

SECTION XVII.

ROADS AND RAILWAYS.

§ 1. Roads and Bridges.

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

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

2. **Expenditure on Roads and Bridges.**—Figures showing 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, 1919 :—

ROADS AND BRIDGES.—TOTAL GOVERNMENT LOAN EXPENDITURE TO THE 30th JUNE, 1919.

State.	N.S.W. <i>a</i>	Victoria.	Q'land. <i>b</i>	S. Aust.	W. Aust.	Tasmania.	All States.
Expenditure . .	£ 1,834,546	£ 1,942,462	£ 931,775	£ 1,743,350	£ 421,554 <i>d</i>	£ 3,493,835	£ 10,367,522 <i>c</i>

(a) Including punts. (b) Including amounts from surplus revenue on which no interest is payable. (c) Including W.A. to 30th June, 1918. (d) To 30th June, 1918.

The following table shews the annual expenditure from loans on roads and bridges by the central Governments in each State during the years 1914-15 to 1918-19 :—

ROADS AND BRIDGES.—LOAN EXPENDITURE BY STATE GOVERNMENTS, 1915 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1914-15 ..	8,609	274,362	..	37,910	31,974	..	..
1915-16 ..	421	495,062	..	102,226	18,450	..	..
1916-17 ..	5,428	252,836	..	54,939	5,878	..	..
1917-18 ..	22,374	241,892	..	43,693	2,601	..	..
1918-19 ..	13,089	360,524	..	22,008	(a)	90,101	485,722 <i>b</i>

(a) Not available. (b) Exclusive of W.A.

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

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

3. **New South Wales.**—The control of all roads, bridges, and ferries in New South Wales is now regulated by the Local Government Act No. 41, 1919, which came into force on the 1st January, 1920. Under the provisions of this Act, the eastern and central divisions of the State are divided into shires and municipalities for the general purposes of local government, for the endowment of which a sum of not less than £150,000 is payable annually out of the consolidated revenue on the basis of a percentage subsidy on the proceeds of the general rates received by the local governing bodies concerned. The control of all roads, bridges, and ferries (except those proclaimed "National" and those in the unincorporated areas of the Western Division) has been transferred from the Roads Department to the respective shires and municipal councils, who are now responsible for their construction and maintenance. Up to December, 1918, 58 miles of roads, 282 bridges, 55 wharves, 99 jetties, and 16 ferries have been proclaimed as "National" works. Power is given to construct new roads, to widen or close existing roads, to make by-laws for the regulation of traffic, etc.; and in the case of the acquisition of land for the purpose of constructing new roads or of widening existing roads, the provisions of the *Roads Act 1902* are incorporated. The Minister for Works is empowered to pay subsidies to the local authorities to maintain the roads. The roads leading to and within areas of lands which are made available for closer settlement will be constructed by the Government prior to transfer to the shires, as also will roads required mainly for tourists in districts not likely to produce revenue in rates to the local authorities.

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

(ii) *Length and Classification of Roads and Bridges.* The length of roads in the State (exclusive of 58 miles proclaimed as "National" works) in 1918 was approximately 99,481 miles, of which 10,214 miles were controlled by municipalities, 83,309 by shires, and 5,958 miles were in the unincorporated areas of the Western Division. The following table gives particulars for the year 1918 (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, 1918.

Classification.	Metalled, Ballasted, Gravelled, etc.	Formed only.	Cleared only.	Natural surface.	Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
Metropolitan	1,428	417	168	171	2,184
Country municipalities	2,834	1,514	1,952	1,730	8,030
Shires	15,427	11,949	25,522	30,411	83,309
Western Division (unincorporated)	176	117	2,999	2,666	5,958
Total	19,865	13,997	30,641	34,978	99,481

(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 1918, the latest year for which figures are available, are given in the following table :—

NEW SOUTH WALES.—BRIDGES, CULVERTS, AND FERRIES, 1918.

Particulars.	Bridges.		Culverts.		Ferries. No.
	No.	Length.	No.	Length.	
		Feet.		Feet.	
" National " works	282	108,034	..	..	17
Metropolitan	86	5,549	818	40,939	1
Country municipalities	643	34,212	3,549	90,532	11
Shires	3,567	219,643	34,557	314,079	98
Western Division (unincorporated)	97	13,166	209	2,035	..
Total	4,675	380,604	39,133	447,585	127

(iv) *Expenditure on Roads and Bridges.* Since the year 1857 the total expenditure by the Roads Department and Road Trusts on roads and bridges is £25,449,714. 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, 1914, and for each succeeding financial year up to 1919, is given below. Until recent years, the expenditure on these works increased at a much faster rate than the population.

NEW SOUTH WALES.—EXPENDITURE BY ROADS DEPARTMENT AND ROAD TRUSTS, 1857 TO 1919.

Period.	Expenditure by Roads Department.	Expenditure by Trustees.	Total.
	£	£	£
1857 to 30th June, 1914	23,765,192	1,288,691	25,053,883
1914-15	92,729	..	92,729
1915-16	65,928	..	65,928
1916-17	74,124	..	74,124
1917-18	74,459	..	74,459
1918-19	88,591	..	88,591
Total	24,161,023	1,288,691	25,449,714

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

4. *Victoria.*—Under the Local Government Act 1915, the control, construction, and maintenance of all roads, streets, and bridges are in the hands of Municipal Councils, which are empowered to open new roads, and to close, divert, or increase the width of any existing street or road, provided that no new road less than one chain in width may be opened without the consent of the Minister. The councils are also authorised to make and repair streets, lanes, or passages on private property, or to form means of back access to private property, and may compel the owners of such

property to pay the cost of so doing. Footways in front of houses or grounds may be kerbed, flagged, paved, or asphalted, and the owners of such houses or grounds must bear half the cost of so doing. The revenue of the councils is derived from rates, which may be either ordinary or special. The councils are empowered to raise loans for the purpose of making or opening new streets and roads, and for diverting, altering, or increasing the width of streets and roads, provided that the amount of such loan does not exceed ten times the average income of the council during the three years immediately preceding from general rates not exceeding 1s. 6d. in the pound of annual value.

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

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

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

For the construction of developmental or feeder roads to the main road system the Developmental Roads Act (No. 2944) was passed in 1918. Under the authority of this Act the Country Roads Board is empowered to spend a sum of £500,000 over a period of five years on some of the more important roads in the less developed and neglected parts of the State. It is intended that a further sum of £1,500,000 for the same purpose will be provided later on. The amount expended during the year 1918-19 under this Act was £47,562.

For the purpose of making permanent works, power is given to the Governor in Council to issue stock or debentures to the amount of £400,000 a year for five years, and the principal and interest are a charge upon the Consolidated Revenue of the State. The money so raised is to be placed to the credit of an account to be called "the Country Roads Board Loan Account," which will be debited with all payments made by the Treasurer towards the cost of permanent works. A sinking fund of 1 per cent. per annum on half the amount borrowed is authorised to be paid out of the Consolidated Revenue until half of the amount borrowed is redeemed. An annual payment to the Treasurer of 6 per cent. on the amount due by each municipality in respect of permanent works is provided for, and the cost of maintenance allocated to each municipality must be paid before the 1st July in each year. A special rate, not to exceed 6d. in the £1 on the net annual value of ratable property, to meet the cost of permanent works and maintenance, may be levied in any ward or riding of a municipality as the council may direct. In the event of default of payment by a municipality, the board may levy a rate to meet the amount owing. All fees and fines paid under the Motor Car Act, all moneys standing to the credit of the Municipal Fees and Fines Trust Fund, all fees paid on the registration or renewal of the registration of traction engines, and all fees received by the Crown after the 30th June, 1912, under the Unused Roads and Water Frontages Act 1903 (which has been incorporated in the Local Government Act 1915), are to be credited to the Country Roads Board Fund.

Up to the 30th June, 1918, there were 6,500 miles of declared main roads, agreed to by the councils, and gazetted. The total amount expended during 1918-19 for permanent works was £284,734, and for maintenance work £179,133, a total of £463,867. The net receipts for the year were £261,655, of which amount the chief items were motor registration and license fees, £67,666, unused roads and water frontages license fees, £22,374, contributions by municipalities for permanent works, £29,841; ditto for maintenance works, £82,453; and appropriation for maintenance Main Roads Act No. 2986, £50,000.

(ii) *General and Local Government Expenditure.* The gross amount expended directly by the State Government of Victoria on roads and bridges was £8,806,565 up to the end of June, 1919. 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 1915 to 1919 :—

VICTORIA.—EXPENDITURE ON ROADS AND BRIDGES, 1901 AND 1915 TO 1919.

Financial Year.(a)	Annual Expenditure by State Government.	Municipal Loan Expenditure.		Formation of Private Roads, Streets, Lanes, etc.(b)	
		Cities, Towns, and Boroughs.	Shires.	Cities, Towns, and Boroughs.	Shires.
	£	£	£	£	£
1901	72,890	16,844	12,928	18,829	4,521
1915	47,898	103,124	40,129	53,365	8,647
1916	25,651	92,198	44,945	64,481	3,543
1917	16,514	41,686	7,279	60,277	3,222
1918	19,782	22,037	19,007	72,506	2,968
1919	20,591	(c)	(c)	(c)	(c)

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

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

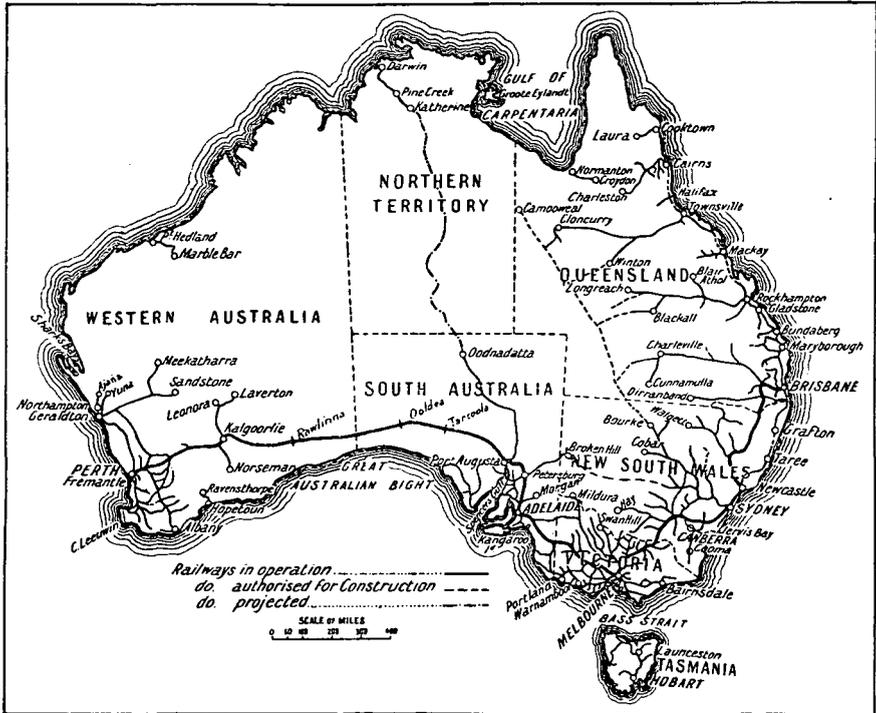
(c) Not available.

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

6. *South Australia.*—Of the several Australian States, South Australia has by far the largest unincorporated area, no less than 88 per cent. of the whole area of the State being in this condition. This area is, however, very sparsely populated and much of it is entirely unoccupied. The remainder of the State is for purposes of local government under the control of Municipal Corporations and District Councils. Under the provisions of the District Councils Acts 1914, 1916, and 1918, the Municipal Corporations Acts 1890 to 1918, and of the Roads Acts 1884 to 1915, the councils are invested with full powers as to the opening and making of new streets and roads, and the diverting, altering, or increasing the width of existing roads ; as to raising, lowering, or altering the ground or soil of any street or road ; and as to the construction, purchase, and management of bridges, culverts, ferries, and jetties.

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

THE GOVERNMENT RAILWAY SYSTEMS OF THE COMMONWEALTH
AS AT 30TH JUNE, 1919.



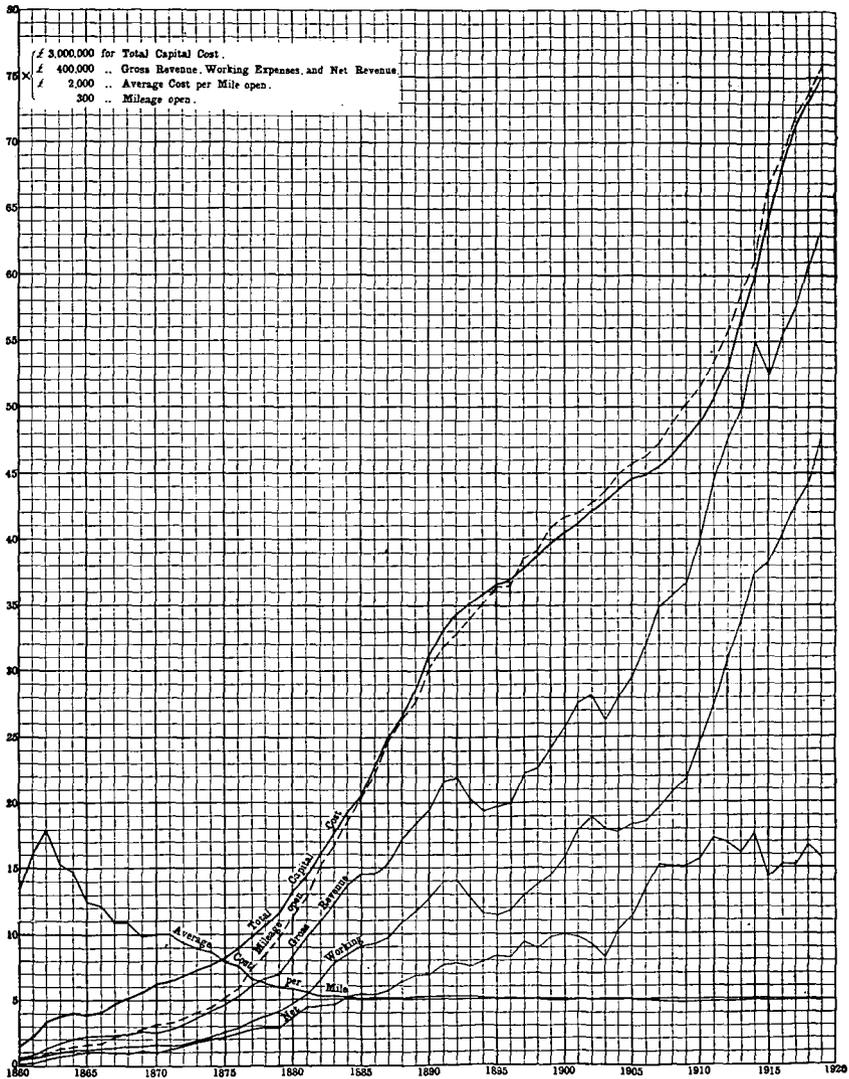
EXPLANATION OF MAP.—The continuous lines denote the existing railway lines of Australia, the heavier lines being the main routes between the capital cities.

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

LIST OF PRINCIPAL SECTIONS OF RAILWAYS.

Miles.	Miles.	Miles.
Townsville to Winton .. 368	Sydney to Nimmitabel .. 291	Adelaide to Broken Hill .. 334½
Townsville to Selwyn .. 552	Sydney to Melbourne (17½ hours) .. 592	Adelaide to Oodnadatta .. 688
Rockhampton to Longreach .. 426½	Adelaide to Melbourne (16 hours) .. 483	Port Lincoln to Cape Thevenard .. 269½
Brisbane to Cunnamulla .. 604	Melbourne to Werbein .. 358½	Port Augusta to Kalgoorlie (37½ hours) .. 1,051½
Sydney to Brisbane (27½ hours) .. 715½	Melbourne to Swan Hill .. 214½	Perth to Laverton .. 588
Newcastle to Inverell .. 410	Melbourne to South Australian border via Murrayville .. 369½	Perth to Meekatharra .. 600
Sydney to Bourke .. 511		Perth to Albany .. 341
Sydney to Hay .. 466		Hobart to Launceston .. 133

GRAPH SHEWING THE FINANCIAL POSITION OF THE GOVERNMENT RAILWAYS OF THE COMMONWEALTH, 1860 TO 1919.



(See page 672.)

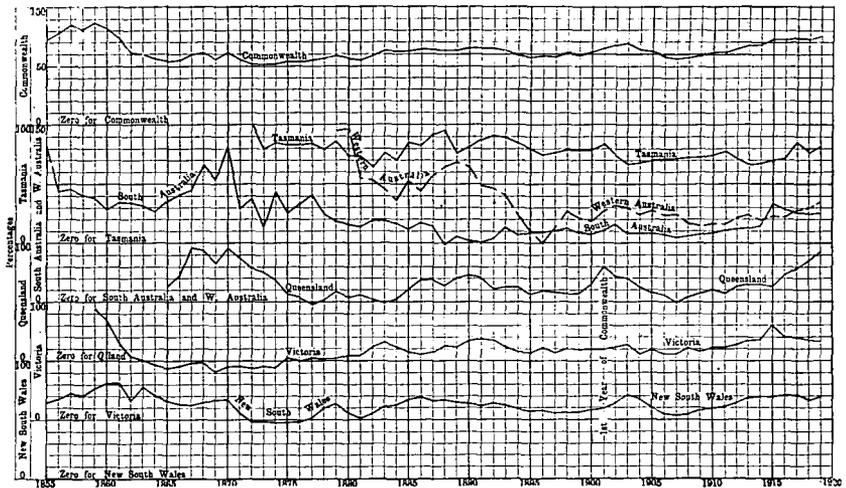
EXPLANATION OF GRAPH.—In the above diagram the base of each small square represents throughout one year. The significance of the vertical height of each square varies, however, according to the nature of the several curves.

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

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

For the curves shewing the percentage of working expenses to gross revenue, and the percentage of net revenue to capital cost, see graphs on pages 647 and 648 respectively.

GRAPH SHEWING PERCENTAGES OF WORKING EXPENSES TO GROSS REVENUE OF GOVERNMENT RAILWAYS OF STATES AND COMMONWEALTH, 1855 TO 1919.

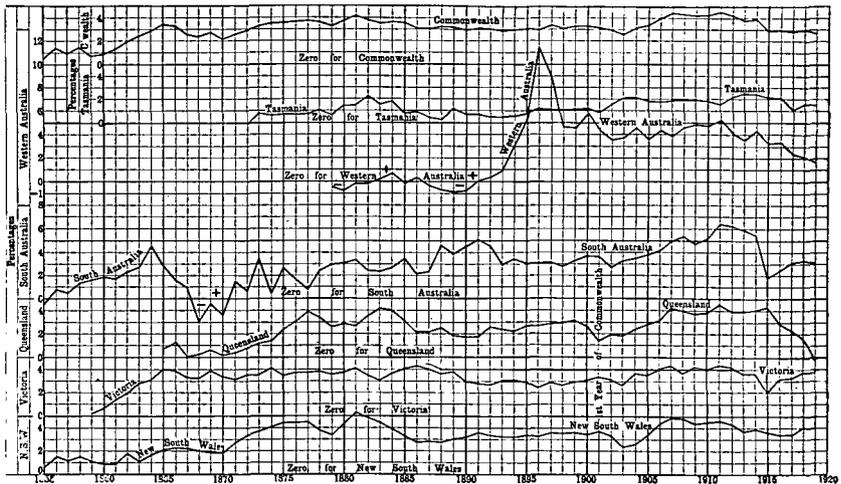


(See page 679.)

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

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

GRAPH SHEWING PERCENTAGES OF NET REVENUE TO CAPITAL COST OF GOVERNMENT RAILWAYS OF STATES AND COMMONWEALTH, 1855 TO 1919.



(See page 681.)

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

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

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

The total estimated length of streets and roads in the incorporated area in South Australia up to the 30th June, 1919, was as follows:—

SOUTH AUSTRALIA.—ESTIMATED LENGTH OF ROADS AND STREETS IN THE INCORPORATED AREA, 1919.

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

(ii) *Expenditure by Corporations on Main and District Roads.* The following table shows the expenditure by municipal corporations on both main and district roads for each year from 1915 to 1919 inclusive:—

SOUTH AUSTRALIA.—EXPENDITURE BY CORPORATIONS ON STREETS, ROADS AND BRIDGES, 1915 TO 1919.

Year ended 30th November—	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Con- struction.	Main- tenance.	From Main Road Grants.	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£
1915	31,732	74,887	12,084	12,820	26	11,502
1916	25,483	73,118	9,669	12,098	88	13,679
1917	15,952	80,106	14,299	15,787	619	13,073
1918	13,983	89,657	10,490	13,033	1,990	12,524
1919	14,535	99,567	12,466	14,734	..	15,263

(iii) *Expenditure by 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, 1915 TO 1919.

