealth (see paragraphs 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; 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 1914-15:—

PASSENGER JOURNEYS AND TONNAGE OF GOODS AND LIVE STOCK, 1914-15.

Particulars.				N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Total.
(a) PER 100 OF MEAN POPULATION.										
Passenger journeys	...	...	No.	4,769	8,196	3,585	4,263	5,769	869	5,461
Goods and live stock	...	...	Tons	640	378	735	470	781	203	553
(b) PER AVERAGE MILE OF LINE WORKED.										
Passenger journeys	...	...	No.	21,882	30,473	5,128	9,235	6,019	3,267	14,733
Goods and live stock	...	...	Tons	2,938	1,406	1,051	1,025	815	761	1,493

¹ Exclusive of the returns of the Federal lines.

Particulars of the actual numbers of passengers and tons of goods and live stock carried have already been given (see paragraph 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 1914-15:—

METROPOLITAN, SUBURBAN, AND COUNTRY PASSENGER TRAFFIC, 1914-15.

Particulars.	Number of Passenger Journeys.			Revenue.		
	Metropolitan.	Country.	Total.	Metropolitan.	Country.	Total.
N.S.W. ...	¹ 79,914,452	8,859,900	88,774,352	¹ 1,021,195	1,889,489	2,910,684
Victoria ...	² 108,721,181	8,538,745	117,259,926	² 1,123,100	1,335,958	2,459,058

¹ Within 34 miles of Sydney and Newcastle, and including the Richmond line.

² Within 20 miles of Melbourne, but exclusive of St. Kilda-Brighton tramway.

From this table it may be seen that the number of passenger-journeys in country districts in Victoria was slightly less than the corresponding number in New South Wales, while the number of metropolitan passenger-journeys in Victoria was far 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.

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 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 at once proceed 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 has been postponed. In Sydney, a Metropolitan Railway Construction Branch of the Railway Department has been created to deal specially with this matter. The Minister has approved of the construction of an underground city railway, and the plans have been prepared, and a commencement has been made with the preliminary works. The preliminary work in the location of a system of electric railways for the eastern, western and northern suburbs is also in hand.

(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 sub-divisions 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 1914-15:—

CLASSIFICATION OF COMMODITIES CARRIED, 1914-15.

State.	Minerals.	Fire-wood.	Grain and Flour.	Hay, Straw, and Chaff.	Wool.	Live Stock.	All other Commodities.	Total.
TONS CARRIED.								
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales ...	17,344,823	190,432	248,876	429,228	132,895	849,604	2,230,248	11,660,106
Victoria ...	1,238,067	451,556	313,143	474,013	58,395	715,521	2,159,350	5,410,045
Queensland ...	1,506,678	250,798	39,532	320,390	76,754	570,222	2,206,499	4,970,873
South Australia ...	896,079	121,727	91,578	142,874	19,954	133,439	670,629	2,076,290
Western Australia ...	520,283	647,287	150,654	102,254	6,200	69,838	1,027,343	2,523,859
Tasmania ...	102,192	25,208	"	61,733	4,512	20,345	194,079	406,069
⁷ Total ...	11,608,122	1,687,008	1,077,783	1,530,492	298,710	2,358,969	8,488,148	27,049,232
PERCENTAGE ON TOTAL TONNAGE CARRIED.								
	%	%	%	%	%	%	%	%
New South Wales ...	162.99	1.63	24.14	3.68	1.14	7.29	19.13	100.00
Victoria ...	32.88	9.35	5.79	8.76	1.08	13.23	39.91	100.00
Queensland ...	30.31	5.05	40.79	56.45	1.54	11.47	44.39	100.00
South Australia ...	43.16	5.86	4.41	6.88	0.96	6.43	32.30	100.00
Western Australia ...	20.61	25.65	5.97	4.05	0.25	2.76	40.71	100.00
Tasmania ...	25.04	6.18	"	15.13	1.10	4.99	47.56	100.00
⁷ Total ...	42.91	6.24	3.98	5.66	1.11	8.72	31.38	100.00

1. Exclusive of 260,775 tons of coal, on which only shunting and haulage were collected. 2. Up journey only. 3. Coal, stone, gravel, and sand. 4. Flour only. 5. Sugar cane. 6. Included in all other commodities. 7. Exclusive of Federal lines.

15. **Passenger-Mileage and Ton-Mileage.**—The useful comparisons and analyses which can be made with regard to the operations of the Government railways in the Commonwealth are to some extent limited by the absence in the annual reports of the Railway Departments of some of the States of particulars relating to “passenger-mileage” (*i.e.*, the total distance travelled by passengers) and “ton-mileage” (*i.e.*, the total distance for which goods and live stock are carried), and it is not possible to furnish totals for the Commonwealth in respect of these important particulars. The following resolution in regard thereto was passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909:—“That, in view of the differing conditions in each State, and of the expense involved, it is undesirable to include passenger-mile and ton-mile statistics in the annual reports.” The general question as to the desirability of collecting and publishing “passenger-mile” and “ton-mile” statistics by railway companies in the United Kingdom has been made the subject of inquiry by a departmental committee appointed by the President of the Board of Trade. The report of this committee has been published in England as a parliamentary paper.¹

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 is the only one which furnishes the information in a classified form according to class of passengers and nature of commodities carried. The other two States supply particulars for all classes of passengers and goods together respectively. Western Australia furnished particulars as to ton-miles for the years 1907-12, but has since discontinued to record them. The mere record of the total number of passenger-miles and ton-miles for all classes of passengers and for all classes of goods respectively, although of considerable value, would appear to be insufficient to enable the whole field of railway operations to be adequately analysed, or the extent to which efficiency has been secured and improvements in working have been effected to be accurately gauged.

(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 only available for suburban and extended-suburban traffic—*i.e.*, including all stations within 34 miles of Sydney (including the Richmond line), and of Newcastle (including Branxton), 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,” etc., is obtained by dividing the number of “passenger-miles” by the number of “passenger-train-miles.” The averages given for New South Wales prior to 1911 are naturally smaller than those for the other States, since the figures for that State refer to suburban and extended-suburban traffic only.

¹ See Cd. 4697. This report is also published at length in “The Statist,” London, 19th June, 1909, Vol. LXII., No. 1634. In this report it is stated that ton-mile statistics have been used in India for forty years, and for a longer period in America. They are now compiled by the railways of nearly all foreign countries; in England, however, they are not generally compiled. Among the more important statistics deduced from ton-miles and passenger-miles the following are mentioned:—(a) The average Train Load of goods and of passengers, obtained by dividing the ton-mileage and the passenger-mileage respectively by the train-mileage. (b) The average Wagon Load and Carriage Load, obtained by dividing the ton-mileage by the wagon-mileage and the passenger-mileage by the carriage-mileage. (c) Ton-miles per Engine Hour. (d) The average Length of Haul for goods and passengers respectively, obtained by dividing the ton-mileage and the passenger-mileage by the tonnage and the total number of passengers conveyed. (e) The average Receipts per Ton per Mile and per Passenger per Mile, obtained by dividing the goods receipts by the ton-mileage and the passenger receipts by the passenger-mileage. (f) The average Density of Traffic per mile of road or per mile of track, obtained by dividing the ton-mileage and passenger-mileage by the length of road or by the length of track.

SUMMARY OF "PASSENGER MILES," 1901-2 and 1911-15.

Year ended the 30th June.	Pass'nger 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.¹

1902 ¹	... ²	27,999	184,064	361,849	... ²	6.57	0.47	2.92	... ²
1911	8,094	60,920	906,217	2,074,860	112	14.88	0.55	8.17	244,066
1912	8,978	70,707	1,091,088	2,349,279	121	15.43	0.51	7.97	287,204
1913	9,667	79,490	1,192,584	2,571,446	123	15.00	0.54	7.76	308,002
1914	10,081	86,328	1,235,025	2,832,450	123	14.37	0.55	7.87	312,804
1915	10,099	88,774	1,230,901	2,910,684	122	13.87	0.57	7.87	303,402

SOUTH AUSTRALIA.³

1911	2,405	16,620	195,216	535,527	81	11.75	0.65	7.73	101,940
1912	2,614	18,353	213,262	589,045	81	11.62	0.67	7.70	110,042
1913	2,804	19,382	228,707	619,094	81	11.80	0.64	7.66	135,321
1914	2,951	19,809	236,717	635,967	80	11.95	0.64	7.70	128,301
1915	2,815	18,881	215,489	560,012	77	11.44	0.62	7.14	106,362

TASMANIA.

1902 ⁴	336	761	19,444	88,541	58	25.60	1.09	27.91	42,086
1911	381	1,682	34,758	119,454	91	20.66	0.82	17.04	72,716
1912	396	1,715	34,292	126,886	86	19.99	0.87	17.75	68,174
1913	438	1,650	35,607	135,545	81	21.58	0.91	19.71	70,092
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

¹ Suburban lines only for year 1902; includes distances within 34 miles of Sydney and Newcastle, and including the Richmond line. ² Not available. ³ Exclusive of the returns of the Port Augusta to Oodnadatta line on and after 1st January, 1911. ⁴ 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; figures for subsequent years are not available. 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 they include terminals, while in Western Australia they exclude wharfage and jetty dues, but include all other charges.

SUMMARY OF "TON MILES," 1901-2 and 1911-15.

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.	No. .

NEW SOUTH WALES.

1902	6,586	6,164	436,814	1,947,305	66.32	70.87	1.07	148,464
1911	8,913	10,055	810,949	3,079,783	90.98	80.65	0.91	218,408
1912	9,543	10,632	862,016	3,181,771	90.32	81.08	0.89	226,906
1913	9,518	11,402	861,940	3,153,626	90.57	75.60	0.88	222,608
1914	10,469	12,901	1,037,911	3,760,384	99.09	80.45	0.87	262,053
1915	10,321	11,660	916,923	3,633,613	89.84	78.64	0.95	225,996

SOUTH AUSTRALIA.¹

1902	2,468	1,392	170,523	681,045	69.09	122.48	0.96	98,803
1911	3,451	2,731	328,181	1,322,339	95.09	120.15	0.97	171,374
1912	3,415	2,782	334,146	1,345,879	97.87	120.11	0.97	172,418
1913	3,539	3,016	355,405	1,441,859	100.42	117.84	0.97	176,642
1914	3,780	3,103	400,387	1,534,187	105.93	129.65	0.92	217,012
1915	2,766	2,076	237,014	1,049,074	85.70	114.15	1.06	116,972

WESTERN AUSTRALIA.²

1907	1,940	2,091	144,856	964,653	74.67	69.26	1.60	86,429
1908	1,976	2,059	142,719	948,373	72.22	69.32	1.59	77,989
1909	2,011	1,997	143,629	945,956	71.41	71.92	1.58	72,871
1910	2,281	2,242	163,651	1,042,789	71.75	73.00	1.53	77,855
1911	2,548	2,489	182,738	1,154,662	71.71	73.42	1.52	79,938
1912	2,747	2,542	184,748	1,154,087	67.25	72.67	1.49	77,767

TASMANIA.³

1902 ⁴	567	407	14,331	109,266	25.26	35.30	1.82	31,019
1911	660	346	16,382	115,008	24.83	47.32	1.68	34,271
1912	651	452	17,672	138,184	27.16	39.09	1.87	35,133
1913	569	447	17,747	144,073	31.17	39.67	1.94	34,104
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

¹ Inclusive of the returns of the Port Augusta to Oodnadatta line to 31st December, 1910.

² Particulars for 1913, 1914, and 1915 and for years prior to 1907 not available. ³ Exclusive of live stock. ⁴ To 31st December.

(iii.) *Classification of Commodity Ton Mileage.* New South Wales is the only State for which particulars, specifying the ton-mileage and the earnings per ton-mile for various classes of commodities, are available. It is hoped that in future years it will be possible to give corresponding particulars for the other States.

The subjoined statement gives particulars for the last financial year. Miscellaneous traffic consists of timber, bark, firewood, bricks, drain-pipes, coal, road-metal in eight-ton lots, 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, cement, 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 260,775 tons of coal on which only shunting and haulage charges were collected, nor does it include £60,722 for haulage, tonnage dues, etc.

**NEW SOUTH WALES.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th
JUNE, 1915.**

Particulars.	Total Tons Carried.	Total Miles Carried.	Average Miles per Ton.	Earnings (exclusive of Ter- minals).	Earnings per Ton- Mile.	Percentage on Total Tonnage.
	1000 Tons.	1000 Miles.	Miles.	£	d.	per cent.
Coal, coke, and shale ...	6,389	160,074	25.05	361,520	0.54	54.79
Other minerals ...	732	37,014	50.55	82,258	0.53	6.28
Crude ores ...	224	21,073	94.19	42,874	0.49	1.92
Miscellaneous ...	799	78,624	98.33	194,970	0.60	6.86
Firewood ...	190	6,580	34.55	19,907	0.73	1.63
Fruit ...	85	9,435	111.40	41,954	1.07	0.73
Grain, flour, etc. (Up Journey) ...	483	112,399	232.77	170,995	0.37	4.14
Hay, straw, and chaff ...	429	94,721	220.68	142,022	0.36	3.68
Frozen meat ...	52	6,626	127.61	27,160	0.98	0.45
General goods ...	2	613	356.25	6,620	2.59	0.01
A Class ...	498	46,740	93.83	216,244	1.11	4.27
B „ ...	413	36,870	89.31	263,234	1.71	3.54
C „ ...	32	1,426	44.12	18,133	3.05	0.28
1st Class ...	131	15,977	122.25	210,769	3.17	1.12
2nd „ ...	218	31,345	143.54	550,326	4.21	1.87
Wool ...	133	39,368	296.23	321,132	1.96	1.14
Live stock ...	850	218,038	256.64	963,495	1.06	7.29
Total ...	11,660	916,923	78.64	3,633,613	0.95	100.00

16. Interest Returned on Capital Expenditure.—It may be seen from the figures given in the table in paragraph 13 hereof, that the State Government railways in Australia have, on the whole, made a substantial profit during each year since the inception of the Commonwealth, but, unfortunately, the community does not get the full benefit of this profit, owing to the high rates of interest at which money for railways was borrowed in the early days. Though the average rate of interest for the year ended the 30th June, 1915, was 3.7 per cent., an average does not accurately express the position. At an early period the need of constructing railways for the sole purpose of opening 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 Commonwealth, forming, in fact, 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 up to a recent period is represented to a large extent by public works which pay 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 paragraph 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. Railways owned by the Commonwealth Government are not included in this return.

It will be seen that during the four years ended 30th June, 1914, all the States, with the exception of Queensland and 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, all the other States a loss, for reasons which have been referred to already.

STATE RAILWAYS.—INTEREST ON LOAN EXPENDITURE, PROFIT OR LOSS, AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST, 1901-2 and 1914-15.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
AMOUNT OF INTEREST ON RAILWAY LOAN EXPENDITURE.								
	£	£	£	£	£	£	£	£
1901-2 ...	1,434,638	1,492,635	837,205	469,787	234,932	140,550	47,012	4,656,819
1910-11 ...	1,797,146	1,514,657	952,818	477,632	403,551	155,819	^a 23,373	5,324,946
1911-12 ...	1,901,326	1,511,024	1,069,840	456,733	439,153	159,123	...	5,537,199
1912-13 ...	1,903,660	1,591,927	1,170,961	492,907	505,925	164,412	...	5,829,792
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

PROFIT OR LOSS AFTER PAYMENT OF WORKING EXPENSES, INTEREST, AND OTHER CHARGES.²

	£	£	£	£	£	£	£	£
1901-2 ...	-108,321	-290,971	-447,777	-74,129	+30,127	-80,631	-69,139	-1,040,841
1910-11 ...	+553,998	+282,049	+214,493	+315,111	+224,441	-93,433	^a -23,862	+1,472,797
1911-12 ...	+420,556	+266,140	+45,752	+339,844	+101,474	-67,509	...	+1,106,257
1912-13 ...	+200,444	+24,321	-280	+335,754	+25,328	-54,656	...	+530,911
1913-14 ...	+242,926	+21,424	-38,163	+264,989	+128,160	-61,813	...	+633,849
1914-15 ...	+26,279	-841,717	+118,128	-287,929	-25,651	-75,079	...	-1,085,969

PERCENTAGE OF PROFIT OR LOSS ON CAPITAL COST OF CONSTRUCTION AND EQUIPMENT.²

	%	%	%	%	%	%	%	%
1901-2 ...	-0.27	-0.72	-2.22	-0.58	+0.41	-2.10	-6.71	-0.82
1910-11 ...	+1.09	+0.64	+0.83	^a +2.19	+1.87	-2.29	^a -2.29	+0.98
1911-12 ...	+0.79	+0.58	+0.16	+2.65	+0.77	-1.59	...	+0.71
1912-13 ...	+0.35	+0.05	-0.00	+2.39	+0.17	-1.24	...	+0.32
1913-14 ...	+0.40	+0.04	+0.12	+1.74	+0.81	-1.37	...	+0.36
1914-15 ...	+0.04	-1.63	+0.35	-1.73	-0.15	-1.62	...	-0.85

¹ Inclusive of Port Augusta-Oodnadatta line to 31st December, 1910. ² The positive sign indicates a profit, the negative a loss. ³ Allowing for payment of special expenditure and charges (see paragraph 11 above). ⁴ Calculated on £14,409,483, the capital cost of the South Australian Railways, including the Port Augusta-Oodnadatta line. ⁵ For 6 months only

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, season, and excursion fares. (d) Special fares for working-men, 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). Generally, it may be said that mileage-rate fares are computed on the basis of about twopence per mile for first-class and about $1\frac{1}{2}$ pence per mile for second-class single tickets. In Tasmania, however, the fares are computed on the general basis of $1\frac{1}{2}$ pence per mile first-class, one penny per mile second-class, with a terminal charge of one penny, with one-sixth added to total. 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, South Australia, and Western Australia, first-class 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, and Tasmania the issue of ordinary return tickets has 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, 1915.