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.
	£	£	£	£	£	£
1915	51,625	85,119	114,722	114,781	15,571	102,679
1916	41,283	79,515	83,264	84,738	12,493	61,172
1917	47,337	79,377	109,044	111,567	18,809	72,644
1918	62,280	103,219	126,682	126,865	41,319	103,312
1919	67,194	108,862	120,635	120,790	28,481	97,991

7. *Western Australia.*—In Western Australia the construction, maintenance, and management of roads and bridges throughout the State are under the control of Municipalities constituted by the Municipal Corporation Acts 1906–1919, and District Road Boards constituted by the Road Districts Act 1919.

(i) *District Roads and Bridges.* Under the provisions of the Road Districts 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 thirteen 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 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 Road Districts Act. A board may levy general rates within its district not exceeding two shillings, nor less than ninepence in the £ on the annual ratable value, and, if valued on the basis of unimproved values of lands, the general rate must not be over threepence nor under one penny in the £ on the capital unimproved value. Boards are also empowered to raise loans for works or undertakings or to liquidate existing loans, but the amount of such loans must not be greater than seven times the average ordinary revenue of the board. For the purpose of paying the interest on money borrowed a board may levy a special rate. District Road Boards may also exercise the powers of Drainage Boards under the provisions of the Land Drainage Act of 1900.

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

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

WESTERN AUSTRALIA.—PARTICULARS OF ROADS UNDER CONTROL OF DISTRICT ROAD BOARDS, 1914 TO 1918.

Year ended 30th June.	Road Districts. Area.		Revenue.					Expenditure. £	Length of Cleared Roads.(d)				No. of Bridges and Culverts.	
			From Rates.	From Grants and Subsidies.	From other Sources.	Total.	Cleared only.		Cleared and Formed.	Metalled or otherwise Constructed.	Total.	Bridges.	Culverts.	
														£
1914	112	975,815	93,705	63,671	46,023	203,399	187,800	19,921	4,626	3,804	28,351c	731a	6,450a	
1915	112	975,815	88,569	27,753	47,571	183,893	193,033	19,641	4,674	4,039	28,354a	781	6,649	
1916	113	975,827	104,345	24,397	38,320	167,562	166,340	19,258	4,503	5,076	28,877a	760	6,607	
1917	117	975,823	113,686	30,226	55,363	199,295	189,177	19,903	5,680	4,359	29,942b	839b	7,433b	
1918	116	975,830	116,245	32,594	46,187	195,026	206,165	20,691	5,937	4,390	31,018a	906a	7,817a	

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

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

WESTERN AUSTRALIA.—PARTICULARS OF STREETS, ROADS, AND BRIDGES UNDER THE CONTROL OF MUNICIPALITIES, 1914 TO 1918.

Year ended the 31st October.	No. of Municipalities.	Length of Streets and Roads.(a)					Revenue.		Expenditure.	
		Paved, Metalled, or Gravelled.	Formed only.	Cleared only.	Not Cleared.	Total.	From Rates.	From Grants.	Works and Improvements.	Street Lighting and Watering.
1914 ..	33	551	95	257	290	1,193	153,686	13,142	223,098	19,056
1915 ..	31	570	92	254	279	1,195	170,675	10,309	190,739	24,959
1916 ..	30	559	88	253	238	1,138	166,617	9,462	120,411	24,952
1917 ..	28	562	94	244	238	1,138	167,997	7,813	73,991	23,481
1918 ..	25	562	103	231	224	1,120	171,315	1,870	75,086	25,580

(a) Approximate only.

8. Tasmania.—(i) *Construction.* In Tasmania the cost of construction of roads, tracks, and bridges (and in earlier days of streets) has been borne almost entirely by the Central Government.

Up to the 30th June, 1919, the loan expenditure on these works has been £3,493,835. In addition, half the proceeds of the sale of land has formed a Crown Lands Fund for the construction of roads to new holdings. Under this provision £639,111 has been expended. This fund has in recent years more than met the demands on it, and expenditure therefrom since 1918 has been limited to £10,000 annually, the balance being used for redemption of debt.

ROADS, STREETS, TRACKS, AND BRIDGES—EXPENDITURE ON CONSTRUCTION.

Period.	Expenditure.		New-road Mileage.		New Bridges.
	Loans.	Crown Lands Fund.	Cleared.	Metalled.	
Total up to 31st December, 1902 ..	1,932,919	332,845	..	..	..
Yearly average—					
1903-7	30,611	26,845	103	26	11
1907-11	92,416	21,946	205	105	13
1911-15	160,730	18,233	234	208	50
1915-19	105,097	6,186	94	113	49
Year 1918-19	90,101	6,995	81	89	36
Total to 30th June, 1919	3,493,835	639,111	..	..	..

The total length of roads at the end of 1919 may be taken as approximately 12,000 miles, of which about half is metalled or gravelled.

(ii) *Maintenance.* The maintenance of roads and bridges is undertaken by the municipalities with some assistance from the Central Government, chiefly by way of subsidy. Under the Aid to Road Rates Act £11,000 are distributed annually among the municipalities, in proportion as the cost of maintenance falls on their resources. Under the Main Roads Maintenance Act 1918 a further sum of £5,000 was provided out of Consolidated Revenue, which, with the addition of the Motor Tax, less 5 per cent., made a total of £13,000 available in 1919, this amount, with a contribution from municipalities, being expended on the upkeep of main roads. The work is carried out in most cases by municipalities, under the general direction of an Advisory Board, on which the Government, the municipalities, and the motorists are all represented. The Government also provides for repair of the more important bridges and for emergency work.

The municipal expenditure on roads (excluding Hobart and Launceston streets) is practically supplied by the road rate, which must by law be between sixpence and eighteen pence in the pound of annual value. The average road rate actually collected has slightly increased from 10.7 pence in the pound in 1908 (the first year of the present municipalities) to 11.6 pence in the pound in 1918.

**EXPENDITURE ON MAINTENANCE OF ROADS AND BRIDGES IN MUNICIPALITIES
(EXCLUDING HOBART AND LAUNCESTON).**

Year.	From Municipal Road Rate.	From State Revenue.
	£	£
1908	42,240	17,339
Average 1909-12	48,759	19,259
Average 1913-17	55,722	20,123
1918	58,626	23,062
1919	(a)	29,986

(a) Not available.

§ 2. Railways.

(A) General.

1. Introduction.—In the issues of the Commonwealth Year Book, Nos. 1-7, the statistics of all Government railway systems were treated under the head of *Government Railways*. In the following issues, Nos. 8 to 12, the greater part of those statistics relating to State-owned lines was dealt with separately from those under the control of the Commonwealth Government. This arrangement is continued in the present issue. The State railways are referred to throughout as "State" and the Commonwealth railways as "Federal" railways. There is, however, a summary of the working of the Federal and States' railways in part (E) of the present section.

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

3. Railway Communication in the Commonwealth.—An account of the progress in railway construction in Australia since the opening of the first line in 1854 will be found in Year Book No. 6, p. 681. In the eastern, south-eastern, and southern parts of Australia there now exists a considerable network of railway lines converging from the various agricultural, pastoral and mining districts towards the principal ports, which are themselves connected by systems of lines running approximately parallel to the coast. These are shewn on the map on page 645. In the east, lines radiating from Cairns, Townsville, Rockhampton, Brisbane, and Sydney extend inland in various directions for distances ranging up to over 600 miles; in the south-east there are numerous lines, those in Victoria converging towards Melbourne, while others in New South Wales have their terminus in Sydney; in the south there are four main lines, with numerous branches, running from Melbourne, while from Adelaide one main line, with several branches to the coastal towns, runs inland in a northerly direction for a distance of nearly 700 miles, and another line runs in a south-easterly direction to various ports, meeting the main line from Melbourne on the border of South Australia and Victoria near Serviceton. The South Australian and Victorian railway systems also meet on the border at two other points, one near Pinnaroo, and the other at Rennick near Mount Gambier. By the opening, in 1917, of the Trans-Australian railway from Port Augusta to Kalgoorlie, through communication by rail was established between the eastern States and the Western Australian railway system. The main interstate line (indicated by a heavier line in the map), which permits of direct communication between the five capital cities—Brisbane, Sydney, Melbourne, Adelaide, and Perth—covers a distance from end to end of 3,474.65 miles or 3,479.67 miles via Newcastle. The scheduled time for the journey from Brisbane to Perth is six days and forty-seven minutes. In the opposite direction the journey is scheduled to occupy five days, eighteen hours and forty minutes. Both of these are the times taken over all.

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

BRISBANE TO PERTH.

Gauge of Line.	Terminal or Changing Stations.	Times.		Day on Journey. (a)	Actual Time.	Duration of Stops at Changing Stations.	Intermediate Distance.	Total Distance from Brisbane.	Average Speed. (b)
		Arr.	Dep.						
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
3 6	Brisbane ..	—	8.5 a.m.	Monday..	—	—	—	—	—
4 8½	Wallangarra ..	5.55 p.m.	6.17 p.m.	" ..	9 50	0 22	223.46	223.46	22.72
4 8½	Sydney ..	11.25 a.m.	7.25 p.m.	Tuesday	17 8	8 00	c497.38	720.84	29.03
5 3	Albury ..	7.23 a.m.	7.47 a.m.	Wednesday	11 58	0 24	401.62	1,122.46	33.56
5 3	Melbourne ..	12.51 p.m.	4.30 p.m.	" ..	5 4	3 39	190.50	1,212.96	37.60
5 3	Adelaide ..	9.55 a.m.	10.45 a.m.	Thursday	17 65	0 50	483.05	1,796.01	26.96
5 3	Terowie ..	3.40 p.m.	4.10 p.m.	" ..	4 55	0 30	139.81	1,935.82	28.44
3 6	Port Augusta ..	10.5 p.m.	10.40 p.m.	" ..	5 55	0 35	119.33	2,055.15	20.17
4 8½	Kalgoorlie..	d10.23 a.m.	3.25 p.m.	Saturday	37 13	5 02	1,051.30	3,106.45	28.25
3 6	Perth ..	6.52 a.m.	—	Sunday	15 27	—	373.22	3,479.67	24.16
				Total ..	125 25	19 22	3,479.67	—	27.74

PERTH TO BRISBANE.

Gauge of Line.	Terminal or Changing Stations.	Times.		Day on Journey. (a)	Actual Time.	Duration of Stops at Changing Stations.	Intermediate Distance.	Total Distance from Perth.	Average Speed (b)
		Arr.	Dep.						
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
3 6	Perth ..	—	10.0 p.m.	Monday..	—	—	—	—	—
4 8½	Kalgoorlie..	1.30 p.m.	2.15 p.m.	Tuesday	15 30	0 45	373.22	373.22	24.08
4 8½	Port Augusta ..	5.0 a.m.	8.35 a.m.	Thursday	37 15	3 35	1,051.30	1,424.52	28.22
3 6	Terowie ..	2.46 p.m.	3.16 p.m.	" ..	6 11	0 30	119.33	1,543.85	19.30
5 3	Adelaide ..	7.50 p.m.	8.30 p.m.	" ..	4 34	0 40	139.81	1,683.66	30.62
5 3	Melbourne ..	1.3 p.m.	5.0 p.m.	Friday ..	16 3	3 57	483.05	2,166.71	30.10
5 3	Albury ..	10.21 p.m.	10.40 p.m.	" ..	5 21	0 19	190.50	2,357.21	35.61
4 8½	Sydney ..	10.45 a.m.	3.30 p.m.	Saturday	12 5	4 45	401.62	2,758.83	33.24
4 8½	Wallangarra ..	9.5 a.m.	9.30 a.m.	Sunday	17 35	0 25	c497.38	3,256.21	28.29
3 6	Brisbane ..	6.40 p.m.	—	" ..	9 10	—	223.46	3,479.67	24.38
				Total ..	123 44	14 56	3,479.67	—	28.12

(a) The days here given are for the purposes of time table interpretation. They are not the only days on which the service is provided. (b) Inclusive of stops between changing stations. (c) Runs via Newcastle. (d) 11.53 a.m. on Mondays.

The time allowed for the journey from Port Augusta to Kalgoorlie, 37 hours 13 minutes (actual), gives an average speed of 28.25 miles per hour throughout inclusive of stoppages. Exclusive of stoppages, which aggregate slightly under three hours, the average speed is about 30.72 miles per hour. In the opposite direction the gross time is 37 hours 15 minutes (actual), which gives an average speed of 28.22 miles per hour. Exclusive of stoppages, which aggregate about 3 hours 10 minutes, the average speed is 30.84 miles per hour.

The average speed inclusive of all stops is 24.03 miles per hour on the journey from Brisbane to Perth, and 25.12 miles per hour on the return journey.

The longest railway journey which can be undertaken in Australia, on one continuous line of railway, is from Longreach in Queensland to Meekatharra in Western Australia, a total distance of 4,760.16 miles.

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

4. **Standard Times in Australia.**—In Year Book No. 12, p. 630, particulars are given in regard to standard times now in use in the Australian States, and an explanation is made as to the mode in which the difference of time between Adelaide and Perth is dealt with on the Trans-Australian Railway. Owing to limits of space it has not been possible to repeat this information in the present volume.

5. **Non-conformity of Gauge.**—With but few exceptions, all the railway lines in the Commonwealth open for general traffic are now owned and managed by the respective States in whose territory they run, or by the Commonwealth Government; but, unfortunately for the purpose of interstate traffic, the construction of the various systems in different parts of Australia has proceeded without uniformity of gauge. In 1846 Mr. Gladstone, then Colonial Secretary, recommended in a despatch to the Governor of New South Wales that the 4-ft. 8½-in. gauge should be adopted. In 1850, however, the engineer to the Sydney Railroad and Tramway Company strongly advocated the adoption of the 5-ft. 3-in. gauge, and in 1852 an Act was passed making it compulsory that all railways in New South Wales should be constructed to the wider gauge, the Governors of Victoria and South Australia being duly advised of the step that had been taken. In 1852, however, the company mentioned having changed its engineer, also changed its views as to the gauge question, and in the following year succeeded in obtaining the repeal of the Act of 1852 and in securing the passing of another, under the provisions of which the narrower gauge was made imperative. This step was taken without the concurrence of the other States concerned, and a considerable amount of ill-feeling arose, especially in Victoria, where two private companies had already placed large orders for rolling stock to be constructed to the broad gauge originally chosen. The result was that it was decided in Victoria to adhere to the 5-ft. 3-in. gauge as the standard gauge for the State, while the Sydney Railroad and Tramway Company proceeded with the construction of its lines to the 4-ft. 8½-in. gauge, and these two gauges have since been adhered to as the standard gauges of the respective States. The Queensland Government had, at the outset, adopted a gauge of 3-ft. 6-in. as being best suited to the requirements of the colony, and has since adhered to that gauge throughout the State, so that all goods requiring conveyance into New South Wales or *vice versa* have to be transhipped at the boundary between the two States. In June, 1914, however, the Queensland Government purchased two short lengths of line laid on a 2-ft. gauge. In South Australia the 5-ft. 3-in. gauge was adopted, but in 1870, on the grounds of economy, the 3-ft. 6-in. gauge was introduced, and many of the lines in South Australia have been constructed with that gauge. The interstate line between Adelaide and Melbourne was opened as a through route in January, 1887, and is of the 5-ft. 3-in. gauge throughout. At the 30th June, 1919, of the 2,289.98 miles of State Government railways in South Australia 1,209.59 miles were of 3-ft. 6-in. gauge, exclusive of 477.96 miles of the same gauge from Port Augusta to Oodnadatta belonging to the Federal Government. In the Northern Territory the line from Darwin to Katherine, 199.56 miles in length, is of 3-ft. 6-in. gauge. In Western Australia the 3-ft. 6-in. gauge was also adopted. In Tasmania the first line made had a gauge of 5-ft. 3-in., but it was converted in 1887 to 3-ft. 6-in., which, with the exception of three short lines with a 2-ft. gauge, is the present gauge of the Government and most of the privately-owned lines. It was recognised in both these States that the construction of railways was essential to their proper development, but as their financial resources would not bear a heavy initial expenditure in connexion with the establishment of railway lines, it was decided to adopt the narrow gauge. In Victoria, short lengths of light railways have been constructed to a gauge of 2-ft. 6-in. of an aggregate length of 121.90 miles.

6. **Interstate Communication.**—Until the railway systems of the eastern States were connected at the common boundaries, the inconvenience of non-conformity of gauge was not felt. Since then, however, the necessary transshipments of both passengers and goods have been a source of increasing trouble, delay, and expense. On the 14th June, 1883, a railway bridge over the River Murray at Wodonga was opened for traffic, and railway communication was then established between Melbourne and Sydney. On the 19th January, 1887, the last section of the Victorian line to Serviceton, on the South Australian border, was completed, and a junction was thus effected with the South Australian line to Adelaide. On the 16th January, 1888, a junction was effected between the New South Wales and Queensland lines at Wallangarra, but there was still a break in the

line from Sydney at the Hawkesbury River, thirty-six miles from Sydney. This last link was, however, completed on the 1st May, 1889, by the opening of the Hawkesbury River bridge, 2,900 feet in length, and railway communication was thus established between the four capital cities, Brisbane, Sydney, Melbourne, and Adelaide.

By the opening of the Trans-Australian railway, to which reference has already been made, Western Australia is now linked to the other States, and an unbroken line of communication established from one side of the continent to the other. The construction, moreover, of lines decided upon, and in some cases already made, connecting Victoria with the Riverina district in New South Wales and with the wheat-growing districts of South Australia, will undoubtedly facilitate interstate exchange and will allow the produce of inland areas to find its natural outlet at the nearest port.

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

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

The first question that naturally arises in considering the problem is as to which gauge should be adopted as the universal gauge of the Commonwealth. As regards State Government railways, the 4-ft. 8½-in. gauge has a mileage of 4,784.58, all in New South Wales; Victoria and South Australia have a combined mileage of 5,148.01 of 5-ft. 3-in. gauge; while New South Wales, Queensland, South Australia, and Western Australia have together 10,228.01 miles of 3-ft. 6-in. gauge. In addition, the Commonwealth Government has (i) of 4-ft. 8½-in. gauge 4.94 miles in the Federal Territory, 597.36 miles in South Australia, and 453.94 miles in Western Australia, and (ii) of 3-ft. 6-in. gauge 477.96 miles in South Australia, and 199.56 miles in the Northern Territory. By far the greater part of the mileage of private railways open for general traffic has also been constructed to the 3-ft. 6-in. gauge. The mere question of preponderance of mileage, therefore, indicates the 3-ft. 6-in. gauge for adoption. But this question is obviously subordinate to those involving engineering and economic considerations. Thus, the relative efficiency from the widest point of view, the relative costs of alterations of the permanent way and rolling stock, of carrying capacity and speed, that is to say, questions of a technical nature about which figures are not available, enter into the grounds for decision.

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

In June, 1920, a conference took place at Sydney between the Commonwealth and State Railway Engineers. Four proposals were dealt with, of which the third was considered the most satisfactory compromise for present conditions of traffic. This proposal favored the conversion of existing lines between the capitals and the construction of such new lines as are advisable, to the 4-ft. 8½-in. gauge, the cost of which was estimated at £26,581,000, of which £8,154,000 would be for new line construction.

In July, 1920, a conference took place at Melbourne between the Commonwealth and State representatives of three Governments, and a decision was arrived at under which a committee, consisting of two experts from abroad and an Australian representative not connected with the Railways, was to consider the whole question of gauge unification and report to the various Governments concerned as to the best course to be adopted.

8. **Rolling Stock Gauges.**—Allied to the question of the gauges of the railways of Australia is that of the rolling stock gauges which are in use, the rolling stock gauge being the maximum transverse dimensions to which the rolling stock may be constructed. In the following table will be found particulars of the rolling stock gauges, together with maximum length and weights of vehicles, at present in use on the Government railways, State and Federal :—

**STATE AND FEDERAL GOVERNMENT RAILWAYS.—ROLLING STOCK GAUGES
IN USE, 1919.**

PASSENGER ROLLING STOCK.

Railway.	Gauge of Track.	Maximum Rolling Stock Gauge.			Maximum Tare.
		Width.	Height above Rail Level.	Length over all.	
	ft. in.	ft. in.	ft. in.	ft. in.	t. c. q.
New South Wales	4 8½	9 8	14 0	74 4½	44 2 1
Victoria	5 3	10 0	14 2	74 1½	47 16 0
.. ..	2 6	7 0½	10 4½	31 8	8 11 0
Queensland	3 6	9 4	12 9	53 5	26 17 0
.. ..	2 0	6 3½	10 0	22 0	3 0 0
South Australia	5 3	10 4½	14 1½	74 1½	40 11 0
.. ..	3 6	9 4½	12 1	62 6	24 18 0
Western Australia	3 6	8 10	12 7	61 8	31 10 0
Tasmania	3 6	9 6	12 5	64 0	30 0 0
.. ..	2 0	6 6	10 0	30 2	5 10 1
Federal—					
Trans-Australian	4 8½	10 6	14 6	78 9½	50 0 0
Northern Territory	3 6	9 4	12 9	33 6	11 0 0
Oodnadatta	3 6	10 2	12 4	33 6	11 0 0

GOODS ROLLING STOCK.