State.	For a journey of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.

FIRST-CLASS SINGLE FARES.

	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
New South Wales ¹ ...	4	7	11	2	24	3	37	5	50	6	60	9
Victoria ...	7	6	15	0	30	0	44	6	58	2	72	0
Queensland ...	8	2	15	4	29	1	43	4	56	0	68	8
South Australia ...	8	4	16	8	33	4	50	0	66	8	83	4
Western Australia ...	8	4	16	8	33	4	50	0	66	8	83	4
Tasmania ...	7	5	14	8	29	3	...	...	...	...	...	...
Average ² ...	7	5	14	11	29	11	45	1	59	7	73	6
Average per passenger-mile ² d.	1.78		1.79		1.80		1.80		1.78		1.76	

SECOND-CLASS SINGLE FARES.

	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
New South Wales ¹ ...	3	0	7	4	15	5	23	1	30	0	35	1
Victoria ...	5	0	10	0	20	0	29	8	38	10	47	10
Queensland ...	5	5	9	11	19	0	27	1	34	3	41	6
South Australia ...	5	3	10	5	20	10	31	3	41	8	52	1
Western Australia ...	5	3	10	5	20	10	31	3	41	8	52	1
Tasmania ...	5	0	9	10	19	7	...	...	...	...	...	...
Average ² ...	4	10	9	8	19	3	28	6	37	3	45	9
Average per passenger-mile ² d.	1.16		1.16		1.16		1.14		1.12		1.10	

1. Inclusive of suburban rates up to 34 miles. 2. Exclusive of Tasmania for hauls of 300 miles and upwards.

(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 75 miles, to eleven shillings and threepence for a parcel weighing from 84 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. 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 twelve shillings and threepence; in Western Australia thirteen shillings; and in Tasmania for a distance of 250 miles the rate is five shillings and sixpence.

(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 8 in Victoria to 15 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, excepting in Western Australia, where the terms refer to a special toll of 1s. per ton on goods travelling over certain "district" railways as part payment of the extra cost of working lines laid for developmental purposes through sparsely settled districts. In addition to the ordinary classification of freights under class (a), certain commodities, such as wool, grain, agricultural produce, and crude ores, are given special rates, lower than the mileage rates, under class (c).

Space will not permit of anything like a complete analysis of goods rates in the several States being here given. 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, 1915.

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 0	7 6	9 6	10 6	11 4	12 0
Victoria ...	5 6	8 6	10 6	12 4	14 0	15 8
Queensland ...	4 10	9 2	11 0	12 0	13 0	14 0
South Australia ¹ ...	6 2	8 9	12 11	17 1	21 3	25 5
Western Australia ...	6 3	8 11	12 1	17 0	22 0	24 0
Tasmania ...	6 9	9 8	13 0	...	...	...
Average ² ...	5 9	8 9	11 6	13 9	16 3	18 3
Average per ton-mile ² d.	1.38	1.05	0.69	0.55	0.48	0.43

1. Wheat is carried at a lower rate than that specified above for agricultural produce.
2. Exclusive of Tasmania for hauls of 300 miles and upwards.

The next tables shew 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 GOVERNMENT RAILWAYS, 1915.

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 ...	25	4	49	5	86	1	109	0	118	2	127	4
Victoria ...	21	3	42	0	79	6	108	9	133	9	158	9
Queensland ...	44	2	80	7	145	2	209	9	242	0	255	7
South Australia ...	27	1	52	1	97	11	134	7	166	8	194	2
Western Australia ...	37	4	64	7	114	5	156	2	190	4	218	9
Tasmania ...	33	9	54	0	100	0	...	...	...	...	...	...
Average ¹ ...	31	6	57	1	103	10	143	8	170	2	190	11
Average per ton-mile ² ...	d.	7.56	d.	6.85	d.	6.23	d.	5.75	d.	5.11	d.	4.58

LOWEST-CLASS FREIGHT.

	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
New South Wales ...	2	6	3	7	5	8	7	9	9	10	11	11
Victoria ...	4	3	6	8	10	0	11	10	13	6	15	2
Queensland ...	4	10	9	2	15	9	20	1	24	6	28	10
South Australia ...	3	4	6	3	10	0	12	4	14	0	15	8
Western Australia ...	5	0	8	4	14	2	19	2	23	4	27	6
Tasmania ...	5	0	6	9	8	6	...	...	...	...	...	...
Average ¹ ...	4	2	6	10	10	8	14	3	17	0	19	10
Average per ton-mile ² ...	d.	1.00	d.	0.82	d.	0.64	d.	0.57	d.	0.51	d.	0.48

1. Maximum freight on highest class goods to Western stations is 200 shillings per ton.

2. Exclusive of Tasmania for hauls of 300 miles and upwards.

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 in logs, and posts and rails.

18. **Numbers and Description of Rolling Stock, 1915.**—The following table shews the number of locomotives and rolling stock in use on the State Government railways in each State, classified according to gauge:—

CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK ON STATE GOVERNMENT RAILWAYS IN EACH STATE, 1914-15.

STATE.	GAUGE.					Total.	
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.		
LOCOMOTIVES.							
New South Wales	1,162	...	...	...	1,162
Victoria...	...	1775	...	...	16	...	791
Queensland	³ 628	...	2	630
South Australia	...	² 230	...	⁴ 226	...	...	456
West Australia...	421	...	...	421
Tasmania	73	...	7	80
Total	...	1,005	1,162	1,348	16	9	3,540
PASSENGER VEHICLES.							
New South Wales	1,567	...	...	...	1,567
Victoria...	...	1,454	...	...	34	...	1,488
Queensland	713	...	2	715
South Australia	...	370	...	134	...	...	504
West Australia...	368	...	...	368
Tasmania	167	...	6	173
Total	...	1,824	1,567	1,382	34	8	4,815
ALL OTHER VEHICLES.							
New South Wales	21,497	...	...	...	21,497
Victoria...	...	18,891	...	...	248	...	19,139
Queensland	13,164	...	59	13,223
South Australia	...	3,881	...	5,402	...	...	9,283
West Australia...	10,064	...	...	10,064
Tasmania	1,660	...	77	1,737
Total	...	22,772	21,497	30,290	248	136	74,943

¹ Including three motor coaches, one steam and two gasoline. ² Including one gasoline motor coach. ³ Including five rail motors. ⁴ Including three motor coaches, two steam and one gasoline.

19. Number of Railway Employees.—The following table shows the number of employees in the Railway Departments of each State in the year 1901 and in each year from 1910 to 1915 inclusive, classified according to (a) salaried staff, and (b) wages staff.

From these figures it will be seen that there has been a steady increase in the number of persons engaged in the Railway Departments of the several States. During the period from 1901 to 1915, the total for the Commonwealth has increased from 42,321 to 94,233—an increase of 51,912, or about 123 per cent. The largest numerical increase for the individual States was that of New South Wales, viz., 23,626.

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

**STATE RAILWAYS.—NUMBER OF EMPLOYEES IN RAILWAY DEPARTMENTS,
1901 and 1910-15.**

State.	1900-1.		1910-11.		1911-12.		1912-13.		1913-14.		1914-15.	
	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.
New South Wales ¹ ...	1,372	11,747	2,799	21,388	2,977	25,984	3,180	28,566	3,422	31,810	3,649	33,096
Victoria ...	1,432	10,524	2,111	17,622	2,243	19,910	2,471	21,115	2,598	22,169	2,661	24,314
Queensland ...	994	4,633	1,664	6,364	1,877	7,131	2,136	8,114	2,301	8,502	2,403	8,286
South Australia ² ...	...	3,855	...	7,552	...	8,569	...	8,754	...	8,995	...	10,182
Western Australia ...	876	5,407	872	6,079	935	6,627	1,016	6,734	1,079	6,913	1,054	7,093
Tasmania ...	178	1,252	203	1,232	200	1,147	204	1,131	224	1,180	218	1,277
All States ...	4,852	37,418	7,649	60,237	8,232	69,368	9,007	74,414	9,624	79,569	9,985	84,248

1. Exclusive of gate-keepers with free house only. 2. Separate returns for salaried and wages staffs are not available; the number of salaried staff 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 1910-11 to 1914-15 inclusive:—

**STATE RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED,
1901 and 1910-15.**

State.	1900-1.		1910-11.		1911-12.		1912-13.		1913-14.		1914-15.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales ...	1	1	46	368	68	513	84	582	112	570	78	645
Victoria ...	45	371	49	829	67	362	36	723	45	473	48	409
Queensland ...	13	100	16	104	25	235	27	349	32	454	30	102
South Australia ...	8	50	12	214	16	185	18	224	19	202	20	172
Western Australia ...	25	205	13	114	20	121	15	139	25	154	14	131
Tasmania ...	1	8	1	34	...	37	...	43	1	42	...	39
All States ...	...	...	137	1,663	196	1,453	180	2,060	234	1,895	190	1,498

1. Not available. 2. 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.**—Its 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 their beginning, viz., from 1855 onwards. To this end the graphs shewn on pages 646 to 648 have been prepared. The distribution of the railways is shewn on the map on page 645.

2. **Capital Cost and Mileage Open** (page 646).—The graph shews that the ratio between these elements was, naturally enough, very variable from 1855 to 1870, consequent upon progressive decrease in cost of construction. It then became subject to a more regular change, implying reduction of average cost.

3. Cost per Mile Open.—The fluctuations in cost per mile open are clearly indicated by the graph on page 646. 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, £9468, in 1911. In 1912, 1913, and 1914 it rose to £9545, £9666, and £9820 respectively, but fell in 1915-6 to £9632.

4. Gross Revenue.—This graph (page 646) exhibits considerable irregularities, the most striking of which are the maxima at 1892, 1902 and 1914. 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, for reasons already referred to, there was a fall amounting to £1,016,421.

5. Working Expenses and Net Revenue.—The characteristics of these graphs (page 646), are similar to those of "Gross Revenue," and the same remarks apply. It may be noted, however, that the working expenses are increasing at a faster rate than gross and net revenue.

6. Percentage of Working Expenses on Gross Revenue.—This is shewn for each State and for the Commonwealth on page 647, and for the Commonwealth only, on a larger scale, on page 646. The curve 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, and therefore very satisfactory, decline in the percentage of working expenses to gross revenue; since 1907, however, there has been a steady increase. The fluctuations of this percentage, for the individual States, call for no special comment beyond stating that the percentages for Victoria and South Australia are higher than those for the rest of the States.

7. Percentage of Net Revenue on Capital Cost.—For the Commonwealth this graph is shewn on a large scale on page 646, and on page 648 both for Commonwealth and States. 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 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, 4.37 and 4.43 per cent. Since 1911 there has been, with one exception, a continuous fall.

For the individual States the results are in general very satisfactory up to the year 1914, every State being able to record an increase over the previous year, with the exception of Tasmania, the figures for that State, however, having only once been exceeded, viz., in 1913. In 1914-15 the rates have fallen in each State with the exception of Queensland. This is mainly due to the effects of the drought experienced during this period.

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

8. General Indications of Graphs.—Reviewing the cost of railways, as a whole, it may be noted that for the periods indicated the average cost per mile open is as follows:—

**STATE RAILWAYS.—AVERAGE COST PER MILE OF LINE OPEN, COMMONWEALTH,
1855 to 1912.**

Period	1855-1872.	1873-1882.	1883-1892.	1893-1902.	1903-1912.
Cost per mile	£ 24,561	£ 13,700	£ 10,286	£ 10,010	£ 9,614

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 goes to indicate the great elasticity of the economic condition of the Commonwealth. Although the percentage of net revenue on capital cost during the year 1914-15 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 £187,139,867 for construction and equipment up to the 30th June, 1915, should yield a return of no less than 3.00 per cent.

(E.)—Private Railways.

1. **Total Mileage Open, 1915.**—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, 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 up to the end of 1914. A classification of these lines according to their gauge has already been given (see page 629).

MILEAGE OF PRIVATE RAILWAYS OPEN, 1914.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth
For general traffic ...	181	24½	1497½	...	277	163½	1,143½
For special purposes ...	124	37	114	34	666	83	1,058
Total ...	305	61½	611½	34	943	246½	2,201½

1. Exclusive of Mount Garnet line, 33 miles, included in Queensland Government Railway mileage at 30th June, 1915.

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 1914. In this statement the lines inset are sub-branches from the main branches specified.

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1914.

Railway Lines.	Gauge.	Length	Nature of Traffic Carried, etc.
NEW SOUTH WALES.			
1. BRANCHES FROM NORTHERN LINE, N.S.W. GOVT. RLYS.—	ft. in.	Miles.	
Aberdare Junction to Cessnock	4 8½	12.	Coal and passengers
" " " E. Greta and Stanford-Merthyr	4 8½	4½	Coal
Hexham-Minni	4 8½	8	Coal and passengers
Brown's line to Richmond Vale	4 8½	6	" " "
Three other sub-branches	4 8½	11½	Coal
Newcastle Wallsend Co.'s lines	4 8½	5	"
Five sub-branches... ..	4 8½	4½	"
Waratah Coal Co.'s line	4 8½	4	"
Old Burwood Pit	4 8½	4½	"
Gunnedah Coal Co.'s line	4 8½	7½	"
Other branches	4 8½	4½	"
Total	4 8½	27	Coal, coke, ores & stone
2. BRANCHES FROM NORTH-COAST LINE GOVT. RAILWAYS—			
New Redhead Coal Co.'s lines, Adamstown to Burwood	4 8½	9	Coal and passengers
Extended, and Dudley lines	4 8½	6	" " "
Seaham Coal Co.'s lines, Cockle Creek to West Wall-	4 8½	9	Coal
send and Seaham collieries	4 8½		
Nine other branches	4 8½		
Total	4 8½	24	
3. BRANCHES FROM SOUTHERN LINE, N.S.W. GOVT. RLYS.— ¹			
Liverpool-Warwick Farm	4 8½	2	Racecourse traffic
Goondah-Burrinjuck ²	2 0	26	General & materials for construction of dam
4. BRANCHES FROM S. COAST LINE, N.S.W. GOVT. RLYS.— ³			
Mount Kembla Coal Co.	4 8½	7½	Coal
Corrimal and Balgownie	4 8½	3½	"
Australian Smelting Co., Dapto	4 8½	2½	Ores
Mount Keira Coal Co., Belmore Basin	4 8½	3	Coal
Nine other branches	4 8½	14	"
Mount Pleasant Coal Co.	3 6	3½	"
Total	4 8½	31½	
5. BRANCHES FROM WESTERN LINE, N.S.W. GOVT. RLYS.—			
Commonwealth Oil Corporation's line from Newnes	4 8½	33	General
Junction	4 8½	6½	Coal, metal, and ores
Eleven other branches	4 8½		
Total	4 8½	39½	
6. SILVERTON TRAMWAY—			
Broken Hill and Cockburn	3 6	36	General
7. DENILIKUIN-MOAMA LINE	5 3	45	"
Total for State	5 3	45	
	4 8½	194½	
	3 6	39½	
	2 0	26	

1. Three other branch private lines having a total length of 24 miles have been constructed for the conveyance of minerals, but are now closed. 2. Owned and worked by the Public Works Department. 3. The Illawarra Harbour and Land Corporation's line, 6½ miles long, constructed for general traffic is not now working.

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1914 (Continued).

Railway Lines.	Gauge.	Length	Nature of Traffic Carried, etc.
VICTORIA. ¹			
1. KERANG TO KOONDROOK TRAMWAY	ft. in. 5 3	Miles. 14	General
2. ALTONA BAY RAILWAY— Williamstown racecourse and pit at Altona	5 3	2½	Sand and stone
3. TOOBORAC INTO BUSH	5 3	24	Firewood
4. TRAWALLA TO WATERLOO	5 3	8	" and gravel
5. CARISBROOK TO NEW HAVILAH MINE	5 3	2½	" & mining timber
6. YARRA JUNCTION TO POWELLTOWN	3 0	10½	General
Total for State... ..	5 3 3 0	51 10½	

1. The Rosstown railway, running between Elsternwick and Oakleigh railway stations, about 5 miles in length, is not in use.

QUEENSLAND.

	ft. in.	Miles.	
1. BRANCHES FROM GREAT NORTHERN LINE, GOVT. RLYS.— Three branch lines	3 6	2½	Mineral traffic
Wee McGregor Tramway	3 6	22	"
2. BRANCHES FROM NORTH-COAST LINE, GOVT. RAILWAYS Bundaberg to Millaquin	3 6	2	Sugar
Avondale to Invicta Mill	3 6	8½	General (chiefly sugar)
Woongarra Tramway	3 6	14½	General
Mount Bauple	3 6	17½	Sugar
Plane Creek	2 0	44½	"
3. BRANCH FROM WESTERN LINE, GOVT. RAILWAYS— Munro's tramway to Perseverance	3 6	10	Timber & farm produce
Gulland's lines to coal mines	3 6	1½	Coal
Stafford's lines to coal mines	3 6	3	
Mount Crosby	3 6	5	Water Conservation
4. BRANCHES FROM CAIRNS LINE, GOVT. RAILWAYS— Greenhill branch	2 0	4½	Sugar
Chillagoe railway, Mareeba to Mungana	3 6	103	General (chiefly coal and
1 Mount Garnet tramways, Lappa Jn'tn to Mt. Garnet	2 0	33	" " [minerals]
Stannary Hills tramway, Boonmoo to Rocky Bluffs	3 6	20	" " "
Mount Molloy tramway	3 6	21	" " "
2 Etheridge Railway, Alma-den to Forsayth	3 6	143	General
5. BRANCH FROM SOUTH-COAST LINE, GOVT. RAILWAYS— Beaudesert tramway to Rathdowney, Tabooba Junction to Lamington	3 6	33	" (chiefly timber
6. INGHAM TRAMWAY— Lucinda Point to Stone River and Long Pocket	2 0	53½	" [and dairy produce]
7. MOSSMAN TRAMWAY— Port Douglas to S. Mossman and Mowbray Rivers	2 0	17	General (chiefly sugar)
8. BRANCH FROM BOWEN LINE— Bowen to Proserpine	3 6	38½	"
9. BRANCH FROM CENTRAL LINE GOVT. RAILWAYS— Bacaldine to Arainac	3 6	41	" (chiefly stock)
10. BRANCH FROM CLEVELAND LINE GOVT. RAILWAYS— Norman Park to Belmont	3 6	4½	"
11. BRANCH FROM SOUTH WESTERN LINE, GOVT. RLYS.— Tannymorel Tramway	3 6	4	Coal
Total for State... ..	3 6 2 0	3471 140½	

1. Taken over by Queensland Government, 23rd December, 1914. 2. Worked by Queensland Government. 3. Exclusive of 33 miles Mount Garnet line included in mileage of Queensland Government Railways on 30th June, 1915.