Railway.	Gauge of Track.	Maximum Rolling Stock Gauge.			Maximum—	
		Width.	Height above Rail Level.	Length over all.	Tare.	Carrying Capacity.
	ft. in.	ft. in.	ft. in.	ft. in.	t. c. q.	t. c. q.
New South Wales	4 8½	9 8	13 6	60 11	20 10 3	40 0 0
Victoria	5 3	9 7½	13 7½	55 4½	20 13 1	30 0 0
.. ..	2 6	6 5½	9 7½	27 3½	7 12 2½	10 0 0
Queensland.. ..	3 6	8 0	12 0	45 5	11 10 0	21 8 0
.. ..	2 0	6 6	9 0	22 0	4 10 0	16 0 0
South Australia	5 3	10 0½	12 10½	43 6	16 0 0	30 0 0
.. ..	3 6	8 6	12 1	38 9	11 15 0	25 0 0
Western Australia	3 6	8 8	12 6	44 9	17 8 0	27 0 0
Tasmania	3 6	8 6	11 0	40 10	12 5 0	30 0 0
.. ..	2 0	6 0	6 6	27 0	5 15 2	20 0 0
Federal—						
Trans-Australian	4 8½	10 6	14 6	45 0	15 0 0	40 0 0
Northern Territory	3 6	9 4	12 9	32 6	6 0 0	10 0 0
Oodnadatta	3 6	10 2	12 4	18 0	5 0 0	12 0 0

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

It will be observed that the dimensions adopted by the Federal Government for the Trans-Australian Railway are in excess of those at present in use on the 5-ft. 3-in. gauge lines of Victoria and South Australia, and the 4-ft. 8½-in. gauge lines of New South Wales. It is, however, the intention of the latter State to adopt the Federal standard as soon as possible, and with that end in view a commencement has been made in the Sydney suburban area in the enlargement of bridges, tunnels, buildings and platforms to enable the larger rolling stock to be employed. The question of standard couplings on the New South Wales lines is also receiving attention.

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

Mileage of Government and Private Lines, 1855 to 1919. The subjoined table shows 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 1919. The railway mileage given for each State includes both Commonwealth and State Government railways in that State, and in this table and in those on the following page, is estimated from the geographic point of view and not from that of ownership. The figures from 1855 to 1881 are given to the end of the calendar year; the later figures are to the end of the financial year ended on the 30th June, unless otherwise stated, excepting the mileages for private lines, which are in most cases taken for the calendar year:—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OPEN, 1855 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Federal Territory	Nor. Ter.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1855 ..	14	2½	..	6½ ^a	..	..	..	..	23¼
1861 ..	73	114	..	56	..	..	..	..	243
1871 ..	358	276	218	133	12	45	..	..	1,042
1881 ..	1,040	1,247	800	845	92	168	..	..	4,192
1890-1	2,263	2,763	2,205	1,666	656 ^b	425 ^b	..	145	10,123
1900-1	2,926	3,238	2,904	1,736	1,984	618 ^c	..	145	13,551
1910-11	4,027	3,574	4,390	1,993	3,208	675	..	145	18,012
1913-14	4,246	3,886	5,213	2,357	3,910	766½	5	146	20,529½
1914-15	4,439	3,936½	5,449½	2,955	4,553	779½	5	146	22,263½
1915-16	4,491½	4,152½	6,452½	3,060½	4,707½	758½	5	146	23,773½
1916-17	4,781½	4,176½	6,702½	3,241½	4,878½	783½	5	199½	24,769
1917-18	5,025	4,222½	6,769½	3,356½	4,904½	781½	5	199½	25,264½
1918-19	5,170	4,260½	6,841½	3,404	4,965½	811	5	199½	25,657

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

It will be seen from the above table that the rate of construction up to the year 1871 was very slow, the average annual length of lines opened from 1861 to 1871 being only 80 miles for the whole Commonwealth. By the middle of the following decade, however, the principal mountain ranges had been crossed, and the work of construction could be proceeded with at a greater rate, and at a less cost per mile. A great period of activity was from 1881 to 1891, when the average annual length opened for traffic was 593 miles for the whole Commonwealth; the corresponding figures for the periods from June, 1891, to June, 1901, and from June, 1901, to June, 1911, were 343 and 446 miles respectively. Since June, 1911, the average annual length opened for traffic has been 765 miles.

10. **Comparative Mileage of Government and Private Lines, 1919.**—The subjoined table shews for each State (a) the length of lines owned by the State Government, and by the Commonwealth Government in that State, all of which lines are open for general use by the public, (b) the length of private lines available for general use by the public, and (c) the length not so available. The mileages specified in the case of Government lines are to the 30th June, 1919; those given for private lines are as nearly as possible to the 31st December, 1918 :—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OF GOVERNMENT LINES, OF PRIVATE LINES AVAILABLE FOR GENERAL TRAFFIC, AND OF PRIVATE LINES NOT SO AVAILABLE, 1918-19.

State or Territory.	Government Lines—		Private Lines available for General Traffic.	Total Open for General Traffic.	Private Lines used for Special Purposes only.	Grand Total.
	State.	Federal.				
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	4,824.67	..	184.32	5,008.99	160.83	5,169.82
Victoria ..	4,189.52	..	24.94	4,214.46	46.12	4,260.58
Queensland ..	5,469.45	..	440.85	5,910.30	931.11	6,841.41
South Australia	2,289.98	1,075.32	33.80	3,399.10	5.00	3,404.10
Western Australia	3,538.23	453.94	278.35	4,270.52	694.96	4,965.48
Tasmania ..	601.54	..	162.86	764.40	46.63	811.03
Federal Territory	..	4.94	..	4.94	..	4.94
Northern Territory	..	199.56	..	199.56	..	199.56
Total ..	20,913.39	1,733.76	1,125.12	23,772.27	1,884.65	25,656.92

11. **Comparative Railway Facilities in Different States and Territories, 1919.**—The relations to populations and areas respectively of the mileage of line open to the public for general traffic (including both Government and private lines) on the 30th June, 1919, are shewn in the subjoined statement for each State, the Federal and Northern Territories, and also for the Commonwealth :—

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARISON OF RAILWAY FACILITIES IN DIFFERENT STATES AND TERRITORIES, 1919.

State or Territory.	Population, 30th June, 1919.	Area.	Mileage of Railway.	
			Per 1,000 of Population.	Per 1,000 sq. miles of Territory.
	Number.	Sq. miles.	Miles.	Miles.
New South Wales ..	1,963,203	309,432	2.63	16.71
Victoria ..	1,467,188	87,884	2.90	48.48
Queensland ..	712,829	670,500	9.60	10.20
South Australia ..	455,944	380,070	7.47	8.96
Western Australia ..	323,220	975,920	15.36	5.09
Tasmania ..	210,881	26,215	3.85	30.94
Federal Territory ..	2,357	940	2.10	5.26
Northern Territory ..	4,921	523,620	40.55	0.38
Commonwealth ..	5,140,543	2,974,581	4.99	8.63

12. **Classification of Lines according to Gauge, 1918-19.**—The subjoined table gives a classification, according to gauge, of the total mileage, exclusive of sidings and cross-overs, of (i) Commonwealth Government railways, given in the State or Territory in which situated; (ii) State Government railways; (iii) Private railways open to the

public for general traffic; and (iv) Private lines open for special purposes. Particulars of Government railways are up to the 30th June, 1919, of private railways open for general traffic to the 31st December, 1918, and of private railways open for special purposes to the 31st December, 1918, as nearly as possible.

GOVERNMENT AND PRIVATE RAILWAYS.—CLASSIFICATION ACCORDING TO GAUGE, 1918-19.

State or Territory in which situated.	Route Mileage having a Gauge of—						Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	3 ft. 0 in.	2 ft. 6 in.	2 ft. 0 in.		1 ft. 8 in.

FEDERAL RAILWAYS.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
South Australia	597.36	477.96	..	..	..	..	1,075.32
Western Australia	453.94	..	..	..	..	..	453.94
Federal Territory	4.94	..	..	..	..	..	4.94
Northern Territory	199.56	..	..	..	..	199.56
Total	1,056.24	677.52	..	..	..	..	1,733.76

STATE RAILWAYS.

New South Wales ..	..	4,784.58	40.09	..	..	..	..	4,824.67
Victoria ..	4,067.62	..	..	..	121.90	..	..	4,189.52
Queensland ..	..	..	5,440.10	..	..	29.35	..	5,469.45
South Australia ..	1,080.39	..	1,209.59	..	..	..	..	2,289.98
Western Australia ..	..	..	3,538.23	..	..	..	..	3,538.23
Tasmania ..	..	..	577.96	..	..	23.58	..	601.54
Total ..	5,148.01	4,784.58	10,805.97	..	121.90	52.93	..	20,913.39

PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC.

New South Wales ..	45.00	76.40	36.67	..	..	26.25	..	184.32
Victoria ..	13.94	..	..	11.00	..	..	..	24.94
Queensland ..	..	..	253.22	..	7.00	180.63	..	440.85
South Australia ..	..	..	33.80	..	..	..	..	33.80
Western Australia ..	..	..	278.35	..	..	..	..	278.35
Tasmania ..	..	..	152.87	..	..	9.99	..	162.86
Total ..	58.94	76.40	754.91	11.00	7.00	216.87	..	1,125.12

PRIVATE RAILWAYS OPEN FOR SPECIAL PURPOSES.

New South Wales ..	..	157.33	3.50	..	..	..	..	160.83
Victoria ..	28.83	..	..	4.29	..	13.00	..	46.12
Queensland ..	..	..	202.97	..	10.00	718.14	..	931.11
South Australia ..	..	..	..	..	..	5.00	..	5.00
Western Australia ..	..	..	616.06	..	..	50.00	28.00	694.06
Tasmania ..	..	..	31.63	..	..	15.00	..	46.63
Total ..	28.83	157.33	855.06	4.29	10.00	801.14	28.00	1,884.65

ALL RAILWAYS.

New South Wales ..	45.00	5,018.31	80.26	..	..	26.25	..	5,169.82
Victoria ..	4,110.39	..	..	15.29	121.90	13.00	..	4,260.58
Queensland ..	..	..	5,806.29	..	17.00	928.12	..	6,841.41
South Australia ..	1,080.39	597.36	1,721.35	..	..	5.00	..	3,404.10
Western Australia ..	..	453.94	4,433.54	..	..	50.00	28.00	4,965.48
Tasmania ..	..	..	762.46	..	..	48.57	..	811.03
Federal Territory ..	..	4.94	..	..	..	..	..	4.94
Northern Territory ..	..	..	199.56	..	..	..	..	199.56
GRAND TOTAL	5,235.78	6,074.55	13,093.46	15.29	138.90	1,070.94	28.00	25,656.92

(B) Federal Railways.

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

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

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

In the issue of the Year Book for 1918 (No. 11, pp. 663 to 666 and p. 1213) a short description was given of the country through which the line passes between Kalgoorlie and Port Augusta, together with particulars of the rate of construction, permanent way, water supply, rolling stock, etc.

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

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

4. **Federal Territory Railway—Queanbeyan-Canberra.**—This line was built by the Railway Construction Branch of the Public Works Department, New South Wales, and was completed and taken over by the Chief Commissioner of Railways for that State, who has since worked the line for and on behalf of the Commonwealth Government. The line was opened for departmental goods traffic on 25th May, 1914. It connects with the New South Wales railway system at Queanbeyan, is 4.94 miles in length, and has sidings of an aggregate length of 2.00 miles.

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

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

6. Summary of Federal Railways.—The following table shows the railway lines open for traffic under the control of the Commonwealth at 30th June, 1919, together with the lines which have been or are being surveyed :—

FEDERAL GOVERNMENT RAILWAYS, 30th JUNE, 1919.

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

7. Mileage open for traffic, Average miles worked and Train miles run.—The following table shows the length of the Federal railways open for traffic, average miles worked, and the train miles run in the years 1915 to 1919.—

FEDERAL RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, AVERAGE MILES WORKED AND TRAIN MILES RUN, 1915-1919.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
MILES OPEN FOR TRAFFIC.					
	Miles.	Miles.	Miles.	Miles.	Miles.
1915	564	478	5	146	1,193
1916	773	478	5	146	1,402
1917	958	478	5	200	1,641
1918	1,051	478	5	200	1,734
1919	1,051	478	5	200	1,734

FEDERAL RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, AVERAGE MILES WORKED AND TRAIN MILES RUN, 1915-1919—*continued.*

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
AVERAGE MILES WORKED.					
	Miles.	Miles.	Miles.	Miles.	Miles.
1915	370	478	5	146	999
1916	668	478	5	146	1,297
1917	865	478	5	187	1,535
1918	1,051	478	5	200	1,734
1919	1,051	478	5	200	1,734
TRAIN MILES RUN.					
1915	497,553	273,488	(a) 6,000	39,652	816,693
1916	622,919	276,690	1,080	52,424	953,113
1917	570,493	254,927	1,169	87,652	914,241
1918	475,936	259,838	1,127	112,648	849,549
1919	368,886	221,763	1,015	83,209	674,873

(a) Estimated.

8. **Cost of Construction and Equipment of Federal Railways.**—In the following table particulars are given of the cost of construction and equipment for traffic of the undermentioned railways for each of the years 1914-15 to 1918-19:—

FEDERAL RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT, 1915-1919.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
TOTAL COST OF CONSTRUCTION AND EQUIPMENT OF LINES OPEN.					
	£	£	£	£	£
1915	2,846,090	2,155,156	46,108	1,040,702	6,088,056
1916	4,747,062	2,158,355	47,103	1,055,754	8,008,274
1917	6,079,313	2,281,271	52,591	1,664,370	10,077,545
1918	6,674,278	2,281,939	47,883	1,695,556	10,699,656
1919	6,911,624	2,282,973	48,124	1,707,392	10,950,113
COST PER MILE OPEN.					
1915	5,046	4,509	9,222	7,128	5,103
1916	6,141	4,515	9,421	7,231	5,712
1917	6,353	4,773	10,651	8,340	6,141
1918	6,349	4,774	9,693	8,496	6,171
1919	6,574	4,776	9,742	8,556	6,316

9. **Gross Revenue.**—(i) *Total, per average mile worked, and per train mile run.* The following table shows the total revenue from all sources, the revenue per average mile worked and the revenue per train mile run for each of the undermentioned railways for the financial years from 1915 to 1919 inclusive:—

**FEDERAL RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED
AND PER TRAIN MILE RUN, 1915-1919.**

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
TOTAL GROSS REVENUE.					
	£	£	£	£	£
1915	142,159	66,664	1,088	22,143	232,054
1916	273,959	64,518	1,040	31,518	371,035
1917	290,750	66,429	592	28,695	386,466
1918	175,039	69,231	705	32,511	277,486
1919	175,134	58,286	407	32,237	266,064
GROSS REVENUE PER AVERAGE MILE WORKED.					
1915	384	140	218	152	232
1916	410	135	208	216	286
1917	336	139	120	153	252
1918	166	145	141	163	160
1919	167	122	82	162	153
GROSS REVENUE PER TRAIN MILE RUN.					
	d.	d.	d.	d.	d.
1915	68.57	58.50	43.52	134.02	68.19
1916	105.55	55.96	231.11	144.29	93.43
1917	122.32	62.54	121.54	78.57	101.45
1918	88.27	63.95	150.13	69.27	78.39
1919	113.94	63.08	96.24	92.98	94.62

(ii) *Coaching, Goods, and Miscellaneous receipts, and percentages on total revenue.*
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 1915-19 classified according to the three chief sources of receipts, together with their percentages on the total revenue. The respective totals of the three items have already been given in the preceding paragraph.

**FEDERAL RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS,
AND PERCENTAGES ON TOTAL REVENUE, 1915-1919.**

Year ended 30th June.	Receipts.				Total.	Percentages.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.		Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
COACHING TRAFFIC RECEIPTS.										
	£	£	£	£	£	%	%	%	%	%
1915	4,502	14,703	28	5,098	24,331	3.17	22.06	2.57	23.02	10.49
1916	3,582	14,501	37	4,633	22,753	1.31	22.48	3.56	14.70	6.13
1917	4,411	15,447	39	5,412	25,309	1.52	23.25	6.59	18.86	6.55
1918	72,352	14,586	31	5,341	92,310	41.33	21.07	4.40	16.43	33.27
1919	93,867	12,455	34	5,250	111,606	53.60	21.37	8.25	16.28	41.95
GOODS AND LIVE STOCK RECEIPTS.										
1915	122,601	50,121	1,060	9,341	183,213	86.30	75.18	97.43	42.19	78.95
1916	249,129	48,482	1,003	16,735	315,349	90.94	75.14	96.44	53.10	84.99
1917	271,013	48,026	553	17,152	336,744	93.21	72.30	93.41	59.77	87.13
1918	77,339	51,213	674	19,539	148,765	41.19	73.97	95.60	60.10	53.61
1919	50,485	43,194	373	19,076	113,728	28.83	74.11	91.75	61.04	42.74
MISCELLANEOUS RECEIPTS.										
1915	14,966	1,840	..	7,704	24,510	10.53	2.76	..	34.79	10.56
1916	21,248	1,535	..	10,150	32,933	7.75	2.38	..	32.20	8.88
1917	15,326	2,956	..	6,131	24,413	5.27	4.45	..	21.37	6.32
1918	25,348	3,432	..	7,631	36,411	14.48	4.96	..	23.47	13.12
1919	30,783	2,636	..	7,311	40,730	17.57	4.52	..	22.68	15.31

10. Working Expenses.—(i) *Total.* The following table shows the total annual expenditure on (a) maintenance of ways, works and buildings; (b) locomotives, carriages and wagons repairs and renewals, (c) traffic expenses, and (d) compensation, general and miscellaneous charges, and the percentages of the total of those expenses upon the corresponding gross revenues of each railway for each year 1915 to 1919 :—

FEDERAL RAILWAYS.—TOTAL WORKING EXPENSES, AND PERCENTAGES OF WORKING EXPENSES ON GROSS REVENUE, 1915 TO 1919.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
TOTAL WORKING EXPENSES.					
	£	£	£	£	£
1915	147,846	95,871	1,635	27,796	273,148
1916	273,959	95,069	1,638	47,953	418,619
1917	290,750	102,298	1,446	39,771	434,265
1918	232,468	100,179	1,496	53,482	387,625
1919	243,988	111,362	1,288	50,617	407,255
PERCENTAGE OF WORKING EXPENSES ON REVENUE.					
	%	%	%	%	%
1915	104.00	143.81	150.28	125.53	117.71
1916	100.00	147.35	157.50	152.14	112.82
1917	100.00	153.99	244.26	138.60	112.37
1918	132.81	144.70	212.20	164.50	139.69
1919	139.31	191.06	316.45	157.02	153.07

(ii) *Working Expenses per average mile worked and per train-mile run.* The following table shows the working expenses per average mile worked and per train-mile run for each railway for the years 1915 to 1919 :—

FEDERAL RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED, AND PER TRAIN-MILE RUN, 1915 TO 1919.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
WORKING EXPENSES PER AVERAGE MILE WORKED.					
	£	£	£	£	£
1915	399	201	327	190	273
1916	410	199	328	328	323
1917	336	214	293	212	283
1918	221	198	299	267	220
1919	232	233	261	254	235
WORKING EXPENSES PER TRAIN-MILE RUN.					
	d.	d.	d.	d.	d.
1915	71.31	84.13	65.40	168.24	80.27
1916	105.55	82.46	364.00	219.53	105.41
1917	122.32	96.31	296.87	108.90	114.00
1918	117.23	87.25	318.58	113.95	107.89
1919	158.74	120.52	304.55	145.99	145.00

(iii) *Distribution of Working Expenses.* The subjoined table shows the distribution of working expenses among four chief heads of expenditure for the years 1915-1919 :—

FEDERAL RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1915-1919.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
MAINTENANCE.					
	£	£	£	£	£
1915	36,592	52,818	817	11,953	102,180
1916	66,820	38,742	942	25,291	131,795
1917	69,232	46,921	768	18,858	135,779
1918	64,990	39,673	609	23,699	128,971
1919	71,309	45,284	601	21,500	138,694
LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.					
1915	79,786	32,679	614	9,963	123,042
1916	156,818	45,672	389	16,738	219,617
1917	179,817	44,487	361	15,983	240,648
1918	121,574	42,582	544	22,309	187,009
1919	118,163	52,377	351	20,796	191,687
TRAFFIC EXPENSES.					
1915	28,515	8,957	204	3,504	41,180
1916	47,211	9,106	307	3,942	60,566
1917	37,808	9,295	317	4,930	52,350
1918	41,022	10,400	343	5,704	57,469
1919	47,572	11,471	336	7,104	66,483
OTHER CHARGES.					
1915	2,953	1,417	..	2,376	6,746
1916	3,110	1,549	..	1,982	6,641
1917	3,893	1,595	..	..	5,488
1918	4,882	1,804	..	1,769	8,455
1919	6,944	2,230	..	1,217	10,391

11. *Passenger Journeys and Tonnage of Goods and Live Stock.*—In the next table particulars are given of the passenger journeys, and tonnage of goods and live stock carried on the Federal Railways during the years 1915-1919 :—

FEDERAL RAILWAYS.—PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1915-1919.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
PASSENGER JOURNEYS.					
	No.	No.	No.	No.	No.
1915	12,324	(a)	(a)	3,857	(b) 16,181
1916	7,667	(a)	1,079	4,718	(c) 13,464
1917	4,160	(a)	1,578	8,034	(c) 13,772
1918	17,934	(a)	300	11,546	(c) 29,780
1919	23,942	51,516	93	5,842	81,393
TONNAGE OF GOODS AND LIVE STOCK CARRIED.					
	tons.	tons.	tons.	tons.	tons.
1915	282,471	(a)	(a)	11,995	(b) 294,466
1916	248,744	(a)	12,114	30,007	(c) 290,865
1917	583,250	(a)	6,586	27,529	(c) 617,365
1918	124,806	(a)	7,261	40,862	(c) 172,929
1919	116,971	57,565	4,385	35,124	214,045

(a) Not available.