SOUTH AUSTRALIA.

	ft. in.	Miles.	
BROKEN HILL PROPRIETARY CO.'S LINE— Iron Knob to Hammock Hill, Spencer's Gulf	3 6	34	Carriage of ironst'ne flux

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1914 (Continued).

Railway Lines.	Gauge.	Length	Nature of Traffic Carried, etc.
WESTERN AUSTRALIA. ¹			
1. MIDLAND RAILWAY— Joining Govt. lines at Midland Junction & Walkaway	ft. in. 3 6	Miles. 277	General
2. W.A. GOLDFIELDS FIREWOOD SUPPLY Co.'s LINE— From Kurrawang into bush ...	3 6	87	Firewood
3. KALGOORLIE AND BOULDER FIREWOOD Co.'s LINE— Goodwood railway, from Lake Side into bush ...	3 6	24	"
Lancefield railway into bush ...	2 0	26	"
Laverton to junction Lancefield railway ...	2 0	6½	"
4. W.A. TIMBER AND FIREWOOD Co. LTD. LINE— Kurramia railway, from Kalgoorlie-Kanowna railway to bush ...	3 6	60	"
5. SONS OF GWALIA GOLD MINING Co.'s LINE— Railway into bush ...	1 8	21	"
6. MURCHISON FIREWOOD Co.'s LINE— Nallan wood railway, from Nallan siding to bush ...	3 6	27½	"
7. W.A. JARRAH SAWMILLS LINE— From Kirup to mills and into bush ...	3 6	32	Timber
8. TIMBER CORPORATION Co.'s LINE— From Greenbushes to mills and into bush ...	3 6	18½	"
9. S.-WEST TIMBER HEWERS' Co-OP. SOCIETY'S LINE— From Holyoake and Lucknow into bush ...	3 6	17½	"
10. MILLAR'S TIMBER TRADING Co.'s LINES— Upper Darling Range railway, from Pickering Brook to Canning mills and bush ...	3 6	9	"
Jarrahdale and Rockingham railway, from Mundijong to Rockingham and bush ...	3 6	50½	"
Yarloop railway to mills and bush ...	3 6	58½	"
Mornington mills rly., from Wokalup to mills & bush	3 6	41½	"
Ferguson River railway, from Dardanup to mills and into bush ...	3 6	39½	"
Collie Mills railway, from Worsley into bush	3 6	18½	"
Kirup saw mills into bush ...	3 6	27	"
Marrinup saw mills into bush ...	3 6	7½	"
Jarrahdale saw mills into bush ...	3 6	11½	"
11. BUNNING BROS. LTD. LINES— From Lion Mill, Argyle, Cardiff & Preston Valley to bush	3 6	35½	"
12. NORTH DANDALUP S.M. RAILWAY— To mill and bush ...	3 6	11	"
13. SWAN SAW MILL RAILWAY— From Lowden to mill and bush ...	3 6	12	"
14. BUCKINGHAM BROS. S.M. RAILWAY— From Muja to bush ...	3 6	4½	"
15. WILGARRUP KARRI AND JARRAH Co.'s LINE— Railway into bush ...	3 6	5	"
16. WHIM CREEK RAILWAY TO BALLA BALLA ...	2 0	14	Copper ore
Total for State...	{ 3 6 2 0 1 8	875½ 46½ 21	

1. To the 31st December, 1913.

TASMANIA.

Railway Lines.	ft. in.	Miles.	Nature of Traffic Carried, etc.
1. EMU BAY RAILWAY Co.'s LINES— Burnie to Waratah ...	3 6	103½	General
Guildford to Zeehan ...	3 6		
Rayna to Dundas ...	3 6		
2. MOUNT LYELL MINING AND RAILWAY Co.'s LINES— Strahan to Queenstown ...	3 6	22	"
Gormanston to Kelly Basin ...	3 6	28	"
3. SANDFLY COLLIERY Co.'s LINE— North-west Bay Co.'s jetty to mine ...	2 0	12	Minerals
4. HUON TIMBER Co.'s LINE ...	3 6	30½	Timber
5. TASMANIAN GOLD MINING Co.'s LINE— Beaconsfield to Beauty Point ² ...	3 6	3½	Minerals and occasionally passengers
6. ZEEHAN TRAM Co.'s LINE— Emu Bay railway to British Queen ...	2 0	2½	Minerals and occasionally passengers
7. DUCK RIVER RAILWAY— Leesville to Parish of Williams ³ ...	3 6	8	Chiefly timber
8. MAGNET SILVER MINING Co.'s LINES— Magnet Junction to Magnet ...	2 0	10	Minerals and passengers
9. SMITHTON TO PELICAN POINT ...	3 6	2	Produce
10. MARRAWAH TRAM ...	3 6	25	" & occasionally passengers
Total for State...	{ 3 6 2 0	222 24½	

1. Approximate. 2. Also branch lines as follows:—Electric railway, 1½ miles long, to reduction works, 2 ft. gauge; surface railways, horse, ½ mile long, 2 ft. gauge. 3. Extension under construction.

3. **New South Wales.**—In this State the mileage of private railways open to the public for general traffic at the end of 1914 was 181, and of lines used for special purposes, 124 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 1914 of the operations of lines open for general traffic are given, so far as available, in the table on page 674.

(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 a private 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 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 8 miles, and from Aberdare Junction to Cessnock, 12 miles—a total of 20 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, and from Adamstown to Dudley Colliery, a total distance of 9 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 Railways.* This line runs from Cockle Creek to West Wallsend and Seaham Collieries, and has a total length of 6 miles. (f) *Hexham-Minmi Railway.* This line branches from the Northern line of the Government railways and has a length of 6 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, three-quarters 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 built and worked by the Public Works department in connection with the dam in course of construction 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 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.

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, 1915, was £39,229, paid out of a loan advanced by the Victorian Government. The total length is $14\frac{1}{2}$ miles. The line is at present controlled by the Kerang Shire Council, but proposals have recently been made for its transfer to the Railway Department. (b) Yarra Junction to Powelltown. This line has a length of $10\frac{1}{2}$ miles, and is worked mainly for timber purposes.

A line running from Elsternwick to Oakleigh, a distance of about 5 miles, has been constructed by a private company, but is, as already stated, not in use.

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 103 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 $1\frac{1}{2}$ chains. An additional length of 8 miles has been surveyed with a view to extending the line. (c) *The Mount Garnet Railway*. This line also branches from the Chillagoe railway, at Lappa Junction, and runs for a distance of 33 miles, as far as Mount Garnet. It was purchased by the Queensland Government Railways on the 23rd December, 1914.

(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 £3000 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 are no private railways open for general traffic. The only private line is 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 34 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.

7. **Western Australia.**—Owing to the Government's past difficulty 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 277 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, with 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 nine 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 260 miles. (iv.) *Other Lines*. There are also a number of 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 671.

8. **Tasmania.**—In this State there are three private lines open for general traffic. They are all 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 $103\frac{1}{2}$ 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 miles in length, was constructed in 1895-6, while the latter line, 28 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 run 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 10 miles.

9. **Operations of Private Railways, 1914.**—The tabular statement given below shews particulars, so far as returns are available, for the year 1914, of all private railways open to the public for general traffic in the Commonwealth:—

PARTICULARS OF PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC, 1914.

Line.	Miles Open.	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. '000.	Tons '000.	No.	No.	No.	No.
NEW SOUTH WALES.												
Deniliquin-Moama	45	162,672	22,495	11,982	153	42,317	12	52	51	4	6	63
Silverton Tramway	36	464,115	180,741	74,475	2...	151,999	58	921	195	18	1	680
East Greta Railway	20	180,538	62,748	45,909	9,027	381,487	855	59	210	17	28	40
Seaham Colliery Co.	6	16,000	1,004	700	2...	7,728	17	10	10	2	2	2
New Redhead Co. ⁶	9	90,000	4,584	2,121	1,882	2...	2...	2...	12	3...	3...	3...
Hexham-Minmi	6	...	881	915	...	4,600	11	1	6	1	4	1
C'wlth. Oil Corp'r'n	33	194,590	594	2,154	17,248	12,903	...	2	9	46	2	95
Goond'h-Burrinj'ck	26	85,876	2,266	7,666	2...	2...	2	9	2	4	3	28
Total ¹	181	1193,791	275,314	145,922	28,310	601,034	955	1,054	493	52	46	909
VICTORIA.												
Kerang-Koondrook	14	39,229	3,977	2,693	1,800	18,928	11	2...	12	2	2	8
YarraJ.-Powelltown	10½	44,000	3,780	2,573	2...	21,840	21	2...	2...	3	1	56
Total ¹	24½	83,229	7,757	5,266	1,800	40,768	32	2...	12	5	3	64
QUEENSLAND.												
Chillagoe Railway	103	420,276	42,663	20,833	2...	66,484	20	40	69	8	2	162
Stannary Hills	21	65,320	3,296	3,764	2...	15,209	3	12	7	1	2	76
Mount Garnet	33	2...	1,758	2,922	2...	11,018	2	1	12	1	1	3
Invicta Mill	8½	19,446	1,276	1,022	51,929	2,256	2	...	3...	3...	3...	3...
Beaudesert	33	91,800	10,036	6,256	4,989	30,940	17	18	34	2	3	22
Douglas-Mossman	17	40,618	6,934	3,480	2,774	9,920	8	10	13	2	3	22
Lucinda Pt. to Stone B. and Lg. Pocket	53½	2...	2...	2...	2...	2...	2...	2...	2...	3	4	20
Bowen-Proserpine	38½	104,649	6,153	3,008	2,630	10,140	2...	2...	10	3...	3...	3...
Woongarra	14½	34,139	3,419	5,042	2...	5,102	25	49	6	3...	3...	3...
Mt. Molloy Tr'mw'y ⁶	20	745,813	2,022	2...	2...	9,187	2	1	6	1	1	7
Belmont Tramway	4½	21,458	1,308	1,882	862	9,074	12	22	3...	3...	3...	3...
Aramac-Barcaldine	41	82,800	8,390	9,681	2,466	27,696	7	7	19	2	1	1
Etheridge ³	143	457,175	11,109	11,465	11,250	23,275	3	3	3...	3...	3...	3...
Total ¹	497½	1383,494	98,364	69,355	26,900	220,301	101	163	176	20	17	293
WESTERN AUSTRALIA.												
Midland-Railway	277	1287,252	98,704	67,716	2...	359,585	63	70	255	17	20	400
TASMANIA.												
Emu Bay Railway...	103½	611,360	47,748	28,910	19,923	103,779	28	31	96	10	10	151
Mt. Lyell Railway...	22	216,086	30,780	22,198	2...	57,063	25	119	138	7	7	129
Nth. Mt. Lyell Rly.	28	316,638	4,675	5,936	2...	10,309	5	15	18	4	3	56
Magnet Railway	10	18,750	333	2,109	2...	7,280	1	...	9	3	1	8
Total ¹	163½	1162,834	83,536	59,153	19,923	178,451	59	165	261	24	21	344
Total for C'wlth. ¹	1143½	5110,600	563,675	347,412	76,933	1400139	1,210	1,452	1,197	118	107	2,010

1. Incomplete. 2. Not available. 3. Worked by Government railways. 4. Including one motor car. 5. Including depreciation. 6. Exclusive of 33 miles Mount Garnet line included in mileage of Queensland Government railways at 30th June, 1915. 7. For year 1911. 8. For year 1913.

§ 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.

There are also in many parts of Australia private tramway lines which are used for special purposes, usually in connection with the timber, mining, or milling industries. Though efforts have been made to collect particulars of these lines, the returns are generally too incomplete for publication.

(i.) *Total Mileage Open and Classification of Lines.* The following table shews the total mileage of tramway lines open for general passenger traffic in each State and in the Commonwealth at the end of the year 1914-15, 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, 1914-15.

Nature of Motive Power and Controlling Authority.	N.S. Wales.	Victoria.	Q'land.	South Australia.	Western Australia.	Tas.	C'wealth.
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ACCORDING TO MOTIVE POWER.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric	150	70½	38½	57	50½	20	386½
Steam	73½	1	7	...	...	2½	83½
Cable ... ..	...	46	...	...	...	...	46
Horse ... ..	...	6	...	120½	29	...	55½
Total	223½	123½	45½	77½	79½	22½	572

ACCORDING TO CONTROLLING AUTHORITY.

Government	219½	5½	...	117½	54	...	296½
Municipal ... ..	...	32	7	60½	11	20	130½
Private	3½	86½	38½	...	14½	2½	145½
Total	223½	123½	45½	77½	79½	22½	572

1. 16½ miles included in South Australian Government railway mileage.

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, 1915, seven such systems in operation within the metropolitan area, the most important being the city and suburban lines, 110½ miles in length (199½ miles single track); the North Shore line, 19½ miles in length

(33½ miles single track); the Ashfield to Mortlake line, 8½ miles in length (12½ miles single track); Manly to the Spit, 10½ miles; and Rockdale to Brighton-le-Sands, 1½ miles. 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, 5½ miles in length, and (b) from Arncliffe to Bexley, 2½ miles long.

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 feet 8½ inches.

(a) *Sydney Tramways.* In the early sixties a horse tramway, 1½ miles long, was constructed in Sydney. Owing to the rails being laid higher than the road surface, the inconvenience thus caused to other traffic necessitated its removal, and it was not until September, 1879, that the first steam tramway was opened, running from Bridge-street to Hay-street via Elizabeth-street. In the following few years these steam tramways were considerably extended. The electric system was not introduced into the city until the close of the year 1899, though it had at that time been in operation for some years in North Sydney. 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. The whole of the steam tramways in Sydney and suburbs, with the exception of the Kogarah-Sans Souci, and the Arncliffe-Bexley, 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 in 1887; the total length open on the 30th June, 1915, was 32½ miles. At Broken Hill and Parramatta the first sections of the tramways were opened in 1902. On the 30th June, 1915, the mileage open at Broken Hill amounted to 10, and at Parramatta to 6½ miles. The line from East to West Maitland, 4½ miles long, was opened in February, 1909. 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 1910-15:—

**NEW SOUTH WALES.—PARTICULARS OF WORKING OF GOVERNMENT
TRAMWAYS, 1901-2 and 1910-15.**

Year ended the 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.	£	£	£	£	per cent.	per cent.
1901-2	104	2,829,363	631,757	541,984	89,773	85.79	3.19
1910-11	190	5,121,586 ¹	1,365,631	1,143,949	221,682	83.77	4.33
1911-12	195½	5,664,324 ¹	1,581,393	1,331,413	249,980	84.19	4.41
1912-13	208	6,699,305 ¹	1,754,566	1,572,190	182,376	89.61	2.94
1913-14	212½	7,628,653 ¹	1,934,164	1,669,033	265,131	86.29	3.66
1914-15	219½	7,970,293 ¹	1,986,060	1,611,287	374,773	81.13	4.70

¹ £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 £284,638 for interest on the capital invested, was a surplus of £90,135 in 1914-15, as compared with a surplus of £1680 in the preceding year. During the year 1914-15, 289,282,845 passengers were carried, a decrease of 21,309,853 as compared with the previous year.

(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.

**NEW SOUTH WALES.—PARTICULARS OF THE WORKING OF THE VARIOUS
GOVERNMENT TRAMWAYS, 1914-15.**

Line.	Length.		Total Cost.	Gross Revenue.	Working Expenses.	Interest.	Profit or Loss. ¹
	Route.	Track.					
	Miles.	Miles.	£	£	£	£	£
Sydney and Suburban—							
Electric ...	150	261	7,349,866	1,834,022	1,469,227	262,538	+ 102,257
Steam ...	8½	8½	46,069	11,048	14,529	1,638	— 5,119
Total...	158½	269½	7,395,935	1,845,070	1,483,756	264,176	+ 97,138
Parramatta Steam	6½	6½	38,282	7,382	7,663	1,402	— 1,683
Sutherland to Cronulla,,	7½	7½	49,520	11,812	8,568	1,814	+ 1,430
Newcastle ,,	32½	42½	360,313	101,542	85,326	12,632	+ 3,584
East to West Maitland,,	4½	4½	38,819	5,217	6,190	1,421	— 2,394
Broken Hill ,,	10	11½	87,424	15,037	19,784	3,193	— 7,940
Total...	219½	342	7,970,293	1,986,060	1,611,287	284,638	+ 90,135

1. The positive sign indicates a profit, the negative 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, 1915.**

Permanent Way.	Rolling Stock.	Power-house, Sub-stations, and Plant.	Machinery.	Workshops.	Furniture.	Total.
£3,933,572	£1,812,730	£1,717,806	£124,461	£211,332	£2,392	£7,970,293 ¹

¹ Includes £168,000 for Store Advance Account.

The average cost per mile open was £17,896 for permanent way and £18,365 for all other charges, making a total of £36,261 per mile.

During the year 1914-15, six new extensions, amounting in all to a length of 8 miles, were opened for traffic. On the 30th June, 1915, three extensions, having a total length of two and three-quarter miles, were under construction.