(b) Exclusive of Oodnadatta and Federal Territory lines.

(c) Exclusive of Oodnadatta line.

12. Number and Description of Rolling Stock, 1919.—The following table shows the numbers of locomotives and rolling stock in use on the Federal railways, classified according to gauge:—

FEDERAL RAILWAYS.—CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK, 1918-19.

Railway.	Gauge.			Gauge.			Gauge.		
	4 ft. 8½ in.	3 ft. 6 in.	Total.	4 ft. 8½ in.	3 ft. 6 in.	Total.	4 ft. 8½ in.	3 ft. 6 in.	Total.
	LOCOMOTIVES.			PASSENGER VEHICLES.			VEHICLES OTHER THAN PASSENGER.		
Trans-Australian	49	..	49	31	..	31	744	..	744
Oodnadatta (a)	..	1	1	..	..	..	..	31	31
Federal Territory (b)	..	..	..	..	..	..	..	..	..
Northern Territory	..	13	13	..	4	4	..	313	313
Total	49	14	63	31	4	35	744	344	1,088

(a) Worked by South Australian Government Railways.

(b) Worked by New South Wales Government Railways.

13. Number of Railway Employees.—The following table shows the number of employees on the Federal railways at 30th June in each year, 1915 to 1919 inclusive, classified according to salaried and wages staffs.

FEDERAL RAILWAYS.—NUMBER OF EMPLOYEES ON RAILWAYS, 1915-19.

Railway.	30th June—									
	1915.		1916.		1917.		1918.		1919.	
	Salaried Staff.	Wages Staff.								
Trans-Australian	No. 226	No. 3,501	No. 82	No. 873	No. 157	No. 2,981	No. 201	No. 913	No. 194	No. 846
Oodnadatta	(a) 1	(a) 3	(a) (b)	(a) (b)						
Federal Territory	1	3	(b) 11	(b) 129	(b) 16	(b) 161	(b) 12	(b) 164	(b) 20	(b) 150
Northern Territory	9	90	11	129	16	161	12	164	20	150
Total	236	3,594	93	1,002	173	3,142	213	1,077	214	996

(a) Worked by South Australian Government Railways.

(b) Worked by New South Wales Government Railways.

14. 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 in each year ended 30th June, 1915 to 1919, on the Federal railways:—

FEDERAL RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED ON FEDERAL RAILWAYS, 1915-19.

Railway.	1915.	1916.	1917.	1918.	1919.
NUMBER OF PERSONS KILLED.					
Trans-Australian	..	13	1	1	3
Oodnadatta	..	2	..	..	1
Federal Territory
Northern Territory	1	..	..
Total	..	15	2	1	4
NUMBER OF PERSONS INJURED.					
Trans-Australian	..	34	16	37	104
Oodnadatta	..	2	6	4	8
Federal Territory
Northern Territory	1	2	3
Total	..	36	23	43	115

FEDERAL RAILWAYS.—ORDINARY GOODS MILEAGE RATES, 1919.

For a Haul of—	Northern Territory Railway.						Trans-Australian Railway.						For a Haul of—	Trans-Australian Railway, <i>contd.</i>					
	Class of Freight.						Class of Freight.							Class of Freight.					
	Highest.			Lowest.			Highest.			Lowest.				Highest.			Lowest.		
	Rate per Ton.	Average per Ton Mile.		Rate per Ton.	Average per Ton Mile.		Rate per Ton.	Average per Ton Mile.		Rate per Ton.	Average per Ton Mile.			Rate per Ton.	Average per Ton Mile.		Rate per Ton.	Average per Ton Mile.	
Miles.	<i>s.</i>	<i>d.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>d.</i>	Miles.	<i>s.</i>	<i>d.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>d.</i>
50	39	5	9.46	6	9	1.62	31	6	7.56	5	5	1.30	600	223	9	4.48	38	4	0.77
100	71	11	8.63	10	11	1.31	57	6	6.90	8	9	1.05	700	239	5	4.10	42	6	0.73
200	133	2	7.99	19	3	1.16	106	6	6.39	15	5	0.93	800	255	0	3.83	46	8	0.70
300	..	..	..	..	..	..	143	0	5.72	21	8	0.87	900	269	1	3.59	50	5	0.67
400	..	..	..	..	..	..	172	2	5.17	27	6	0.83	1,000	281	7	3.38	53	9	0.65
500	..	..	..	..	..	..	201	4	4.83	33	4	0.80	1,051	287	6	3.28	55	0	0.63

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

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

(C) State Railways.

1. *Mileage Open, 1915 to 1919.*—The following table shows the length of State railways open for traffic on the 30th June in the years 1915 to 1919:—

STATE RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, 1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1915	4,134	3,875	4,838	2,157	3,332	533	18,869
1916	4,188	4,100	4,967	2,187	3,332	562	19,336
1917	4,437	4,123	5,214	2,221	3,425	581	20,001
1918	4,678	4,152	5,295	2,242	3,491	588	20,446
1919	4,825	4,190	5,469	2,290	3,538	601	20,913

The following statement shows the actual mileage opened for traffic in the year 1918-19, and also the annual average increase in mileage opened since 1909 in each State:—

STATE RAILWAYS.—MILEAGE OPENED ANNUALLY.

Mileage.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Total all States.
Mileage opened during 1918-19	146.38	37.88	174.30 ^a	48.40	47.15	13.54	467.65
Average annual mileage increase in 10 years to 30th June, 1919	120.21	77.97	197.19	40.19	149.37	13.86	598.79

(a) Inclusive of 102.73 miles acquired on 20th June, 1919.

(i) *New South Wales.* During the year ended 30th June, 1919, the following lines were opened for traffic:—Caroline Mine Branch (3.49 miles); Tottenham to Mount Royal Mine (0.38 mile); Albert to Iron Duke Mine (2.61 miles); Condobolin to near Trida (129.50 miles); and Matakana to Mount Hope (10.40 miles), making a total of 146.38 miles.

(ii) *Victoria*. The following lines were opened for traffic during 1918-19:—North Geelong to Fyansford (2.93 miles); Shelley to Beetoomba (9.73 miles); Nayook to Noojee (5.99 miles); Nandaly to Mittyack (11.07 miles); and Kanagulk to Balmoral (8.16 miles); a total of 37.88 miles. The opening of the electric tramway from Sandringham to Black Rock (2.41 miles) is referred to under the head of "Electric Tramways."

(iii) *Queensland*. The increase of 174.30 miles in the mileage opened for traffic in 1918-19 was due to the opening of the following lines:—Mitchelton to Samford (8.70 miles); Samford to Samsonvale (7.55 miles); Evanslea to Cecil Plains (19.71 miles); Marlborough to Styx (23.01 miles); Moongabulla to Coolbie (6.45 miles); and Coolbie to Bambaroo (6.15 miles); a total of 71.57 miles, and to the acquisition of the line from Mareeba Junction to Mungana (102.73 miles).

(iv) *South Australia*. The lines opened for traffic in this State during the year 1918-19 were on the 5-ft. 3-in. gauge, from Riverton to Clare (27.62 miles); and Balhannah to Mount Pleasant (20.78 miles); a total of 48.40 miles.

(v) *Western Australia*. In the year 1918-19 the following new lines were opened for traffic:—Bokal to Bowelling (28.14 miles); and Calingiri to Piawaning (19.01 miles); a total of 47.15 miles.

(vi) *Tasmania*. During the year 1918-19 the line from Branhholm to Herrick (13.54 miles) was opened for traffic.

2. Average Mileage Worked, Train Miles Run, Number of Passenger Journeys, and Tonnage of Goods and Live Stock Carried, on State Government Railways.—The table on page 668 gives the total mileage open for traffic at the end of each financial year, but, in considering the returns relating to revenue and expenditure, and other matters, it is desirable to know the average number of miles actually worked during each year. The next table shews the average number of miles worked, the total number of train miles run, the number of passenger journeys, and the tonnage of goods and live stock carried by the Government railways of each State during the years 1915 to 1919 inclusive:—

STATE RAILWAYS.—AVERAGE MILEAGE WORKED, TRAIN MILES RUN, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania. (a)	All States.
AVERAGE MILEAGE WORKED.							
1915 ..	4,057	3,848	4,730	2,026	3,096	536	18,293
1916 ..	4,189	3,955	4,939	2,185	3,332	552	19,132
1917 ..	4,313	4,104	5,067	2,193	3,370	577	19,624
1918 ..	4,551	4,139	5,281	2,235	3,463	591	20,260
1919 ..	4,137	4,159	5,324	2,285	3,507	599	20,611
TRAIN MILES RUN.							
1915 ..	20,420,023	15,303,209	11,988,521	5,580,679	5,404,814	1,005,145	59,702,391
1916 ..	21,556,034	13,826,538	11,571,746	5,630,984	5,149,289	1,051,511	58,786,102
1917 ..	20,300,717	14,022,040	10,729,187	5,730,539	4,500,211	1,080,459	56,363,153
1918 ..	18,143,267	13,626,371	10,319,694	5,440,515	4,094,510	1,056,373	52,680,730
1919 ..	19,935,202	13,031,655	9,942,744	5,412,924	4,256,627	1,107,890	53,687,042
NUMBER OF PASSENGER JOURNEYS.							
1915 ..	88,774,451	117,259,926	24,257,552	18,831,273	18,635,327	1,750,905	269,509,434
1916 ..	92,850,938	115,771,238	24,438,905	20,512,753	18,884,541	2,078,228	274,536,503
1917 ..	96,709,846	103,341,540	24,837,714	19,107,015	17,466,744	1,971,838	267,434,747
1918 ..	94,304,516	105,753,073	25,682,368	18,936,104	16,081,695	1,874,029	262,631,785
1919 ..	98,568,768	111,904,786	26,414,817	20,176,544	17,325,424	1,889,102	276,279,441
TONNAGE OF GOODS AND LIVE STOCK CARRIED.							
1915 ..	11,920,881	5,410,045	4,970,873	2,076,230	2,523,859	408,069	27,310,007
1916 ..	11,915,500	5,829,835	4,570,833	2,396,938	2,554,538	388,782	27,656,796
1917 ..	11,732,864	5,962,602	4,035,379	2,822,401	2,400,246	401,076	27,354,568
1918 ..	11,293,060	6,231,093	4,154,441	2,767,734	2,259,070	407,405	27,112,803
1919 ..	12,714,012	6,515,470	3,783,334	2,618,510	2,379,403	472,926	28,483,655

(a) The average mileage worked in some cases is greater than the actual mileage open, owing to the fact that the Government railways have running powers over certain private lines.

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 hereinbefore. In all the States the Government railways are grouped, for the convenience of administration and management, into several divisions or systems. A summary shewing concisely the gauge and length of the main and branch lines included in each division or system of the different States of the Commonwealth for the year ended the 30th June, 1918, was given in Year Book No. 12, pp. 646 and 651 to 653. Owing to limitations of space this information for the year ended 30th June, 1919, is not included in the present volume, but may be found in Transportation Bulletin No. 11, pp. 23-25 issued by this Bureau.

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 adopted early in the railway history of Australia, and, excepting in cases presenting unusual circumstances, may be regarded as the settled policy of the country. In earlier issues of the Year Book (see No. 6, p. 693) will be found a description of the methods adopted by the various State Governments in the control and management of their railways.

5. **Lines under Construction, and Authorised Lines, 1919.**—The following statement gives particulars up to the 30th June, 1919, of the mileage of State railways (a) under construction, and (b) authorised for construction but not commenced:—

**STATE RAILWAYS.—MILEAGE UNDER CONSTRUCTION AND AUTHORISED,
30th JUNE, 1919.**

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	All States.
Mileage under construction	a 204.90	104.38	b 413.00	67.01	113.25	74.45	976.99
Mileage authorised but not commenced	374.15	32.25	1,203.00	143.75	92.50	..	1,845.65

(a) Exclusive of 223.46 miles on which work was suspended.

(b) Exclusive of 227 miles on which work has been suspended.

(i) *Lines under Construction.* In spite of the great extension of State railways which has taken place since the year 1875 throughout the Commonwealth, there are still, in some of the States, tracts of country of immense area which are as yet practically undeveloped, and in which little in the nature of permanent settlement has been accomplished; the general policy in the States is to extend the existing lines inland, in the form of light railways, as settlement increases, and although it is true that lines which were not likely to be commercially successful in the immediate future have been constructed from time to time for the purpose of encouraging settlement, the general principle that the railways should be self-supporting is kept in view.

(a) In *New South Wales* the lines under construction are chiefly of the "pioneer" class, and are made with a view to affording railway communication over level country to districts in which the traffic would not warrant the expenditure necessary to provide thoroughly equipped lines. As the traffic increases, the permanent way is strengthened in order to allow the heavier types of engines to run over it. The line under construction on 30th June, 1919, from Kempsey to Macksville (29.79 miles), when completed, will form part of an alternative main route between Newcastle and Brisbane. Other lines under construction at that date were as follow:—Henty to Billabong (33.00 miles), Craboon to Coolah (23.95 miles), Matakana to Mount Hope (10.40 miles), Tottenham to the Mines (6.47 miles), Broken Hill to Menindie (73.29 miles), and

Humula to Tumberumba (28.00 miles), a total distance of 204.90 miles. The following lines have also been under construction, but further work thereon has been suspended for the present:—Nimitabel to Bombala (37.85 miles), Sydenham to Botany (6.20 miles), Werris Creek to Binnaway (88.11 miles), Macksville to Raleigh (20.68 miles), Coff's Harbor to Glenreagh (26.37 miles), and Glenreagh to Dorrigo (44.25 miles), a total distance of 223.46 miles.

(b) *Victoria.* In this State the following lines were under construction by the Board of Land and Works on the 30th June, 1919:—5-ft. 3-in. gauge: Beetomba to Cudgewa (9.91 miles), Cavendish to Balmoral (25.29 miles), Koo-wee-rup to McDonald's Track (30.75 miles), Mittyack to Kulwin (8.43 miles), Manangatang to Bryden's Tank (14.25 miles), and Piangil to Pine Tank (15.75 miles), making in all 104.38 miles.

(c) *Queensland.* In December, 1910, the North Coast Railway Act was passed. Under this Act a series of lines, when constructed, will link up a number of existing lines in such a way that a through line will be obtained from Rockhampton to Cairns, via Mackay and Townsville, a total distance of 630 miles. By the completion of this line it will be possible to travel from Cairns to the southern border of the State at Wallangarra, a total distance of about 1,250 miles. At the same time the Great Western Railway Act was passed. Under this Act provision is made for the extension in a westerly or south-westerly direction of the lines already constructed to Quilpie, Yaraka, Winton, and Dajarra, in such a manner that they will form junctions with a line to be made running north-westerly from Eromanga to Camooweal. These extensions, together with the north-westerly line, will make an aggregate distance of 990 miles to be constructed. With the completion of both these schemes, the railways of this State will be brought into direct communication with each other on both their east and west boundaries. On the 30th June, 1919, the following lines, of an aggregate length of 413 miles, were under construction:—Samsonvale to Dayborough (8 miles), Goondoon to Kalliwa (31 miles), Murgon to Proston (26 miles), Colton Vale to Soldiers' Settlement (13 miles), and Orallo to Injune Creek (33 miles). Of the Great Western Railway the following parts were under construction:—Section B, Yaraka to Powell's Creek (27 miles); and Section D: Dajarra to Moonah Creek (41 miles). Of Section C, the part from Winton to Elderslie (37 miles) has been under construction but operations have been suspended. The following parts of the North Coast Railway were under construction:—Section A: Styx towards St. Lawrence (20 miles); Section B: Koumala to St. Lawrence (58 miles); Mackay northwards towards Proserpine (24 miles); Section D: From Moongabulla to Ingham (28 miles); Section E: From Moolaba to Tully River (46 miles). In the northern division the line from Merinda to Bowen coalfields, 50 miles long, and the second section of the line from Milanda to Millaa Millaa, 8 miles long, were also under construction. The following lines were under construction during the year, but work was suspended:—Kalbar to Mount Edwards (10 miles), Tara to Surat (50 miles); Longreach to Winton (109 miles); Proserpine southward towards Mackay (21 miles); and Winton to 37-Mile (37 miles); a total of 227 miles.

(d) *South Australia.* In this State the lines under construction on the 30th June, 1919, were as follow:—Clare to Spalding (23.62 miles), and Monarto to Sedan (43.39 miles), 5-ft. 3-in. gauge—an aggregate distance of 67.01 miles.

(e) In *Western Australia* the following lines were in course of construction by the Public Works Department on the 30th June, 1919:—Esperance northward (60 miles), and Narembeen to Merredin (53.25 miles), a total distance of 113.25 miles.

(f) *Tasmania.* At 30th June, 1919, the following lines were under construction:—Stanley to Trowutta (26.54 miles); Branxholm to David's Creek (13.91 miles); Myalla to Stanley (27.14 miles); Irishtown to Smithton (5.61 miles); Abattoirs to Zinc Works (0.63 mile); and Ulverstone to Ulverstone Wharf (0.62 mile); a total of 74.45 miles.

(ii) *Lines Authorised for Construction.* (a) *New South Wales.* At the 30th June, 1919, the following lines had been authorised for construction but not commenced:—Mirrool to Hillston (62.18 miles), Barnedman to Rankin Springs (70.91 miles),

Coonabarabran to Burren Junction (95.36 miles), Gilgandra to Collie (24 miles), Canowindra to Eugowra (26.70 miles), Grafton to South Grafton (2.34 miles), Roslyn to Taralga (15.82 miles), and Molong to Dubbo (76.84 miles); a total distance of 374.15 miles.

(b) In *Victoria* the following lines were authorised, but their construction had not been commenced up to the end of June, 1919:—5-ft. 3-in. gauge: Merbein to Yelta (10 miles), Alberton to Won Wron (12.25 miles), and Bittern to Red Hill (10 miles), a total of 32.25 miles.

(c) *Queensland*. In addition to the new lines upon which work has been commenced, Parliament has also authorised the construction of the following parts of the Great Western Railway: Section A, from Quilpie to Eromanga (120 miles); Section B, from Powell's Creek (224 miles); Section C, from 37 miles to Springvale (324 miles); and Section D, from Moonah Creek (217 miles); and on the North Coast Railway, Section D, from Ingham to Cardwell (33 miles); Section E, from Tully River southwards to Cardwell (23 miles). The following lines were also authorised for construction: Branch to Winderera (12 miles), Inglewood to Texas and Silverspur (44 miles), Mount Edwards to Maryvale (28 miles), Lanefield to Rosevale (17 miles), Gatton to Mount Sylvia (11 miles), Juandah to Taroom (42 miles), Dirranbandi extension (52 miles), Mundubbera to the Northern Burnett (32 miles), Mount Molloy extension (8 miles), and Yarraman to Nanango (16 miles), a total of 1,203 miles.

(d) In *South Australia*, Parliament has authorised the construction of lines on the 5-ft. 3-in. gauge (i) from Paringa to Renmark, a distance of 2.50 miles, and (ii) from Long Plains to Red Hill, a distance of 61 miles, and also of lines on the 3-ft. 6-in. gauge (i) from Wandana to Penong (54 miles), and (ii) from Kielpa to Mangalo Hall (26.25 miles). The latter line, however, cannot be proceeded with except by resolution of both Houses of Parliament. The conversion of certain 3-ft. 6-in. gauge lines in the north-west of the State to 5-ft. 3-in. gauge has also been authorised. About 175 miles of line are involved in this scheme.

(e) In *Western Australia* the following lines were authorised for construction up to the 30th June, 1919:—Busselton-Margaret River (37.75 miles), Dwarda-Narrogin (33 miles), and Nyabing-Pingerup (21.75 miles), a distance of 92.50 miles.

(f) In *Tasmania* there were no lines authorised for construction which were not being proceeded with at the 30th June, 1919.

6. Cost of Construction and Equipment of State Railways.—The total cost of construction and equipment of the State railways of Australia at the 30th June, 1919, amounted to £213,971,595, or to an average cost of £10,243 per mile open for traffic. Particulars as to the capital expenditure incurred in each State on lines open for traffic are given in the following table:—

STATE RAILWAYS.—MILEAGE AND COST TO 30th JUNE, 1919.

State.	Length of Line Open (Route).	Total Cost of Construction and Equipment.	Average Cost per Mile Open.	Cost per Head of Population.	Mileage per 1,000 of Population.
	Miles.	£	£	£	Miles.
New South Wales (a) ..	4,824.67	76,601,591	15,877	39.02	2.46
Victoria	4,189.52	(b) 57,403,576	(b) 13,743	39.12	2.86
Queensland	5,469.45	38,244,494	6,992	53.65	7.67
South Australia (a) ..	2,289.98	(c) 18,649,979	(c) 8,186	40.90	5.02
Western Australia (a) ..	3,538.23	17,995,941	5,086	55.68	10.95
Tasmania	601.54	5,076,014	8,438	24.07	2.85
All States	20,913.39	213,971,595	10,243	41.68	4.07

(a) Exclusive of Federal railways.

(b) Exclusive of cost of line from Murrayville to South Australian border (12.53 miles).

(c) Exclusive of cost of line from Mount Gambier to Victorian border (11.79 miles).

It will be seen that the lowest average cost per mile open, £5,086, is in Western Australia, which is slightly less than one-third of the highest average cost, namely, £15,877 in New South Wales, compared with an average of £10,243 for all the State Government railways. In Western Australia there have been comparatively few engineering difficulties to contend with; moreover, the system was adopted in several instances in that State of giving contractors the right to carry traffic during the period of their contracts, with the result that, at least in all goldfields railway contracts, the cost of construction was considerably lessened.

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

(i) *Reduction of Cost per Mile in Recent Years.* The average cost per mile of the lines constructed lately in the Commonwealth is very much less than the figure given in the above table, in consequence of the construction of light "pioneer" lines, which have already been referred to, and which it was originally considered in New South Wales could be laid down at a cost of £1,750 per mile (exclusive of stations and bridges). It should also be remembered that in the early days of railway construction there were considerable engineering difficulties to overcome, and that labour was scarce and dear. Since 1892 many hundreds of miles of the "pioneer" lines have been opened in New South Wales, the average cost ranging from about £2,000 to £7,500 per mile, according to the difficulties met in the country traversed. The lowest cost per mile for any line previously constructed had been that of the line from Nyngan to Cobar and the Peak, the average cost of which, to the end of June, 1919, was £3,786. In Victoria also the cost of construction has been greatly reduced in recent years. The total cost to the 30th June, 1919, of the narrow gauge (2 ft. 6 in.) lines, having a length of one hundred and twenty-two miles, was only £342,142, which gives an average cost per mile of only £2,807. In the other States the cost of construction per mile has been similarly reduced by building light railways as cheaply as possible. Fairly substantial permanent way is laid down with reduced ballast, and, as settlement progresses and traffic increases, the road is strengthened, and the stations and siding accommodation enlarged. The subjoined table gives examples of some of the more expensive lines, most of which were built in the early days of railway construction in Australia:—

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

Line.	Gauge.	Length.			Total Cost.	Average Cost per Mile.	Date of Opening.
		Double Lines and over.	Single Line.	Total.			
	ft. in.	Miles.	Miles.	Miles.	£	£	
NEW SOUTH WALES—							
Penrith to Bathurst ..	4 8½	88.50	22.55	111.05	4,133,414	37,221	1876
Sydney to Nowra ..	4 8½	39.90	57.79	97.69	4,467,087	45,727	1887
Homebush to Waratah ..	4 8½	95.71	..	95.71	3,559,024	37,185	1889
VICTORIA—							
Melbourne to Bendigo ..	5 3	100.89	..	100.89	4,952,521	49,088	1862
North Geelong to Ballarat ..	5 3	41.45	11.98	53.43	1,960,540	36,694	1862

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

The average cost per mile of the 458.77 miles comprised in the above table was £41,573, whereas the average cost of the 351.24 miles referred to in the next table was £1,916.

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	132,917	2,118	1898
Burren Junction to Pokataroo ..	4 8½	42.55	104,509	2,455	1906
VICTORIA—					
Wangaratta to Whitfield ..	2 6	30.49	40,135	1,316	1899
Wycheproof to Sea Lake ..	5 3	47.89	85,532	1,786	1895
Ultima to Chillingollah ..	5 3	20.14	34,402	1,708	1909
QUEENSLAND—					
Dalby to Bell ..	3 6	23.50	38,567	1,641	1906
Mahar to Jandowae ..	3 6	28.24	61,307	2,171	1914
SOUTH AUSTRALIA—					
Wandilo to Glencoe ..	3 6	9.13	11,740	1,287	1904
Tailem Bend to Pinnaroo ..	5 3	86.55	164,027	1,895	1906

The comparisons afforded in the two preceding tables are subject to certain limitations, inasmuch as the cost is naturally greater in the case of the older lines. Further, the figures given represent the cost of construction only (*i.e.*, are exclusive of cost of equipment), and cannot therefore be directly compared with the average cost per mile open given in the table on page 672.

(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 each year from 1915 to 1919 is shewn in the following table:—

STATE RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT, 1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
TOTAL COST OF LINES OPEN.							
1915 ..	£ 64,008,436	£ 51,518,792	£ 33,405,877	£ 16,597,139	£ 16,980,712	£ 4,628,911	£ 187,139,867
1916 ..	68,825,592	54,428,148	34,787,623	17,236,543	17,118,195	4,798,646	197,194,747
1917 ..	72,006,621	55,652,275	36,476,000	17,687,344	17,466,802	4,913,395	204,202,437
1918 ..	75,050,450	56,535,414	37,301,839	17,974,348	17,760,566	4,979,399	209,602,066
1919 ..	76,601,591	57,403,576	38,244,494	18,649,979	17,995,941	5,076,014	213,971,595

COST PER MILE OPEN.

1915 ..	15,483	13,295	6,905	7,695	5,096	8,683	9,918
1916 ..	16,434	13,275	7,004	7,881	5,138	8,534	10,198
1917 ..	16,229	13,498	6,996	7,964	5,100	8,447	10,210
1918 ..	16,042	(a)13,659	7,045	(b)8,058	5,087	8,470	10,263
1919 ..	15,877	(a)13,743	6,992	(b)8,186	5,086	8,438	10,243

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

(iii) *Loan Expenditure on Railways.* The subjoined table shews the total loan expenditure on Government railways (including lines both open and unopen) in each State, except Tasmania, and on Government railways and tramways in the latter State for the years 1914-15 to 1918-19:—

STATE RAILWAYS.—LOAN EXPENDITURE, 1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
1915 ..	4,394,318	2,809,926	1,739,156	1,285,431	670,209	a228,285	11,127,325
1916 ..	4,787,669	2,440,317	2,034,614	929,143	414,026	a233,601	10,839,370
1917 ..	3,706,422	1,266,352	1,342,249	413,095	308,027	a133,056	7,169,201
1918 ..	2,294,547	761,705	984,147	500,441	181,394	a55,561	4,777,795
1919 ..	1,441,105	878,384	1,416,302	324,041	154,720	a39,165	4,253,717

(a) Including tramways.

The following statement shews the total loan expenditure on railways to the 30th June, 1919 :—

STATE RAILWAYS.—TOTAL LOAN EXPENDITURE IN EACH STATE TO 30th JUNE, 1919.

State ..	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.a	All States.
Expenditure	£	£	£	£	£	£	£
	81,377,841	55,523,086	39,854,607	20,962,909	17,333,310	5,505,765	220,557,608

(a) Including tramways.

7. Gross Revenue ; Total, per Average Mile Worked, and per Train-mile Run.—

The following table shews the total revenue from all sources, the revenue per average mile worked, and the revenue per train-mile run in each State during each financial year from 1915 to 1919 inclusive :—

STATE RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED, AND PER TRAIN-MILE RUN, 1915-19.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
TOTAL GROSS REVENUE.							
	£	£	£	£	£	£	£
1915 ..	7,616,511	5,161,073	3,832,003	1,745,378	2,058,244	323,265	20,736,474
1916 ..	8,006,078	5,705,163	3,745,350	1,965,410	2,088,110	348,028	21,858,139
1917 ..	8,380,084	5,952,719	3,831,967	2,273,530	1,877,382	340,505	22,656,187
1918 ..	8,954,880	6,562,259	4,023,921	2,331,549	1,816,388	356,735	24,045,732
1919 ..	9,958,173	6,432,277	3,984,597	2,391,409	1,872,897	401,364	23,040,717

GROSS REVENUE PER AVERAGE MILE WORKED.

	£	£	£	£	£	£	£
1915 ..	1,877	1,341	810	861	665	603	1,134
1916 ..	1,920	1,443	758	899	627	630	1,142
1917 ..	1,943	1,450	756	1,037	557	591	1,155
1918 ..	1,968	1,585	762	1,043	525	604	1,166
1919 ..	2,102	1,547	748	1,047	534	670	1,215

GROSS REVENUE PER TRAIN-MILE RUN.

	d.	d.	d.	d.	d.	d.	d.
1915 ..	89.52	80.94	76.71	75.06	91.40	77.18	83.36
1916 ..	89.14	99.03	77.68	83.77	97.32	79.43	89.24
1917 ..	99.07	101.89	85.72	95.22	100.12	75.64	96.47
1918 ..	118.46	115.58	93.58	102.55	106.47	81.05	109.55
1919 ..	119.88	118.46	96.18	103.03	105.60	86.95	111.94

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 shows the gross revenue for 1915–19, classified according to the three chief sources of receipts. The total of the three items specified has already been given in the preceding paragraph.

STATE RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS,
1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
COACHING TRAFFIC RECEIPTS.							
	£	£	£	£	£	£	£
1915 ..	3,315,294	2,795,673	1,284,595	668,403	617,553	157,726	8,839,244
1916 ..	3,574,063	3,003,263	1,339,753	721,555	646,566	179,784	9,464,984
1917 ..	3,637,656	2,918,557	1,308,896	739,483	607,537	171,220	9,383,349
1918 ..	3,932,936	3,254,274	1,396,803	819,197	617,606	177,854	10,198,670
1919 ..	3,978,180	3,241,194	1,392,476	807,747	637,851	188,329	10,245,777
GOODS AND LIVE STOCK TRAFFIC RECEIPTS.							
1915 ..	4,206,234	2,268,375	2,516,380	1,049,074	1,350,740	153,845	11,544,648
1916 ..	4,329,971	2,610,210	2,364,364	1,211,465	1,356,452	156,860	12,029,322
1917 ..	4,542,619	2,934,259	2,433,868	1,502,363	1,176,058	158,162	12,747,329
1918 ..	4,652,113	3,137,547	2,516,564	1,480,469	1,105,836	168,095	13,060,624
1919 ..	5,583,982	2,957,789	2,483,698	1,536,209	1,127,539	203,412	13,892,629
MISCELLANEOUS RECEIPTS.							
1915 ..	94,983	97,025	31,028	27,901	89,951	11,694	352,582
1916 ..	102,044	91,690	41,233	32,390	85,092	11,384	363,833
1917 ..	(a)199,809	99,903	89,203	31,684	93,787	11,123	525,509
1918 ..	(c)369,831	170,438	110,554	31,883	92,946	10,786	786,438
1919 ..	(a)396,011	233,294	108,423	47,453	107,507	9,623	902,311

(a) Including Refreshment Rooms, 1917, £102,375; 1918, £274,699; and 1919, £289,810.

(i) *New South Wales.* The total earnings for the year 1918–19 amounted to £9,958,173, an increase of £1,003,293 as compared with the previous year. Increases of £45,244, £931,869, and £26,180 took place in the coaching traffic, goods and live stock traffic, and miscellaneous receipts respectively.

(ii) *Victoria.* In Victoria, traffic receipts shewed a decrease of £129,982 as compared with the previous year. This was due to decreases of £13,080 and £179,758, in the receipts from coaching traffic, and goods and live stock traffic respectively, and an increase of £62,856 in the miscellaneous receipts.

(iii) *Queensland.* In Queensland, there was a decrease of £39,324 in 1918–19, relatively to 1917–18. There were decreases of £4,327, £32,866 and £2,131 in respect of coaching traffic, goods and live stock traffic, and miscellaneous receipts respectively.

(iv) *South Australia.* In this State there were increases of £55,740 and £15,570 in goods and live stock receipts and miscellaneous receipts respectively, and a decrease of £11,450 in coaching traffic receipts, the net increase for the year 1918–19 being £59,860 in advance of the receipts for the previous year.

(v) *Western Australia.* In this State the earnings in 1918–19 shewed an increase of £56,509 as compared with 1917–18. There were increases of £20,245, £21,703 and £14,561 in the coaching traffic, goods and live stock traffic, and miscellaneous receipts respectively.

(vi) *Tasmania*. The gross revenue in 1918-19 showed an increase of £44,629 as compared with the previous year. In the coaching traffic and goods and live stock traffic receipts there were increases of £10,475 and £35,317 respectively, and a decrease of £1,163 in the miscellaneous receipts.

The following table shows for the two years 1917-18 and 1918-19 the percentage which each class of receipts bears to the total gross revenue :—

**STATE RAILWAYS.—PERCENTAGE OF REVENUES FROM VARIOUS SOURCES
ON TOTAL REVENUE, 1918 and 1919.**

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

Particulars.	1918-19.						
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	39.95	50.39	34.95	33.78	34.06	46.92	40.92
Goods and live stock	56.07	45.98	62.33	64.24	60.20	50.68	55.48
Miscellaneous	3.98	3.63	2.72	1.98	5.74	2.40	3.60

9. **Coaching Traffic Receipts per Average Mile Worked, and per Passenger-train Mile.**—The subjoined table shows the receipts from coaching traffic per average mile of line worked, and per passenger-train mile, in each State and for all States for the year ended the 30th June, 1919 :—

**STATE RAILWAYS.—COACHING TRAFFIC RECEIPTS PER MILE WORKED,
AND PER PASSENGER-TRAIN MILE, 1918-19.**

State.	Number of Passenger-Train Miles. (a)	Coaching Traffic Receipts.		
		Gross.	Per Average Mile Worked.	Per Passenger-Train Mile.
	No.	£	£	d.
New South Wales	9,688,834	3,978,180	840	98.54
Victoria	7,305,134	3,241,194	779	106.48
Queensland	3,536,504	1,392,476	262	94.50
South Australia	2,643,693	807,747	353	73.33
Western Australia	1,771,965	637,851	182	86.39
Tasmania	447,825	188,329	314	100.93
Total	25,393,955	10,245,777	497	96.83

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

New South Wales ..	1,569,524	Western Australia ..	965,158
Victoria	2,509,505	Tasmania	665,583

The preceding table shews that, amongst the States, there is a considerable difference in the amount of the average receipts per average mile worked. In this respect New South Wales shews the maximum of £840, while Western Australia has a minimum of £182, the average for all States being £497. In the case of the receipts per passenger-train mile the maximum occurs in Victoria with 106.48 pence, and the minimum in South Australia, 73.33 pence, the average for all States being 96.83 pence.

With regard to the number of passenger journeys in the various States, it will be seen from the table on page 669 *ante* that there has been a preponderance in favour of Victoria for years past, though it was a declining one during the years 1915-18. In the year 1918-19, however, there was an increase over the two previous years.

This preponderance in Victoria is accounted for, to a great extent, by the large number of metropolitan suburban passengers in that State. Of the total number of passengers carried in Victoria in 1918-19, 103,687,372 were metropolitan suburban passengers, *i.e.*, were carried between stations within twenty miles of Melbourne, while in New South Wales the number of suburban passenger journeys between stations within thirty-four miles of Sydney, including the Richmond line, and of Newcastle, including Greta, was 89,542,008. 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 1918-19 being 253,948,487. In Melbourne, on the other hand, the number of passengers carried on the two cable tramway systems during the same period was 124,004,401; and the number carried on the St. Kilda-Brighton, Sandringham-Black Rock, Prahran-Malvern Trust, Melbourne-Brunswick-Coburg Trust, Hawthorn Trust, and the North Melbourne tramways, 54,183,016, making a total of 178,187,417. This matter is referred to hereinafter. (See sub-section 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, 1919:—

STATE RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS PER MILE WORKED, PER GOODS-TRAIN MILE, AND PER TON CARRIED, 1918-19.

State.	Number of Goods-Train Miles. (a)	Goods and Live-Stock Tonnage.	Goods and Live-Stock Traffic Receipts.			
			Gross.	Per Average Mile Worked.	Per Goods-Train Mile.	Per Ton Carried.
	No.	Tons.	£	£	d.	d.
New South Wales ..	10,246,368	12,714,012	5,583,982	1,179	130.79	105.41
Victoria ..	5,726,521	6,515,470	2,957,789	711	123.96	108.95
Queensland ..	6,446,240	3,783,334	2,483,698	467	93.05	157.56
South Australia ..	2,769,231	2,618,510	1,536,209	672	133.14	140.80
Western Australia ..	2,484,662	2,379,403	1,127,539	322	108.91	113.73
Tasmania ..	660,065	472,926	203,412	340	73.96	103.23
Total ..	28,293,087	28,483,655	13,892,629	674	117.85	117.06

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

New South Wales ..	1,569,524	Western Australia ..	965,158
Victoria ..	2,509,503	Tasmania ..	665,583

From the preceding table it will be seen that the average cost of freight per ton ranges from 103.23 pence in Tasmania to 157.56 pence in Queensland, the average for all States being 117.06 pence.

11. Working Expenses.—In order to make an adequate comparison of the working expenses of the Government railways in the several States, allowance should be made for the variation of gauges and of physical and traffic conditions, not only on the railways of the different States, but also on different portions of the same system. Where traffic is light, the percentage of working expenses is naturally greater than where traffic is heavy; and this is especially true in Australia, where ton-mile rates are in many cases based on a tapering principle—*i.e.*, a lower rate per ton-mile is charged upon merchandise from remote interior districts—and where on many of the lines there is but little back-loading. Further, though efforts have been made from time to time to obtain a uniform system of accounts in the several States, the annual reports of the Commissioners do not yet comprise fully comparable data of railway expenditure.

The following table shows the total annual expenditure, comprising expenses on (a) maintenance of way, works, and buildings; (b) locomotive power—repairs and renewals; (c) carriages and wagons—repairs and renewals; (d) traffic expenses; (e) compensation; and (f) general and miscellaneous charges; and the percentage of the total of these expenses upon the corresponding gross revenues in each-State for each year 1915 to 1919:—

STATE RAILWAYS.—TOTAL WORKING EXPENSES, AND PERCENTAGES OF WORKING EXPENSES ON GROSS REVENUE, 1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
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TOTAL WORKING EXPENSES.

	£	£	£	£	£	£	£
1915	5,311,162	4,114,973	2,401,679	1,448,495	1,497,828	225,995	15,000,130
1916	5,681,168	3,997,412	2,745,061	1,545,489	1,511,055	248,051	15,709,436
1917	5,915,360	4,154,040	2,994,187	1,725,341	1,448,451	289,186	16,528,565
1918	5,940,447	4,451,092	3,410,157	1,747,055	1,451,334	277,952	17,278,037
1919	6,904,450	4,279,663	3,690,445	1,829,634	1,567,591	324,595	18,596,378

PERCENTAGE OF WORKING EXPENSES ON GROSS REVENUE.

	%	%	%	%	%	%	%
1915	69.73	79.73	62.67	82.99	72.77	69.91	72.34
1916	70.71	70.07	73.29	78.63	72.39	71.45	71.87
1917	70.59	69.78	78.14	75.89	77.15	84.93	72.95
1918	66.34	67.83	84.75	74.93	79.90	77.92	71.85
1919	69.33	66.53	82.62	76.51	83.70	80.87	74.26

(a) Including amounts paid for special and abnormal charges.

(i) *New South Wales.* In this State the total working expenses in 1918–19 amounted to £6,904,450, an increase of £964,003 as compared with the previous year. Part of this amount is due to the increase in the train mileage over that of the previous year (1,791,935 miles), at the rate of 10.99 per cent. There were several increases of wages to the staff under awards of the Court of Industrial Arbitration and also large increases in the prices paid for coal and other materials, all of which accounted for a sum of £483,139.