(e) *Sydney Electric Tramways.* The current for the operation of the city and suburban tramways is generated at the power-house at Ultimo, which has been erected at a total cost of £1,717,806, including the cost of the sub-stations and plant. The total output of the power-house, for both lighting and traction purposes, during the year 1914-15, was

93,554,559 kilowatt-hours, of which the direct-current supply was 1,054,035, and the alternating current 92,500,524 kilowatt-hours. The following table gives particulars of the working of the electric tramways for the financial years 1910-11 to 1914-15 :—

**NEW SOUTH WALES.—PARTICULARS OF SYDNEY ELECTRIC TRAMWAYS,
1910-11 to 1914-15.**

Year ended 30th June.	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Output of Power-house for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Route.	Track.				
	Miles.	Miles.	£	Kilowatt-hours '000	No. '000.	No. '000.
1911 ...	114	201½	4,585,240	61,163	21,120	214,975
1912 ...	131½	223	5,153,321	70,920	23,016	250,786
1913 ...	141½	242½	6,162,063	79,840	25,480	275,977
1914 ...	145½	252½	7,054,833	86,187	26,974	290,547
1915 ...	150	261	7,349,866	81,591	25,407	269,634

Year ended 30th June.	Gross Revenue.	Working Expenses.	Net Revenue.	Number of Cars in Use.	Number of Persons Employed.
	£	£	£		
1911 ...	1,256,672	1,033,229	223,443	985	6,667
1912 ...	1,460,625	1,209,321	251,304	1,048	8,138
1913 ...	1,616,686	1,433,972	182,714	1,220	9,048
1914 ...	1,781,063	1,520,185	260,878	1,396	9,195
1915 ...	1,834,022	1,469,227	364,795	1,430	8,743

(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 1914 the number of tram miles run was about 18,100, and the number of passengers conveyed 144,724.

Particulars regarding private tramways used for special purposes are not available.

(iii.) *Sydney Harbour Ferries.* As the ferry services on the waters of Port Jackson are mainly subsidiary to the suburban railway and tramway systems, it has been thought advisable to include them here rather than under Shipping. Returns for the year 1914 were received from four companies, and shew that these companies had 71 boats in commission, which were licensed to carry a total of 47,396 passengers, or an average of 667 per boat and per trip. The total number of passengers carried during the year is stated as 36,547,178, an average of 100,129 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 four companies employed during the year a total of 986 persons. The gross revenue during 1914 amounted to £336,435, and the expenditure to £253,519, thus giving a net revenue of £82,916. 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 is a number of 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. There are also four lines of electric tramways, one running from St. Kilda to Brighton, a distance of five and one-eighth miles, belonging to the Government, and under the control of the Railway Commissioners; one from Flemington Bridge to the Saltwater River and Keilor Road, a distance of seven and a-half miles, owned by a private company; a system of lines embracing routes connecting Prahran, Windsor, St. Kilda, and Elsternwick with Glen Huntly, Caulfield, Malvern, Glenferrie, and Kew having a route mileage of 30.65 miles and a track mileage of 58.01 miles and controlled by the Prahran and Malvern Tramway Trust, and a line from Princes Bridge, Melbourne, to Burwood, a distance of eight miles, under the control of the Hawthorn Tramways Trust. The first section of this line, from Princes Bridge to Bowen street, Camberwell, was opened for traffic on April 8th, 1916, and the final section to Burwood on June 10th, 1916. There is also a private cable tramway, two and a-quarter miles in length, between Clifton Hill and Preston. There is also a tramway one and a-half miles long, worked by horses, from Brunswick to Coburg, and owned by the Coburg municipality, while a similar service is worked by the Melbourne Tramway and Omnibus Company, viz., the Zoological Gardens line. It is intended to electrify the Brunswick-Coburg line at an early date. There is a short steam tramway, about one 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.

(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 Book No. 7, page 652.) 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 company is required to find sufficient capital to build the rolling-stock and to equip the lines and engine-houses with all necessary working requisites. The company pays to the Trust annually the interest due upon the loans raised, and also a sufficient sum as a sinking or redemption fund, to repay by its accumulation the principal of the loans raised by the Trust, and at the expiration of the lease must hand back the lines in good working order to the Trust. The expenses of the Trust were paid out of the loan up to the end of the year 1903, but since that date have been paid by the company to an amount not exceeding £1000 per annum, the municipalities being liable for the remainder. The total amount the Trust was empowered to borrow was £1,650,000, which has been 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. The first line—that to Richmond—was opened to traffic in November, 1885, and the work being rapidly pushed on, the others were opened at short intervals, and the whole system was completed in 1891. The complete system consists of forty-three and a half miles of double-track cable lines, using constantly over ninety miles of wire rope, and four and a half miles of double-track horse lines. The gauge of track is 4 feet 8½ inches.

(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 1911 to 1915:—

**MELBOURNE CABLE TRAMWAYS.—PARTICULARS OF WORKING, 1901-2
and 1911 to 1915.**

Year ended the 30th June.	Tram Mileage.	Number of Passengers Carried.	Revenue.	Working Expenses.	Percentage of Working Expenses to Revenue.
	No.	No.	£	£	%
1902	9,226,883	47,261,572	474,835	269,554	56.7
1911	10,636,440	76,235,825	684,327	320,784	46.8
1912	11,313,212	84,926,712	760,792	343,919	45.2
1913	11,839,473	89,359,248	795,091	386,603	48.6
1914	12,056,510	91,438,777	823,567	400,202	48.5
1915	11,887,462	87,707,934	736,154	404,056	54.9

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.

(ii.) *Electric Tramways.* There are in Melbourne four electric tramway systems, namely (a) the St. Kilda-Brighton line, (b) the North Melbourne tramways, (c) the Prahran-Malvern system, and (d) the Hawthorn Tramway Trust system.

(a) *The St. Kilda-Brighton Line.* Under the St. Kilda and Brighton Electric Street Railways 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 in May, 1906, and the extension to Brighton Beach was opened in the following year. A proposal has been made to extend the line along the foreshore as far as Mordialloc. The capital cost to the 30th June, 1915 exclusive of rolling-stock, was £75,103, and of rolling-stock was £26,623, making a total of £101,726. 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, 1910 to 1915:—

ST. KILDA-BRIGHTON ELECTRIC STREET TRAMWAY, 1910-15.

Year ended 30th June.	Mileage Open (Route).	Capital Cost.	Car Mileage.	Passengers Carried.	Gross Revenue.	Working Expenses.	Interest.	Net Profit or Loss.
		£			£	£	£	£
1910	5.13	58,612	340,254	1,361,925	11,885	9,860	2,092	— 67
1911	5.13	59,007	346,849	1,410,907	12,852	9,819	2,107	+ 926
1912	5.13	60,590	367,306	1,674,918	15,012	13,283	2,078	— 349
1913	5.13	88,133	413,939	1,916,618	16,829	15,808	3,093	—2,072
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

1. Profit is indicated by +, loss by —.

The average fare paid per passenger was 2.00 pence in 1914-15 as against 2.05 pence in 1913-14. The gross revenue in 1914-15 was 9.40 pence per passenger car mile and £4383 per route mile open.

(b) *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 towards the end of the year 1906. The track mileage for year ended 30th September, 1915, was $11\frac{1}{2}$ miles (route mileage, $7\frac{1}{2}$ miles), the gauge of line being 4 feet $8\frac{1}{2}$ inches. The number of passengers carried during the same period was 3,138,327. The current used during the year for traction purposes was 689,926 kilowatt hours, while the number of persons employed was 120.

(c) *The Prahran-Malvern Tramway.* This line has been constructed under the control of a trust, which consists of five members appointed from the councils of Prahran, Malvern, St. Kilda, and Caulfield. The municipalities of Hawthorn and Kew have now been included in the scheme and have equal representation on the trust. At the 30th September, 1915, the total route mileage open was 30.65 miles, the total track mileage being 58.01 miles, and the total capital cost £674,357. The gauge of the track is 4 ft. 8½ in. The horse tramway from Victoria Bridge to Kew has been taken over from the Melbourne Tramway and Omnibus Company, and 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 lines were opened for traffic on 31st May, 1910. During the year ended 30th September, 1915, the current used for traction purposes was 4,481,528 kilowatt hours, and the number of tram miles run was approximately 2,068,264, the number of passengers carried 18,359,593, the gross revenue £121,016, and the working expenses (including interest and renewals reserve) £110,493. The number of cars in use was 72, and the number of persons employed 411.

(d) *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 21½ miles, the gauge being 4 ft. 8½ in. During 1914, 5,366,923 passengers were carried, the gross revenue being £48,686, and the working expenses £35,868.

(e) *The Geelong Electric Tramways.* This line, which is privately owned, was opened for traffic in January, 1912, and up to the 31st August, 1915, the cost of construction and equipment, exclusive of generating plant, was £58,976. The system has a length of 5½ miles of single track, the gauge being 4 ft. 8½ in. The car mileage was for the year ending on that date 225,745 miles, and the number of passengers carried 1,092,353. For the same period the revenue was £12,355, and the expenditure £9193.