(ii) *Victoria.* In Victoria there was a decrease of £171,429 in the working expenses. This was mainly due to a reduction in the train mileage of 594,706 or at the rate of 9.56 per cent. as compared with the previous year

(iii) *Queensland.* In this State the working expenses increased £280,288, from £3,410,157 in 1917-18 to £3,690,445 in 1918-19. Though there was a decrease of 376,950 in the train mileage, substantial increases were made in the salaries and wages of the staff, in the maintenance services in the Northern and Central Divisions, and in the prices of stores.

(iv) *South Australia.* In South Australia the working expenses in 1918-19 shewed an increase of £82,579 over 1917-18, viz., from £1,747,055 to £1,829,634. This increase was due to the higher prices of stores used in maintenance, and for traffic purposes, together with an addition to the minimum wages staff. It should be mentioned that the average mileage worked during the year was 50 miles greater than in the previous year.

(v) *Western Australia.* In this case the expenditure in 1918-19 was £116,257 greater than in the previous year. The train mileage run was 162,117 more than in the previous year, and the locomotive and rolling stock charges, maintenance, and traffic expenses were greater, mainly owing to the higher cost of stores.

(vi) *Tasmania.* In 1918-19 the working expenses were £46,643 higher than in the previous year. This was mainly owing to the increased salaries and wages paid.

In the preceding table it will be observed that the percentages of the total working expenses to the total gross earnings of the State railways have varied but slightly during the period 1914-19, of which the last year shews the maximum rate, 74.26 per cent.

(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 1915 to 1919 :—

STATE RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED AND PER TRAIN-MILE RUN, 1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
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WORKING EXPENSES PER AVERAGE MILE WORKED.

	£	£	£	£	£	£	£
1915	1,309	1,069	508	715	484	422	820
1916	1,358	1,011	556	707	454	450	821
1917	1,372	1,012	591	787	430	502	842
1918	1,305	1,075	646	782	419	470	838
1919	1,457	1,029	693	801	447	542	902

WORKING EXPENSES PER TRAIN-MILE RUN.

	d.	d.	d.	d.	d.	d.	d.
1915	62.42	64.53	48.08	62.29	66.51	53.96	60.30
1916	63.03	69.39	56.93	65.87	70.45	56.75	64.14
1917	69.93	71.10	66.98	72.26	77.25	64.24	70.37
1918	78.58	78.40	79.31	77.07	85.07	63.15	78.72
1919	83.12	78.82	89.08	81.12	88.39	70.32	83.13

RAILWAYS.

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12. Distribution of Working Expenses.—The subjoined table shows the distribution of working expenses, among four chief heads of expenditure, for the years 1915 to 1919 :—

STATE RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
MAINTENANCE.							
	£	£	£	£	£	£	£
1915	915,790	1,107,310	628,793	230,062	346,771	58,253	3,337,984
1916	895,526	995,619	738,160	306,420	361,627	66,618	3,366,970
1917	932,990	927,315	774,833	391,334	349,714	82,571	3,458,757
1918	996,502	1,049,270	851,525	304,462	371,411	72,515	3,645,685
1919	1,126,118	870,123	904,199	338,785	411,986	87,902	3,739,113

LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.

1915	2,755,669	1,789,838	1,051,683	793,997	714,173	99,829	7,205,187
1916	2,917,299	1,747,319	1,193,160	859,334	714,802	108,867	7,545,801
1917	2,926,231	1,953,282	1,326,002	909,660	681,243	125,889	7,923,187
1918	2,755,183	2,042,846	1,515,121	982,298	656,576	125,190	8,077,214
1919	3,277,623	2,099,967	1,650,263	981,646	689,333	149,260	8,768,092

TRAFFIC EXPENSES.

1915	1,502,945	1,099,026	671,622	347,437	392,628	57,814	4,071,472
1916	1,638,942	1,127,568	744,229	350,472	393,033	58,571	4,312,815
1917	1,763,466	1,137,703	821,941	291,309	375,655	64,247	4,554,321
1918	1,727,861	1,225,479	974,513	426,775	370,991	63,728	4,798,347
1919	1,927,612	1,257,685	1,067,667	459,147	418,050	72,514	5,202,675

OTHER CHARGES.

1915	133,758	118,801	51,576	26,999	44,254	10,099	385,487
1916	209,401	123,906	64,512	29,263	42,193	14,575	483,850
1917	(a) 292,673	135,760	70,511	33,038	41,839	16,479	590,300
1918	(a) 460,901	138,497	68,998	33,520	43,356	16,519	756,791
1919	(a) 573,097	131,888	68,316	50,056	48,222	14,919	886,498

(a) Including Refreshment Rooms, 1917, £94,914; 1918, £236,063; and 1919, £248,249.

13. Net Revenue.—The following table shows the net sums available to meet interest charges, also the percentage of such sums upon the capital cost of construction and equipment of lines opened for traffic in each State for the years 1915 to 1919 :—

STATE RAILWAYS.—NET REVENUE AND PERCENTAGE OF NET REVENUE ON CAPITAL COST OF LINES OPEN, 1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
NET REVENUE.							
	£	£	£	£	£	£	£
1915	2,305,349	1,046,100	1,430,324	296,883	560,418	97,270	5,736,344
1916	2,344,910	1,707,751	1,000,280	419,921	576,455	99,377	6,148,703
1917	2,464,724	1,798,679	837,780	548,189	428,931	51,319	6,129,622
1918	3,014,433	2,111,167	613,764	584,494	385,054	78,783	6,767,695
1919	3,053,723	2,152,614	294,152	56,775	305,06	76,769	6,444,339

PERCENTAGE OF NET REVENUE ON CAPITAL EXPENDITURE.

1915	3.60	2.03	4.28	1.79	3.30	2.10	3.07
1916	3.41	3.14	2.88	2.44	3.27	2.07	3.12
1917	3.42	3.23	2.30	3.10	2.46	1.04	3.00
1918	4.02	3.73	1.65	3.25	2.06	1.58	3.23
1919	3.99	3.75	0.77	3.01	1.70	1.51	3.01

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

STATE RAILWAYS.—NET REVENUE PER AVERAGE MILE WORKED AND PER TRAIN-MILE RUN, 1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
NET REVENUE PER AVERAGE MILE WORKED.							
	£	£	£	£	£	£	£
1915	568	272	302	147	181	181	314
1916	562	432	202	192	173	180	321
1917	571	438	165	250	127	89	312
1918	663	510	116	261	105	133	328
1919	645	518	55	246	87	128	313
NET REVENUE PER TRAIN-MILE RUN.							
	d.	d.	d.	d.	d.	d.	d.
1915	27.10	16.41	28.63	12.77	24.89	23.23	23.06
1916	26.11	29.64	20.75	17.90	26.87	22.68	25.10
1917	29.14	30.79	18.74	22.96	22.87	11.40	26.10
1918	39.88	37.18	14.27	25.78	21.40	17.90	30.83
1919	36.76	39.64	7.10	24.91	17.21	16.63	28.81

14. **Traffic Conditions.**—Reference has already been made to the difference in the traffic conditions on many of the lines of the Commonwealth (see sub-sections 9, 10, and 11 hereof). These conditions differ not only in the several States, but also on different lines in the same State, and apply to both passenger and goods traffic. By far the greater part of the population of Australia is confined to a fringe of country near the coast, more especially in the eastern and southern districts. A large proportion of the railway traffic between the chief centres of population is therefore carried over lines in the neighbourhood of the coast, and is thus, in some cases, open to sea-borne competition. On most of the lines extending into the more remote interior districts traffic is light; the density of population diminishes rapidly as the coastal regions are left behind; and there is a corresponding diminution in the volume of traffic, while, in comparison with other more settled countries, there is but little back-loading.

As an indication of the different traffic conditions prevailing in the several States, the following table is given shewing the numbers of passenger journeys and the tons of goods carried per 100 of the mean population; and per average mile worked in each State during the financial year 1918–19:—

STATE RAILWAYS.—PASSENGER JOURNEYS AND TONNAGE OF GOODS AND LIVE STOCK, 1918–19.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
PER 100 OF MEAN POPULATION.							
Passenger journeys .. No.	5,107	7,821	3,804	4,527	5,527	904	5,492
Goods and live stock .. Tons	659	455	545	587	759	226	566
PER AVERAGE MILE OF LINE WORKED.							
Passenger journeys .. No.	20,808	26,907	4,961	8,830	4,940	3,154	13,404
Goods and live stock .. Tons	2,684	1,567	711	1,146	678	790	1,382

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

(i) *Metropolitan and Country Passenger Traffic.* A further indication of the difference in passenger traffic conditions might be obtained from a comparison of the volume of metropolitan, suburban, and country traffic in each State. Particulars are, however, available only for the States of New South Wales and Victoria. The subjoined table shows the number of metropolitan and country passengers carried in each of the States mentioned and the revenue derived therefrom during the year 1918-19 :—

STATE RAILWAYS.—METROPOLITAN, SUBURBAN, AND COUNTRY PASSENGER TRAFFIC, 1918-19.

Particulars.	Number of Passenger Journeys.			Revenue.		
	Metropolitan.	Country.	Total.	Metropolitan.	Country.	Total.
N.S.W. ..	89,542,008	9,026,760	98,568,768	£ 1,207,827	£ 2,326,041	£ 3,533,868
Victoria ..	6103,687,372	8,217,414	111,904,786	1,273,668	1,620,741	2,894,409

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

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

In previous issues of the *Year Book* reference has been made to the scheme for the electrification of the suburban lines running out of Melbourne. Part of this scheme was brought into operation on the lines between Sandringham and Essendon, via Melbourne, on the 28th May, 1919, followed by the St. Kilda line on the 31st August, and the Port Melbourne line on the 26th October. The remainder of the suburban lines are receiving attention, but the completion of the scheme will not take place for some time to come. It may be mentioned that the Melbourne suburban lines have a total length of 195.78 route miles, of which about 22 miles have been electrified. In Sydney, a Metropolitan Railway Construction Branch of the Railway Department has been created to deal specially with electrical transport in the city area. The Minister has approved of the construction of an underground city railway, and plans have been prepared and a commencement made with the preliminary works. The preliminary work in the location of a system of electric railways for the eastern, western, and northern suburbs has also been in hand. Further progress with this work has, however, for financial reasons, been deferred for the present.

(ii) *Goods Traffic.* The differing conditions of the traffic in each State might also, to some extent, be analysed by an examination of the tonnage of various classes of commodities carried, and of the revenue derived therefrom. Comparative particulars regarding the quantities of some of the leading classes of commodities carried on the Government railways are available for all the States; corresponding information regarding the revenue derived from each class of commodity is not, however, generally available in a comparable form. In this connexion it may be stated that the following resolution was passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909 :—“That in view of the variations in the character and classification of the goods traffic in the different States, the subdivisions of tonnage carried and revenue in each State shall be those which best suit local conditions.”

The following table shows the number of tons of various representative commodities carried, and the percentage of each class on the total tonnage carried during the financial year 1918-19 :—

STATE RAILWAYS.—CLASSIFICATION OF COMMODITIES CARRIED, 1918-19.

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	66,827,719	191,432	1,684,776	526,793	126,037	645,858	2,466,658	12,469,273
Victoria ..	61,106,493	538,863	1,647,264	332,499	83,014	488,853	2,318,484	6,515,470
Queensland ..	1,213,087	255,588	436,996	368,004	62,914	358,503	1,487,342	3,783,334
South Australia ..	886,369	155,136	597,040	81,393	26,741	124,731	747,100	2,618,510
Western Australia	421,795	535,282	594,196	83,245	31,915	78,094	634,876	2,379,403
Tasmania ..	122,727	46,170	(e)	37,871	3,857	17,384	244,917	472,926
All States ..	10,578,190	1,722,471	4,566,272	1,430,705	334,478	1,713,423	7,899,377	28,238,916

PERCENTAGE ON TOTAL TONNAGE CARRIED.

	%	%	%	%	%	%	%	%
New South Wales	54.76	1.54	13.51	4.22	1.01	5.18	19.78	100.00
Victoria ..	16.98	8.27	25.28	5.10	1.28	7.50	35.59	100.00
Queensland ..	32.06	6.76	6.98	9.75	1.66	9.48	39.31	100.00
South Australia ..	33.85	5.93	22.80	3.11	1.02	4.76	28.53	100.00
Western Australia	17.73	22.50	24.97	3.50	1.34	3.28	26.68	100.00
Tasmania ..	25.95	9.76	(e)	8.01	0.82	3.67	51.79	100.00
All States ..	37.46	6.10	16.15	5.07	1.18	6.07	27.97	100.00

(a) Exclusive of 244,739 tons of coal on which only shunting and haulage were collected. (b) Coal, stone, gravel, and sand. (c) Up journey only (to coast). (d) Flour only. (e) Included in all other commodities. (f) Sugar-cane.

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

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

(i) *Passenger-Miles.* Particulars for the whole of the Commonwealth period regarding total "passenger-miles" are available for one State only, namely, Tasmania. For New South Wales, to the end of 1909-10, particulars are available for suburban and extended suburban traffic only—i.e., for all stations within 34 miles of Sydney (including the Richmond line), and of Newcastle (including Greta), but since that date all passenger traffic is included. For South Australia particulars are available for each year since 1904. No particulars are available for other States. In the tables given below

the average number of passengers carried per "train" is obtained by dividing the number of "passenger-miles" by the number of "passenger-train-miles." Similarly, the "density of traffic" is obtained by dividing the number of "passenger-miles" by the "average miles worked."

STATE RAILWAYS.—SUMMARY OF "PASSENGER-MILES," 1915 TO 1919.

Year ended 30th June—	Passenger Train Mileage.	Number of Passenger Journeys.	Total Passenger-miles.	Amount Received from Passengers.	Average Number of Passengers carried per Train.	Average Mileage per Passenger-journey.	Average Receipt per Passenger-mile.	Average Fare per Passenger-journey.	Density of Traffic per Average Mile Worked.
	Miles. (000 omitted.)	No. (000 omitted.)	No. (000 omitted.)	£	No.	Miles.	d.	d.	No.

NEW SOUTH WALES.

1915	10,099	88,774	1,230,901	2,910,684	122	13.87	0.57	7.87	303,402
1916	10,283	92,851	1,321,491	3,147,041	129	12.85	0.57	8.13	316,980
1917	10,435	96,710	1,473,707	3,202,167	141	15.24	0.52	7.95	341,690
1918	9,441	94,305	1,384,766	3,473,340	147	14.67	0.60	8.84	304,277
1919	9,689	98,569	1,367,691	3,533,869	141	13.88	0.62	8.60	288,725

SOUTH AUSTRALIA.

1915	2,815	18,831	215,489	560,012	77	11.44	0.60	7.14	106,362
1916	2,786	20,513	218,609	603,203	78	10.66	0.66	7.06	100,050
1917	2,635	18,197	210,303	615,909	80	11.61	0.70	8.16	95,897
1918	2,597	18,936	234,197	703,221	90	12.37	0.72	8.91	104,786
1919	2,644	20,177	238,845	703,748	90	11.84	0.71	8.37	104,527

TASMANIA.

1915	454	1,751	36,051	132,680	79	20.59	0.88	18.19	67,260
1916	465	2,078	46,719	154,225	100	22.48	0.79	17.81	84,567
1917	471	1,972	40,164	145,941	85	20.37	0.87	17.76	69,607
1918	448	1,874	40,385	151,874	90	21.55	0.90	19.45	68,324
1919	448	1,889	39,961	167,035	89	21.15	1.00	21.22	67,713

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

STATE RAILWAYS.—SUMMARY OF "TON-MILES," 1915 TO 1919.

Year ended the 30th June—	Goods Train Mileage.	Total Tons Carried.	Total "Ton-miles."	Earnings.	Average Freight-paying Load carried per "Train."	Average Miles per Ton.	Earnings per "Ton-mile."	Density of Traffic per Average Mile Worked.
	No. (,000 omitted.)	No. (,000 omitted.)	No. (,000 omitted.)	£	Tons.	Miles.	d.	Tons.

NEW SOUTH WALES. (a)

1915	10,321	11,660	916,923	3,633,613	88.84	78.64	0.95	226,010
1916	11,273	11,614	1,028,760	3,738,227	91.26	88.58	0.87	246,764
1917	9,866	11,468	1,136,485	3,936,639	115.19	99.10	0.83	263,502
1918	8,703	11,094	1,044,437	4,051,655	120.02	94.14	0.93	229,496
1919	10,246	12,469	1,237,806	4,889,343	120.80	99.27	0.95	261,306

SOUTH AUSTRALIA.

1915	2,766	2,076	237,014	1,049,074	85.70	114.15	1.06	116,986
1916	2,845	2,397	278,942	1,211,465	98.04	116.37	1.04	127,662
1917	3,095	2,822	298,442	1,502,363	96.41	105.74	1.21	136,089
1918	2,844	2,768	270,104	1,480,469	94.99	97.59	1.32	120,852
1919	2,769	2,619	263,984	1,536,209	95.33	100.81	1.40	115,529

TASMANIA. (b)

1915	551	388	19,809	141,049	35.90	51.09	1.70	37,000
1916	586	367	20,105	145,094	34.29	54.81	1.73	36,392
1917	609	380	21,288	146,248	34.93	55.98	1.65	36,894
1918	609	389	21,539	153,577	35.39	55.42	1.71	36,444
1919	660	456	23,745	190,524	35.97	52.12	1.93	39,641

(a) Exclusive of tonnage on which only shunting and haulage charges are collected.

(b) Exclusive of live stock.

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

The subjoined statement gives particulars for the last financial year in respect of New South Wales. Miscellaneous traffic consists of timber, bark, bricks, drain-pipes in six-ton lots, and cement in full truck loads, agricultural and vegetable seeds in five-ton lots, and traffic of a similar nature. A and B classes consist of lime, vegetables, tobacco leaf, caustic soda and potash, copper ingots, fat and tallow, water and mining plant in six-ton lots, leather in one and three-ton lots, agricultural implements in five-ton lots, and other traffic of a similar nature. The table does not include 244,739 tons of coal on which only shunting and haulage charges were collected, nor does it include £89,942 for haulage, tonnage dues, etc.

**NEW SOUTH WALES.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED
30th JUNE, 1919.**

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings (exclusive of Terminals).	Earnings per "Ton-mile."	Per cent. on Total Tonnage.
	No.	No.	No.	£	d.	%
Coal, coke, and shale	5,834,953	231,036,372	39.59	622,759	0.64	46.78
Other minerals ..	790,721	52,796,683	66.77	116,748	0.53	6.34
Crude ores ..	202,045	26,607,595	131.19	62,146	0.56	1.62
Miscellaneous ..	931,726	106,244,769	114.03	363,686	0.82	7.47
Firewood ..	191,432	5,832,521	30.46	27,769	1.14	1.54
Fruit ..	106,532	22,658,587	212.69	104,379	1.11	0.85
Grain, flour, etc. (Up journey to coast) ..	1,684,776	298,516,553	177.18	545,088	0.44	13.51
Hay, straw, and chaff	526,793	150,110,252	284.95	271,396	0.43	4.22
Frozen meat ..	27,449	5,016,356	182.75	27,264	1.30	0.22
A class ..	666,030	63,672,468	95.60	348,746	1.31	5.34
B class ..	283,982	29,499,062	103.87	253,079	2.06	2.28
C class ..	34,647	2,461,524	71.04	30,210	2.94	0.28
1st class ..	199,938	15,165,729	75.85	215,773	3.41	1.63
2nd class ..	216,354	34,734,634	160.55	644,715	4.46	1.73
Wool ..	126,037	36,686,217	291.07	344,344	2.25	1.01
Live stock ..	645,858	156,766,547	242.72	911,241	1.39	5.18
Total ..	12,469,273	1,237,805,869	99.27	4,889,343	0.95	100.00

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

**TASMANIA.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED
30th JUNE, 1919.**

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings.	Earnings per "Ton-mile."	Per cent. on Total Tonnage.
	No.	No.	No.	£	d.	%
Agricultural produce ..	63,592	3,494,735	54.95	25,099	1.72	13.96
Hay, straw, chaff, and horse feed ..	37,871	2,108,221	55.66	14,440	1.64	8.31
Stable manure ..	2,497	92,023	36.85	382	0.99	0.55
Manures, other than stable	9,557	310,477	32.48	1,590	1.22	2.10
Fruit ..	6,578	391,042	59.44	4,145	2.54	1.44
Native coal ..	59,996	6,293,044	104.89	20,372	0.77	13.17
Minerals, other than native coal ..	62,731	1,117,442	17.81	11,238	2.41	13.77
Bark ..	1,477	62,472	42.29	545	2.09	0.32
Firewood ..	46,170	1,326,268	28.72	6,945	1.25	10.13
Timber ..	105,780	4,850,724	45.85	33,270	1.64	23.23
Wool ..	3,857	230,062	59.64	5,582	5.82	0.85
Miscellaneous goods ..	55,436	3,468,466	62.57	66,916	4.63	12.17
Total ..	455,542	23,744,976	52.12	190,524	1.92	100.00

16. Interest Returned on Capital Expenditure.—In the year 1901-2 the State Government railways made a profit of 2.94 per cent. on the capital expenditure at that time. In the subsequent years up to and including the year 1910-11, the percentages were 2.56, 3.11, 3.36, 3.98, 4.45, 4.32, 4.22, 4.26, and 4.63 respectively,

rates which shew substantial increases with one exception on that for the first-named year. Since 1910-11, the rates have oscillated and have shewn a decreasing tendency, the rate for the year 1918-19 being 3.01, or 1.62 less than that for the year 1910-11. The reasons for this reduction are to be found in the increases of the charges in respect of working expenses, brought about by the opening of new lines, the higher cost of materials, and the raising of the rate of wages, while in recent years additional expenses have been incurred in consequence of the war. The return on the capital invested as at the 30th June, 1919, was not equal to the interest payable for that year, the rate of which was 4.02 per cent. This average, however, does not accurately express the position. At an early period the necessity for the construction of railways to open up undeveloped districts was recognised, and the money had to be raised at a very high rate of interest. It may be noted, however, that although the loans made for expenditure on railway construction and equipment very largely increase the amount of the public debt of the States, forming, in fact, nearly three-fifths of the total debt, the money borrowed has not been sunk in undertakings which give no return, but has been expended on works which are increasingly reproductive, yielding in most cases a direct return on the capital expended, and representing a greater value than their original cost. In Europe the national debts of various countries have been incurred principally through the expenses of prolonged wars, and the money has gone beyond recovery; but in Australia the expenditure by the States up to a recent period is represented to a large extent by public works which yield a direct return. In addition to the purely commercial aspect of the figures relating to the revenue and expenditure of the State railways, it is of great importance that the object with which many of the lines were constructed should be kept clearly in view; the anticipated advantage in building these lines has been the ultimate settlement of the country rather than the direct returns from the railways themselves, and the policy of the State Governments has been to use their railway systems for the development of the country's resources to the maximum extent consistent with the direct payment by the customers of the railways of the cost of working and interest charges.

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

It will be seen that during the year ended 30th June, 1915, only two States, New South Wales and Queensland, shew a profit after paying working expenses and interest, while in the four years ended 30th June, 1919, all the States shew a loss.

The losses during the last four years for all the States are due to the causes to which allusion has already been made in the remarks as to increases in the working expenses of the railways (see pp. 679 and 680 *ante*). It will be observed in the following table that the interest charges in 1919 were £1,941,040 higher than they were in 1915.

STATE RAILWAYS.—INTEREST ON LOAN EXPENDITURE, PROFIT OR LOSS, AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST, 1915 TO 1919.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
AMOUNT OF INTEREST ON RAILWAY LOAN EXPENDITURE.							
	£	£	£	£	£	£	£
1915	2,279,070	1,764,370	1,312,196	584,812	586,069	172,349	6,698,875
1916	2,508,650	1,922,410	1,413,280	663,588	625,250	180,772	7,378,959
1917	2,858,789	2,006,197	1,500,800	673,985	643,765	181,617	7,865,153
1918	3,043,349	2,120,547	1,559,136	716,234	654,059	183,977	8,277,302
1919	3,265,540	2,157,798	1,617,404	747,671	665,100	186,402	8,639,915

STATE RAILWAYS. INTEREST ON LOAN EXPENDITURE, PROFIT OR LOSS,
AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST, 1915 TO
1919.—*continued.*

Year ended 30th June,	N.S.W.	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
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PROFIT OR LOSS AFTER PAYMENT OF WORKING EXPENSES, INTEREST, AND OTHER
CHARGES.(b)

	£	£	£	£	£	£	£
1915	+ 26,279	- 718,279	+ 118,128	- 287,929	- 25,651	- 75,079	- 962,531
1916	- 223,749	- 214,659	- 417,991	- 243,667	- 48,795	- 81,395	- 1,230,256
1917	- 394,064	- 207,518	- 663,020	- 125,796	- 214,834	- 130,298	- 1,735,530
1918	- 28,916	- 9,380	- 945,372	- 131,740	- 289,005	- 105,194	- 1,509,607
1919	- 211,817	- 5,184	- 1,323,202	- 180,896	- 359,794	- 103,633	- 2,193,576

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

	%	%	%	%	%	%	%
1915	+ 0.04	- 1.39	+ 0.35	- 1.73	- 0.15	- 1.62	- 0.51
1916	- 0.33	- 0.39	- 1.20	- 1.41	- 0.29	- 1.70	- 0.62
1917	- 0.55	- 0.37	- 1.82	- 0.71	- 1.23	- 2.65	- 0.85
1918	- 0.03	- 0.02	- 2.53	- 0.73	- 1.63	- 2.11	- 0.72
1919	- 0.28	- 0.01	- 3.46	- 1.00	- 2.00	- 2.16	- 1.03

(a) Allowing for payment of special expenditure and charges (see sub-section 11 above).

(b) + Indicates a profit; - indicates a loss.

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

(i) *Passenger Fares.* On the Australian Government railways two classes are provided for passenger traffic. The fares charged may be classified as follows:—
(a) Fares between specified stations (including suburban fares). (b) Fares computed according to mileage rates. (c) Return, periodical, and excursion fares. (d) Special fares for workmen, school pupils, and others. Fares in class (a) are issued at rates lower than the ordinary mileage rates. Fares in class (b) are charged between stations not included in class (a). On the average, mileage-rate fares run about 1.88 pence per mile for first-class and about 1.21 pence per mile for second-class single tickets. In New South Wales, Victoria, and Queensland the mileage rates are based upon a tapering principle, i.e., a lower charge per mile is made for a long journey than for a short journey. In Victoria and Western Australia, return fares are generally about $1\frac{1}{2}$ to $1\frac{3}{4}$ times the single fare, and the second-class are about 30 to 45 per cent. lower than the first-class fares. In all the States the issue of ordinary return tickets outside the suburban areas has now been discontinued. Special excursion return tickets are, however, issued at certain times of the year, subject to restrictions as to break of journey and trains available for such tickets.

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

ORDINARY PASSENGER MILEAGE RATES ON STATE RAILWAYS, 1919.

State.	For a Journey of—																							
	50 Miles.		100 Miles.		200 Miles.		300 Miles.		400 Miles.		500 Miles.													
	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.												
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>										
New South Wales	7	10	5	2	15	8	10	5	31	4	19	5	46	8	23	5	62	0	36	3	72	6	41	4
Victoria ..	8	6	5	8	16	8	11	2	33	2	22	2	49	4	32	10	64	4	43	0	79	6	53	0
Queensland ..	8	2	5	5	15	4	9	11	29	10	19	0	43	4	27	1	56	0	34	3	68	8	41	6
South Australia	7	6	5	0	15	6	10	0	30	0	20	0	45	0	30	0	60	0	40	0	75	0	50	0
Western Australia	8	4	5	3	16	8	10	5	33	4	20	10	50	0	31	3	66	8	41	8	83	4	52	1
Tasmania ..	8	3	5	6	16	3	10	9	32	3	21	6	..	..	..	..	..	..	..	..	..	..	..	..
Average ..	8	1	5	4	15	11	10	5	31	8	20	6	46	10	29	11	61	10	39	0	75	10	47	7
Average per passenger mile..	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>
	1.94		1.28		1.91		1.25		1.90		1.23		1.87		1.20		1.86		1.17		1.82		1.14	

The above rates were those in force in June, 1919. Since that time several changes have been made in the rates, of which full particulars are not yet available.

(ii) *Parcel Rates.* In all the States parcels may be transmitted by passenger train at prescribed rates, which are based upon weight and distance carried. The rates vary slightly in the different States. In New South Wales they range from threepence for a parcel not exceeding 3 lbs. for any distance up to 25 miles to thirteen shillings and fourpence for a parcel weighing from 85 lbs. to 112 lbs. for a distance of 500 miles. In Victoria the charge for a parcel weighing from 84 lbs. to 112 lbs. for a distance over 450 miles is twelve shillings and fivepence. The rate in Queensland for a parcel weighing from 85 to 112 lbs. for 500 miles is sixteen shillings and threepence; in South Australia for 550 miles fourteen shillings and ten pence; in Western Australia for a parcel weighing from 99 lbs. to 112 lbs. for 500 miles fourteen shillings; and in Tasmania for a distance of 250 miles the rate is eight shillings.

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

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

RATES FOR AGRICULTURAL PRODUCE IN TRUCK-LOADS ON STATE RAILWAYS, 1919.

State.	Charge per Ton in Truck-loads for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
New South Wales	5 11	8 10	11 2	12 5	13 5	14 2
Victoria	5 10	9 2	12 2	14 0	15 10	17 6
Queensland	4 10	9 2	11 0	12 0	13 0	14 0
South Australia (a)	5 9	8 11	11 0	12 11	14 8	16 5
Western Australia	6 3	8 11	12 1	17 0	22 0	24 0
Tasmania	7 1	11 3	12 6	..	..	..
Average	5 11	9 5	11 8	13 8	15 10	17 3
	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>
Average per ton-mile	1.43	1.13	0.70	0.55	0.47	0.41

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

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

ORDINARY GOODS MILEAGE RATES ON STATE RAILWAYS, 1919.

State.	Charge per ton for a Haul of—											
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
	Highest Class Freight.						Lowest Class Freight.					
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
New South Wales	29 11	58 5	101 9	128 11	139 9	150 7	4 4	5 7	6 5	8 4	10 7	12 10
Victoria	23 9	46 6	87 9	120 0	147 6	175 3	3 0	4 6	6 8	8 10	9 10	10 8
Queensland	44 2	80 7	145 2	209 9	242 0	255 7	4 10	9 2	15 9	20 1	24 6	28 10
South Australia	31 3	60 2	113 1	155 5	192 6	224 3	3 10	7 3	11 0	12 11	14 8	16 5
Western Australia (b)	41 1	71 1	125 10	171 9	209 4	240 8	5 0	8 4	14 2	19 2	23 4	27 6
Tasmania	33 9	54 0	100 0	..	..	..	2 10	5 7	8 6	..	..	..
Average	34 0	61 10	112 4	157 2	186 3	209 3	4 0	6 9	10 5	13 10	16 7	19 3
Average per ton-mile	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>
	8.16	7.42	6.74	6.29	5.59	5.02	0.96	0.81	0.63	0.55	0.50	0.46

(a) Maximum freight for distances up to 500 miles on highest class goods to Western stations is 210 shillings per ton.

(b) The lowest class freights are for manures.

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

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

Since June, 1919, several changes have been made in the goods mileage rates, of which full particulars are not yet available.

18. Numbers and Description of Rolling Stock, 1918-19.—The following table shows the rolling stock in use on the State Government railways in each State, classified according to gauge:—

ROLLING STOCK ON STATE GOVERNMENT RAILWAYS IN EACH STATE,
CLASSIFIED ACCORDING TO GAUGE, 1918-19.

State.	Gauge.					Total.
	5 ft. 3 in.	4ft. 8½ in.	3 ft. 6 in.	2ft. 6 in.	2 ft. 0 in.	

LOCOMOTIVES.

New South Wales ..	..	1,279	..	..	..	1,279
Victoria ..	780	..	..	17	..	797
Queensland ..	..	..	654	..	4	658
South Australia ..	241	..	245	..	..	486
Western Australia ..	..	..	424	..	..	424
Tasmania ..	..	..	73	..	7	80
Total ..	1,021	1,279	1,396	17	11	3,724

PASSENGER VEHICLES.

	Ordinary.	With Motors.		Ordinary.	With Motors.			Ordinary.	With Motors.
New South Wales ..	..	..	1,659	..	..	..	..	1,659	..
Victoria ..	1,518	98	..	..	..	40	..	1,558	98
Queensland ..	..	..	..	794	10	..	7	801	10
South Australia ..	454	1	..	169	2	..	..	623	3
Western Australia ..	..	..	..	396	..	..	..	396	..
Tasmania ..	..	..	..	169	2	..	6	175	2
Total ..	1,972	99	1,659	1,528	14	40	13	5,212	113

VEHICLES, OTHER THAN PASSENGER.

New South Wales ..	..	23,076	..	..	..	23,076
Victoria ..	20,141	..	..	248	..	20,389
Queensland ..	..	..	14,353	..	134	14,487
South Australia ..	4,036	..	5,470	..	..	9,506
Western Australia ..	..	..	10,105	..	..	10,105
Tasmania ..	..	..	1,757	..	77	1,834
Total ..	24,177	23,076	31,685	248	211	79,397

19. Number of Railway Employees.—The following table shows the number of employees in the Railway Department of each State in each year from 1915 to 1919 inclusive, classified according to (a) salaried staff, and (b) wages staff.

In the period under review it will be seen that the aggregates of salaried and wages staffs have fallen from 94,233 in 1915 to 85,837 in 1918, but rose to 87,219 in 1919, the latter being a decrease of 7.44 per cent. of the number in 1915.

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

STATE RAILWAYS.—NUMBER OF EMPLOYEES IN RAILWAY DEPARTMENTS, 1915 TO 1919.

State.	At 30th June—									
	1915.		1916.		1917.		1918.		1919.	
	Salaried Staff.	Wages Staff.								
New South Wales ..	3,649	33,096	4,148	34,634	54,590	30,726	54,870	29,370	54,937	529,776
Victoria ..	2,861	24,314	2,428	20,500	52,344	517,128	52,380	518,359	52,525	57,285
Queensland ..	2,403	8,286	2,889	9,877	3,024	10,784	3,251	11,090	3,296	11,222
South Australia ..	..	10,182	..	10,400	1,057	9,241	51,099	58,904	51,975	58,570
Western Australia ..	1,054	7,093	1,011	6,204	961	5,823	972	5,875	1,037	6,057
Tasmania ..	218	1,277	222	1,203	233	1,151	221	1,146	199	1,240
All States	9,985	84,248	10,698	82,878	12,209	74,651	12,793	73,044	13,069	74,150

(a) Prior to 1916-17, separate returns for salaried and wages staffs are not available; the number of salaried staff in the earlier years is included with the wages staff. (b) Including those absent on military or naval service. (c) Excluding those absent on active service.

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 each of the years 1914-15 to 1918-19 inclusive:—

STATE RAILWAYS.—NUMBER OF PERSONS KILLED AND INJURED, 1915 TO 1919.

State.	In year ended 30th June—									
	1915.		1916.		1917.		1918.		1919.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales ..	78	645	87	710	63	572	59	496	44	690
Victoria ..	48	558	54	534	32	465	44	561	52	510
Queensland ..	30	102	26	181	30	280	21	205	28	162
South Australia ..	20	172	14	193	11	247	17	189	22	193
Western Australia ..	14	131	18	131	20	106	13	86	20	140
Tasmania ..	..	39	10	89	1	4	2	7	4	7
All States ..	190	1,647	209	1,838	157	1,674	156	1,544	170	1,702

(D) Graphical Representation of Government Railway Development.

1. **General.**—Railways are so important a factor in the development of Australia that it has been deemed desirable to graphically represent the main facts of their progress from 1860 onwards. To this end the graphs shewn on pages 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 shows that the ratio between these elements was, naturally enough, very variable from 1860 to 1870, consequent upon progressive decrease in cost of construction. It then became subject to a more regular change, implying reduction of average cost, though in recent years a slight increase has been in evidence.

3. **Cost per Mile Open**.—The fluctuations in cost per mile open from 1860 are clearly indicated by the graph on page 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, £9,466, in 1911. In 1912, 1913, and 1914 it rose to £9,544, £9,665, and £9,820 respectively, but fell in 1915 to £9,632. In 1916 it rose to £9,895, in 1917 was £9,901, in 1918 £9,943, and fell slightly in 1919 to £9,942.

4. **Gross Revenue**.—This graph (page 646) exhibits considerable irregularities, the most striking of which are the maxima in 1892, 1902, 1914, and 1919. The fall commencing in 1892 was in consequence partly of the commercial crisis and partly of the then droughty conditions of several of the States, while that of 1902-3 was due to drought. In the latter case the recovery was very rapid, and there has been a continuous rise up to the year 1914. In 1915, there was a fall amounting to £1,016,421. Since 1915 each year has given an increase over the previous year's figures, the increases for 1916, 1917, 1918, and 1919 being £1,260,646, £813,479, £1,280,565, and £983,563 respectively.

5. **Working Expenses**.—In this case the graph (page 646) has the same characteristics as those of gross revenue. It should be noted, however, that working expenses have been increasing during the last five years at a greater rate than gross revenue, owing to increases in wages and the higher cost of materials.

6. **Net Revenue**.—This graph (page 646) shows a fairly constant rate of increase up to 1900. Thence to 1903 there was a continuous fall, which was followed by a rapid rise to 1907. In 1911 and 1914 there were maxima, followed by a fall in 1915 and a rise in 1916. In 1917 there was a slight fall, and a substantial rise in 1918. In 1919 there was a fall.

7. **Percentage of Working Expenses on Gross Revenue**.—This is shewn for each State and for the Commonwealth, from the year 1855, on page 647. The curve for the Commonwealth shows considerable fluctuations, but points also to the fact that, although a slight rise occurred in 1908, there was from 1903 to 1907 a rapid decline in the percentage of working expenses to gross revenue; since 1907, however, there has been a steady increase up to 1915. In 1916 the percentage slightly declined, rose again in 1917, declined in 1918, but rose in 1919. In the case of the individual States it will be seen that the curves shew considerable fluctuations, particularly in the early years of the period under review.

8. **Percentage of Net Revenue on Capital Cost**.—The fluctuations in this item from the year 1855 are shewn in the graph on page 648. After exhibiting somewhat remarkable oscillations in the earlier years, and less marked ones between 1885 and 1900, and also a rapid fall to 1903, the curve for the Commonwealth from that year shews a well-marked increase until the year 1908, a slight fall occurring in that year and in 1909. Maxima were reached in 1865, 1877, 1881, 1907, and 1911—viz., 3.44, 3.71, 4.12, 4.45, and 4.54 per cent. Since 1911 the rate has varied considerably, that for 1919 being 1.74 lower than that for 1911.

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

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

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

STATE RAILWAYS.—AVERAGE COST PER MILE OF LINE OPEN, 1859 TO 1919.
COMMONWEALTH.

Date	1859.	1869.	1879.	1889.	1899.	1909.	1919.
Cost per mile	£ 27,857	£ 19,857	£ 11,891	£ 10,367	£ 9,722	£ 9,489	£ 9,942

While the sinister influence of the drought of 1902 is strikingly shewn in the curves (a) by the fall in the gross and net revenue in 1902-3, (b) by the fall in the percentage of net revenue on capital cost, and (c) by the increase of working expenses on gross revenue, the rapidity of recovery is even more striking, and serves to indicate the great elasticity of the economic condition of the Commonwealth. Although the percentage of net revenue on capital cost during the year 1918-19 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 £213,971,595 for construction and equipment up to the 30th June, 1919, should yield a return of no less than 3.01 per cent.

It should be mentioned that the graphs for the Commonwealth include the Federal railways.

(E) Government Railways Generally.

1. Rolling Stock.—In the following table particulars of the numbers of the rolling stock employed on both the Federal and State Government railways are set out, classified according to gauge, as at the 30th June in the years 1901, 1911, 1916, and 1919 respectively, together with the percentage of the numbers for each gauge on the total for the mainland. For geographical reasons the figures for Tasmania are shewn separately from those for the mainland.

ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE GOVERNMENT RAILWAYS AS AT 30th JUNE, 1901, 1911, 1916, AND 1919.

LOCOMOTIVES.

Gauge.	At 30th June—							
	1901.		1911.		1916.		1919.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	688	35.23	705	26.84	1,031	28.66	1,021	27.54
4 ft. 8½ in. ..	495	25.34	903	34.37	1,247	34.67	1,328	35.82
3 ft. 6 in. ..	765	39.17	1,009	38.41	1,298	36.09	1,337	36.07
2 ft. 6 in. ..	5	0.26	10	0.38	17	0.47	17	0.46
2 ft. 0 in. ..	..	..	..	..	4	0.11	4	0.11
Total ..	1,953	100.00	2,627	100.00	3,597	100.00	3,707	100.00
Tasmania—								
3 ft. 6 in. ..	64	..	72	..	73	..	73	..
2 ft. 0 in. ..	7	..	7	..	7	..	7	..
Grand Total	2,024	..	2,706	..	3,677	..	3,787	..

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

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

Gauge.	At 30th June—							
	1901.		1911.		1916.		1919.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	1,365	49.71	1,618	42.50	1,958	39.68	2,071	39.96
4 ft. 8½ in. ..	610	22.21	1,136	29.84	1,636	33.15	1,600	32.61
3 ft. 6 in. ..	761	27.71	1,032	27.11	1,300	26.34	1,375	26.53
2 ft. 6 in. ..	10	0.37	21	0.55	34	0.69	40	0.77
2 ft. 0 in. ..	..	..	..	..	7	0.14	7	0.13
Total ..	2,746	100.00	3,807	100.00	4,935	100.00	5,183	100.00
Tasmania—								
3 ft. 6 in. ..	163	..	170	..	167	..	171	..
2 ft. 0 in. ..	8	..	6	..	6	..	6	..
Grand Total	2,917	..	3,983	..	5,108	..	5,360	..