(f) *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 1910 to 1915 inclusive:—

VICTORIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1910-15.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated for Traction Purposes at Central Stations.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	Number of Cars in Use.	Number of Employees.
	Miles.	£	Kilowatt-hrs. (000 omitted.)	No. (000 omitted.)	No. (000 omitted.)	£	£	No.	No.
1910 ¹	34½	¹ 275,458	2,314	1,930	7,889	¹ 54,727	¹ 40,087	97	317
1911	39½	² 406,815	2,998	2,376	12,198	² 84,545	² 56,562	117	408
1912	46½	² 497,100	3,504	2,703	15,343	² 106,478	² 73,436	119	501
1913	52½	² 771,204	4,569	3,210	20,305	² 140,566	² 101,098	167	625
1914	62	² 846,759	6,617	4,166	28,318	² 193,306	² 144,308	153	730
1915	70½	² 1,061,067	7,500	4,436	30,673	² 204,671	² 151,543	193	837

1. Incomplete. 2. Exclusive of North Melbourne Tramway. 3. Exclusive of Prahran-Malvern Tramway, which was opened for traffic on 31st May, 1910.

(iii.) *Private Tramways for Special Purposes.* There is in Victoria a number of tramways used for special purposes, chiefly in connection with the timber, mining, and milling industries. These lines have been constructed either under authority of the Department of Public Works, pursuant to Section 36 of the Tramway Act 1890, or under leases or licenses issued by the Department of Lands and Survey, pursuant to Sections 144 and 145 of the Land Act 1901. Particulars of these lines are too incomplete for publication.

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 thirty-eight and one-quarter route miles at the end of the year 1914. Particulars of Shire tramways have been given in the part of this section dealing with private railways (see p. 668).

(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 1914 was £1,437,550, the gauge of line being 4 ft. 8½ in. The following table gives particulars of these tramways for the calendar years 1901 and 1910-14.

**QUEENSLAND.—BRISBANE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING,
1901 and 1910-14.**

Year.	Mileage Open for Traffic (Route).	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	Number of Persons Employed
	Miles.	Kilowatt-hrs.	No.	No.	£	£	No.	No.
1901...	21	3,192,955	2,756,443	16,183,801	111,483	64,710	79	375
1910...	30½	5,441,032	3,524,036	32,419,276	214,265	... ¹	119	654
1911...	34½	... ¹	3,671,963	36,443,222	243,344	... ¹	128	736
1912...	34½	5,798,622	3,508,410	36,375,652	243,668	... ¹	128	762
1913...	34½	7,013,962	3,979,443	44,690,950	300,195	... ¹	149	803
1914...	38½	10,002,034	4,111,908	48,162,065	347,437	193,367	154	825

1. Not available.

(ii.) *Rockhampton Municipal Tramways.* These tramways were opened for traffic in 1909, the motive power being steam. The length of track is 7½ miles, and the gauge 3 ft. 6 in. The capital cost to 31st December, 1914, was £41,730. During the year 1,335,407 passengers were carried, the revenue being £9763, and working expenses £7844.

(iii.) *Sugar-Mill Tramways.* There is a number of tramways in various parts of Queensland 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 there was a number of horse tramways in the principal streets of Adelaide and suburbs run by various private companies. Power to acquire part of these lines, with a view to their electrification, was given to the Adelaide Corporation 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, was formed in 1907, and a length of forty-nine route miles of horse traction tramways was purchased from the private companies at a cost of £283,357. On the 9th March, 1909, the electric car system was inaugurated on the Kensington route. At the end of July, 1915, a length of 57 route miles had been electrified and opened for traffic, the corresponding length of track opened being 99.4 miles. The cost of construction and equipment on the 31st July, 1915, was £1,517,148. The following table gives particulars of the tramways for the year ended 31st July, 1915:—

SOUTH AUSTRALIA.—ADELAIDE ELECTRIC TRAMWAYS.—PARTICULARS OF WORKING, 1914-15.

Year.	Mileage Open for Traffic (Route)	Capital Cost.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	No. of Persons Employ'd
	Miles.	£	Kil'w'tt-hrs.	No.	No.	£	£	No.	No.
1915	57.0	1,517,148	11,583,610	4,914,357	42,287,503	309,915	191,070	170	1,045

1. Inclusive of price of current, but exclusive of interest charges (£61,029).

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

SOUTH AUSTRALIA.—PARTICULARS OF HORSE TRAMWAYS, 1914-15.

Particulars.	Length.	Gauge.	Nature of Traffic.
GOVERNMENT TRAMWAYS.			
Moonta, Moonta Bay, and Hamley Flat	Miles. 15½	ft. in. 5 3	Passengers and goods.
Gawler	11½	5 3	" "
Victor Harbour and Breakwater	1	5 3	" "
Dry Creek and Magazine	1	2 0	Explosives.
Magazine and Broad Creek	1½	2 0	"
Port Broughton and Mundoorra	10	3 6	Passengers and goods.
PRIVATE TRAMWAYS.			
Port Adelaide and Alberton	3½	5 3	Passengers.
Glenelg and Brighton ^a	4	4 8½	"

1. Included in mileage of Government Railways. 2. Not in operation at present.

6. **Western Australia.**—In this State there are a number of horse tramways, amounting in all to a length of 26½ miles, which are the property of the Government. Of these the most important is the line between Roeburne and Cossack, constructed on a 2 ft. gauge and under the control of the Colonial Secretary's Department. The length of this line is 12½ miles. The remaining 14½ miles belonging to the Government are made up of ten short lengths, varying from two and a half chains to four and a quarter miles, worked in connection with the jetties at various ports for the purpose of providing the necessary communication between such jetties and the goods sheds or warehouses. Most of these short 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, Kalgoorlie and Boulder City, carried on by private companies, and at Fremantle and Leonora, under municipal control.

(i.) *Government Tramways.* Particulars as to the working of the Government horse-tramways or as to the rents received therefrom are not generally available. The returns of the Roeburne-Cossack line for the year ended 30th June, 1914, shew that the capital cost of the line to that date was £49,308, the gross revenue for the year being £2874, and the working expenses £2199.

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

(a) *The Perth Electric Tramways* were opened for traffic by a private company in 1899, and the system has since been extended to many of the outlying 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, 1915, there were 25 route miles of line open, the total cost of construction and equipment to that date being £529,052. During the year, 10,779,065 passengers were carried, the gross revenue being £114,021 and the working expenses £78,346. Sixty-three motors were in use, and the number of employees was 286. The gauge of line is 3 ft. 6 in.

(b) *The Kalgoorlie and Boulder City 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 City and suburbs, and in November, 1904, the last section of the Boulder system was completed. At the end of the year 1914 the total mileage of the whole system—in Kalgoorlie and Boulder City—amounted to 14½ route or 20½ track miles, the total cost of construction and equipment being £451,984. During the year, 2,125,094 passengers were carried, the gross revenue being £31,825 and the working expenses £23,000. Twenty-five motors and seven trailers were in use, and the number of employees was 69. The gauge of this line is 3 ft. 6 in.

(c) *The Fremantle Tramways* were opened in November, 1905, under the control of the municipality. On the 31st August, 1915, there were 8½ miles of line open for traffic, the cost of construction and equipment at that date being £105,449. This line has a gauge of 3 ft. 6 in. During the year 4,510,619 passengers were carried, the gross revenue being £34,253 and the working expenses £26,324.

(d) *The Leonora-Gwalia Tramway*, two and a quarter miles in length, formerly a steam tramway, was opened for traffic by electrification on 5th October, 1908. This tramway is under municipal control, and has a gauge of 3 ft. 6 in. The cost of construction is approximately £5800, and during the year ended 31st October, 1915, 66,342 passengers were carried. Revenue for the year amounted to £1241 and expenditure to £1752.

(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 1910-14.

**WESTERN AUSTRALIA.—PARTICULARS OF ELECTRIC TRAMWAYS,
1901 and 1910-14.**

Year.	Mileage Open for Traffic. ¹	Total Cost of Construction and Equip- ment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	No. of Persons Em- ployed.
	Miles.	£	Kilowatt-hrs.	No.	No.	£	£	No.	No.
1901	16½	367,037	....²	721,056	...	46,270	26,673	30	...
1910	52	1,035,357	3,741,628	2,139,524	12,420,830	139,824	88,110	106	381
1911	52	1,039,421	4,395,044	2,360,341	14,399,558	158,657	93,003	104	359
1912	52	1,042,474	4,535,424	2,527,155	16,947,301	172,474	103,927	107	431
1913	49	1,065,312	4,902,247	2,703,093	17,473,246	186,757	127,049	119	449
1914	51	1,092,285	4,984,393	2,782,199	17,501,120	181,340	129,422	121	471

1. For the years 1910 to 1914 inclusive, miles of route are given; for 1901 the figures represent miles of single track. 2. Not available. 3. Exclusive of Leonora Tramway.

(iii.) *Perth Ferries.* As the Perth ferry services are mainly subsidiary to the suburban railway and tramway systems, they are referred to in this section rather than under *Shipping*. Of the ten boats in service, four are under the control of the Western Australian Government, the other six belonging to a private company. The number of passengers carried during the year 1914 was 982,414, and the revenue and expenditure for the same period were £9264 and £6814 respectively.