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

Gauge.	At 30th June—			
	1901.	1911.	1916.	1919.
Mainland—				
5 ft. 3 in. ..	2	..	4	99
3 ft. 6 in. ..	..	2	7	12
Total ..	2	2	11	111
Tasmania—				
3 ft. 6 in. ..	..	..	..	2
Grand Total	2	2	11	113

VEHICLES, OTHER THAN PASSENGER.

Gauge.	At 30th June—							
	1901.		1911.		1916.		1919.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	12,204	31.05	15,430	27.80	23,531	30.93	24,177	30.74
4 ft. 8½ in. ..	11,540	29.36	17,112	30.83	22,865	30.06	23,820	30.28
3 ft. 6 in. ..	15,481	39.38	22,775	41.03	29,343	38.57	30,272	38.49
2 ft. 6 in. ..	82	0.21	190	0.34	248	0.33	248	0.32
2 ft. 0 in. ..	..	..	..	..	83	0.11	134	0.17
Total ..	39,307	100.00	55,507	100.00	76,070	100.00	78,651	100.00
Tasmania—								
3 ft. 6 in. ..	1,389	..	1,618	..	1,710	..	1,757	..
2 ft. 0 in. ..	50	..	71	..	77	..	77	..
Grand Total	40,746	..	57,196	..	77,857	..	80,485	..

In the eighteen years under review the percentages of the numbers of locomotives for each gauge on the total number of locomotives on all Government railways on the mainland have undergone the following changes: on the 5-ft. 3-in. gauge the percentage has fallen by 7.69 per cent., the 4-ft. 8½-in. gauge increased by 10.48, and the 3-ft. 6-in. gauge fallen by 3.10 per cent.

As regards passenger vehicles the alterations are as follow: on the 5-ft. 3-in. gauge the percentage has fallen by 9.75 per cent., the 4-ft. 8½-in. gauge increased by 10.40, and the 3-ft. 6-in. gauge fallen by 1.18 per cent.

In the case of vehicles other than passenger the changes have been small, the 5-ft. 3-in. gauge percentage having fallen 0.31, the 4-ft. 8½-in. gauge risen by 0.92, and the 3-ft. 6-in. gauge fallen by 0.89 per cent.

2. Railway Mileage (Route) Open for Traffic.—The Government railway route mileages open for traffic, classified according to gauge, as at the 30th June in each of the years 1901, 1911, 1916, and 1919, are set out in the following table, which gives as well the percentages of each mileage on the total on the mainland, the figures for Tasmania being shewn separately, as in the case of the preceding table relating to rolling stock:—

RAILWAY (ROUTE) MILEAGE OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS, CLASSIFIED ACCORDING TO GAUGE, AS AT 30th JUNE IN EACH OF THE YEARS 1901, 1911, 1916, AND 1919, WITH PERCENTAGES ON TOTAL FOR MAINLAND.

Gauge.	At 30th June—							
	1901.		1911.		1916.		1919.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
Mainland—								
5 ft. 3 in. ..	3,696.77	30.50	4,023.61	25.78	4,955.44	24.56	5,148.01	23.35
4 ft. 8½ in. ..	2,805.34	23.14	3,717.17	23.82	4,925.86	24.41	5,840.82	26.50
3 ft. 6 in. ..	5,571.02	45.96	7,742.96	49.62	10,143.38	50.28	10,905.53	49.47
2 ft. 6 in. ..	48.25	0.40	121.90	0.78	121.90	0.60	121.90	0.55
2 ft. 0 in. ..	..	..	..	..	29.35	0.15	29.35	0.13
Total ..	12,121.38	100.00	15,605.64	100.00	20,175.93	100.00	22,045.61	100.00
Tasmania—								
3 ft. 6 in. ..	439.33	..	448.93	..	538.73	..	577.96	..
2 ft. 0 in. ..	18.72	..	23.57	..	23.58	..	23.58	..
Grand Total	12,579.43	..	16,078.14	..	20,738.24	..	22,647.15	..

From the above table it will be seen that in the eighteen years from 1901 to 1919 the 5-ft. 3-in. gauge percentage has fallen by 7.15 per cent., and the 4-ft. 8½-in. and 3-ft. 6-in. gauges risen by 3.24 and 3.51 per cent. respectively.

3. **Railway Mileage (Track) Open for Traffic.** In the following table, the track mileages of all Government railways and sidings, exclusive of Tasmania, are shewn for the years ended 30th June, 1901, 1911, 1916 and 1919, classified according to gauge, together with the percentages of each mileage on the total.

RAILWAY (TRACK) MILEAGE, FEDERAL AND STATE GOVERNMENT RAILWAYS, EXCLUSIVE OF TASMANIA, ACCORDING TO GAUGE AS AT 30th JUNE, 1901-1919.

Gauge.	At 30th June—							
	1901.		1911.		1916.		1919.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
5 ft. 3 in. ..	4,531.09	32.13	5,102.77	27.64	6,309.82	26.13	6,586.49	24.95
4 ft. 8½ in. ..	3,387.03	24.01	4,666.34	25.23	6,442.87	26.68	7,549.03	28.60
3 ft. 6 in. ..	6,134.78	43.50	8,562.97	46.38	11,236.96	46.53	12,101.70	45.84
2 ft. 6 in. ..	51.00	0.36	123.65	0.70	130.90	0.54	130.97	0.50
2 ft. 0 in. ..	..	..	..	..	29.35	0.12	29.35	0.11
Total ..	14,103.95	100.00	18,460.73	100.00	24,149.90	100.00	26,397.54	100.00

In the eighteen years under review, the 5 ft. 3 in. gauge percentage has fallen by 7.18 per cent., and the 4 ft. 8½ in. and 3 ft. 6 in. gauges have risen by 4.59 and 2.34 per cent. respectively.

4. **Summary of Working of Federal and State Government Railways.**—In the following table a summary is given of the working of all Government railways, both Federal and State, for the year ended 30th June, 1919, fuller particulars of which have been given in the sections B and C of this chapter :—

SUMMARY OF THE WORKING OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS FOR THE YEAR ENDED 30th JUNE, 1919.

Particulars.	Federal Railways.	State Railways.	Total for Commonwealth.
Total mileage open Miles	1,733.76	20,913.39	22,647.15
Average miles open during the year	1,733.76	20,611.00	22,344.76
Total train mileage	674,873	53,687,042	54,361,915
Total cost of construction of lines open .. £	10,950,113	a213,971,595	a224,921,708
Cost per mile £	6,316	a10,243	a9,942
Gross revenue £	266,064	25,040,717	25,306,781
Working expenses £	407,255	18,596,378	19,003,633
Percentage of working expenses on gross revenue %	153.07	74.26	75.09
Net revenue £	—141,191	6,444,339	6,303,148
Interest payable £	358,112	8,639,915	8,998,027
Number of passenger journeys No.	81,393	276,279,441	276,360,834
Tonnage of goods and live stock carried .. Tons	214,045	28,483,655	28,697,700
Number of employees at 30th June, 1919—			
Salaried No.	214	13,069	13,283
Wages	996	74,150	75,146
Number of persons killed and injured during the year through train accidents and movement of rolling stock—			
Killed	3	170	173
Injured	115	1,702	1,817

(a) Exclusive of lines from Mount Gambier to Victorian border, and from Murrayville to Victorian border.

Note.—The sign — denotes a loss on working.

5. **Government Railway Facilities.**—On page 658 *ante* the population per mile of line open for general traffic is given in respect of the States' railways for each State. In the following table is given the mileage of all Government railways, State and Federal, in each State and Territory, per 1,000 of population :—

MILEAGE OF ALL GOVERNMENT RAILWAYS, FEDERAL AND STATE, PER 1,000 OF POPULATION IN EACH STATE AND TERRITORY AS AT 30th JUNE, 1919.

State or Territory.	Population 30th June, 1919.	Length of Line Open (Route).			Mileage per 1,000 of Population.
		State.	Federal.	Total.	
	No.	Miles.	Miles.	Miles.	Miles.
New South Wales ..	1,963,203	4,824.67	..	4,824.67	2.46
Victoria ..	1,467,188	4,189.52	..	4,189.52	2.86
Queensland ..	712,829	5,469.45	..	5,469.45	7.67
South Australia ..	455,944	2,289.98	1,075.32	3,365.30	7.38
Western Australia ..	323,220	3,538.23	453.94	3,992.17	12.35
Tasmania ..	210,881	601.54	..	601.54	2.85
Northern Territory ..	4,921	..	199.56	199.56	40.55
Federal Territory ..	2,357	..	4.94	4.94	2.10
Commonwealth ..	5,140,543	20,913.39	1,733.76	22,647.15	4.41.

(F) Private Railways.

1. **Total Mileage Open, 1918-19.**—As has been stated in a previous part of this section (see A. 8) a number of private railway lines have from time to time been constructed in the Commonwealth. By far the greater proportion of such lines, however, has been laid down for the purpose of hauling timber, sugar-cane, coal, or other minerals, and is not generally used for the conveyance of passengers or for public traffic; in many cases the lines are often practically unballasted and are easily removable, running through bush and forest country in connexion 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 for general and special purposes during 1918-19. A classification of these lines according to their gauge has already been given (see page 659).

MILEAGE OF PRIVATE RAILWAYS OPEN, 1918-19.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
For general traffic ..	184.32	24.94	440.85	33.80	278.35	162.86	1,125.12
For special purposes ..	160.83	46.12	931.11	5.00	694.96	46.63	1,884.65
Total ..	345.15	71.06	1,371.96	38.80	973.31	209.49	3,009.77

2. **Classification of Private Railways.**—In previous issues of the *Year Book*, a classification has been given shewing particulars of the private railways open for general traffic and for special purposes. On account of the necessity for economy of space, this classification has been omitted from this issue and has been transferred to the *Transportation Bulletin No. 11*, issued by this Bureau (pp. 28-32.)

3. **New South Wales.**—In this State the mileage of private railways open to the public for general traffic at the end of 1918 was 184.32, and of lines used for special purposes, 160.83 miles. Most of these lines were constructed primarily for the purpose of conveying coal from the mines to the Government railway systems. Particulars for the year 1918-19 of the operations of lines open for general traffic are given, so far as available, in the table on page 702.

(i) *Private Railways Open for General Traffic.* The most important of the lines open for general traffic are as follows:—(a) *The Deniliquin-Moama Line.* In 1874 permission was granted by the New South Wales Government to the Deniliquin and Moama Railway Company to construct a line forty-five miles long from Deniliquin in the Riverina district, to Moama, connecting with the Victorian Railway system at the Murray Bridge, near Echuca. The line was opened in 1876, the land required being granted by the Government. (b) *The Cockburn-Broken Hill Line.* This line is owned by the Silverton Tramway Company. It was opened in 1888, and connects Broken Hill with the South Australian railway system, having a total length of 36.67 miles. (c) *South Maitland Railways.* These lines, belonging to the South Maitland Railways, Limited, run from East Greta Junction, on the Northern line of the Government railways, to Stanford Merthyr, a distance of 7.36 miles, and from Aberdare Junction to Cessnock, 12.08 miles—a total of 19.44 miles. (d) *The New Redhead Coal Company's Railway.* The lines owned by this company branch from the Northern line of the Government railways, and run from Adamstown to Burwood Extended Colliery, thence to Belmont, and from Burwood Junction to Dudley Boundary and branches, a total distance of 12.00 miles. The lines are worked by the Railway Department, coal wagons being supplied in part by the coal companies using the line. The colliery companies using the line pay a way-leave for right to run their coal over the line, and the Railway Commissioners allow the New Redhead Company a proportion of the revenue from the passenger and goods traffic. (e) *The Seaham Coal Company's Railway.* This line runs from Cockle Creek to West Wallsend and Seaham Collieries, and has a total length of 5.13 miles. (f) *Hexham-Minmi Railway.* This line branches from the Northern line of the Government railways at Hexham, and has a length of 6.00 miles. (g) *The Commonwealth Oil Corporation's Railway.* This line runs from Newnes Junction on the Great Western line of the Government railways to the company's refinery, a distance of 33 miles. The Shay geared type of locomotive is in use on this line. (h) *The Warwick Farm Line* is a short line, 0.83 of a mile in length, connecting the Government line near Liverpool with the Warwick Farm Racecourse. Government rolling stock is used. (i) *The Goondah-Burrinjuck Line* is a line 26.25 miles in length built and worked by the Public Works Department in connexion with the reservoir at Burrinjuck.

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

4. **Victoria.**—In Victoria there are two private railways open for general traffic. (a) *Kerang-Koondrook tramway*, opened in 1889. The cost of construction of this line to the end of September, 1919, was £39,229, paid out of a loan advanced by the Victorian Government. The total length is 13.94 miles. The line is at present controlled by the Kerang Shire Council, but proposals have been made for its transfer to the Railway Department. (b) *Yarra Junction to Powelltown.* This line has a length of 11 miles, and is worked mainly for timber purposes.

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

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

(i) *Mining Railways.* (a) *The Chillagoe Railway.* The most important of these is the Chillagoe railway, constructed under the Mareeba to Chillagoe Railway Act 1897,

and opened in 1901. This line runs from Mareeba, on the Cairns railway, to Mungana, a distance of 102.73 miles. On 26th June, 1919, it was vested in the Queensland Railways Commissioner. (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 $1\frac{1}{4}$ chains. An additional length of 8 miles has been surveyed with a view to extending the line.

(ii) *Shire Tramways*. Under Part XV. of the Local Authorities Act of 1902 provision is made whereby not less than one-third of the ratepayers in any district may petition the local authority to apply to the Governor for the constitution of a tramway area. The Governor may define the area and may also approve of the plans and specifications of the proposed tramway. The amount which may be advanced by the Government for the construction or purchase of a tramway may not exceed a sum equal to £5,000 for every mile of its length. As regards repayment of loans, no sum need be paid during the first three years, but after the expiration of that period the principal and interest must be repaid by half-yearly instalments on the basis provided for by the "Local Works Loans Act 1880 to 1899." For the purpose of raising the money to pay these instalments the local authority may levy a rate upon all ratable property within the tramway area. The money required for the tramway may be raised by the local authorities by the issue of debentures.

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

7. **Western Australia.**—Owing to the difficulty experienced at one time by the Government in constructing lines urgently required for the development of the country, private enterprise was encouraged to undertake the work of construction on the land-grant principle, and two trunk lines were thus constructed. The greater part of the private lines now open, however, have been constructed in connexion with the timber industry. (i) *The Midland Railway*. This line is 278.35 miles in length, and runs from Midland Junction, ten miles from Perth, to Walkaway, where it joins the Government line running to Geraldton. It was constructed under a concession of 12,000 acres of land per mile of line constructed, to be selected along the entire route of the railway. (ii) *The Great Southern Railway*. This line, which was built by private enterprise under the land-grant system, is 242 miles in length, and was acquired by the Government by purchase on the 1st January, 1897. The total price paid for all the interests of the private company and of the original concessionaire, was £1,100,000, which was divided by the Government for book-keeping purposes into £300,000 for the land and £800,000 for the railway. (iii) *Millar's Timber Trading Company's Lines*. These lines have mostly been built under special timber concessions and leases. There were, at latest date available, in all eight lines situate in various parts of the State extending into the bush, whence logs are brought to the mills. The total length of these lines was approximately 246.85 miles. (iv) *Other Lines*. There are also several other lines in various parts of the State used chiefly in connexion with the timber industry.

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

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

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

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

9. Operations of Private Railways, 1918-19.—The tabular statement given below shows particulars, so far as returns are available, for the year 1918-19, of all private railways open to the public for general traffic in the Commonwealth:—

PARTICULARS OF PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC, 1918-19.

Line.	Miles Open (Route).	Train Miles.	Capital Cost.	Gross Revenue.	Expenses.		Rolling Stock.			Passenger Journeys.	Tons of Goods, etc.	No. of Employees.
	No.				£	£	Working.	Interest, etc.	Locom.				Coaches.	Other Vehicles.	No.	Tons.	No.
NEW SOUTH WALES.												
C'wealth Oil Corp'n	33.00	17,390	194,500	8,202	8,212	(h)	4	(d)3	69	1,843	17,633	19
Deniliquin-Moama	45.00	39,470	162,673	23,889	11,782	(h)	4	6	64	14,126	(D)28,932	49
South Maitland	19.44	392,539	492,182	87,040	67,198	24,611	19	27	45	857,166	m 94,527	265
Goond'g-Burrinj'k(a)	26.25	28,364	89,756	1,281	(i)8,321	(j)	4	3	28	3,217	3,672	31
Hexham-Minni	6.00	1,872	(b)	220	235	(h)	1	4	1		980	6
New Redhead Co.	12.00	(h)	102,000	(h)	(h)	(c)	(c)	(c)	(h)	(h)	(h)	(c)
Seaham Colliery Co.	5.13	7,790	25,000	1,158	1,567	(h)	2	(c) 2	2	21,284	8,302	9
Silverton Tramway	36.67	101,936	477,994	134,781	74,134	(h)	20	1	676	43,764	599,212	155
Warwick Farm	0.83	(b)	8,700	(h)	(h)	(h)	(c)	(c)	(c)	(h)	(h)	(c)
Total(h)	184.32	589,361	1,540,805	256,571	171,449	24,611	54	46	885	941,400	753,258	534
VICTORIA.												
Kerang-Koondrook(n)	13.94	18,928	39,229	4,495	3,917	1,774	2	2	9	14,509	22,856	12
Yarra J.-Powelltown	11.00	23,000	46,700	4,980	3,440	465	2	2	32	12,000	52,000	12
Total	24.94	41,928	85,929	9,475	7,357	2,239	4	4	41	26,509	74,856	24
QUEENSLAND.												
Aramac-Barcaldine	42.00	17,396	86,983	10,210	5,990	2,122	2	2	2	3,034	9,324	12
Beaudesert(o)	33.00	(h)	93,559	12,357	10,651		1	3	1	14,090	11,585	27
Belmont Tramway	4.39	9,583	19,903	1,527	2,002	1,208	(c)	(c)	(c)	40,854	19,509	(c)
Buderim	7.00	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)
Irvinebank	14.00	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)
Chillagoe Railway(e)	18.00	20,000	43,200	5,642	3,812	2,052	2	3	22	3,000	7,200	13
Douglas-Mossman	143.00	24,172	457,175	11,453	14,397	11,250	(c)	(c)	(c)	3,608	3,869	(c)
Etheridge	8.70	1,585	20,067	1,044	755	1,017	(c)	(c)	(c)	1,386		(c)
Invicta Mill												
Lucinda Pt. to Stone R. and Lg. Pocket	53.50											
Green Hills to Hambleton Junc.	4.13	(h)	(h)	(h)	(h)	(h)	2	3	84	(h)	41,117	(h)
Macgregor	22.13	5,247	66,328	2,296	2,919	{(h) 1,213}	(c)	(c)	(c)	1,634	12,688	6
Mapleton	15.00	(h)	(h)	(h)	(h)	(h)	2	3	2	(h)	(h)	(h)
Moreton Central S.M.	8.50	1,625	14,350	1,075	849	178	(h)	3	2	12,316	920	4
South Johnstone												
Central S.M.	46.50	5,472	170,000	4,108	2,400		4	3	6	14,400	5,200	8
Stannary Hills	21.00	12,406	64,320	2,302	3,505	(h)	1	2	76	1,905	5,614	7
Total(b)	440.85	97,486	1,035,885	51,994	47,280	19,040	14	19	193	101,227	117,026	77
SOUTH AUSTRALIA.												
Iron Knob	33.80	57,050	(h)	(h)	(h)	(h)	5	3	105	833	250,176	95
WESTERN AUSTRALIA.												
Midland Railway(f)	278.35	291,031	2,036,855	109,701	68,984	(h)	17	18	402	54,584	90,614	246
TASMANIA.												
Emu Bay Railway	g102.94	110,150	614,924	58,457	36,453	20,905	10	6	155	37,083	50,636	137
Magnet Railway	9.99	3,120	18,750	329	1,757	(h)	2	1	6	886	365	7
Mt. Lyell Railway..	22.13	53,660	216,036	34,208	28,197	(h)	7	7	117	23,810	66,535	107
Nth Mt. Lyell Rly.	27.80	11,598	316,638	6,694	7,713	(h)	4	4	56	3,946	21,247	22
Total(b)	162.86	178,528	1,166,398	99,688	74,120	20,905	23	18	334	65,725	138,783	273
Total for C'wealth	1,125.12	1,255,384	5,865,872	527,429	369,190	66,795	117	108	1960	1,190,278	1,424,713	1249

(a) The property of Commissioner of Water Conservation and Irrigation; for year ended 30th June, 1919.
 (b) Incomplete. (c) Worked by Government Railways. (d) Including one motor car. (e) Transferred to the Queensland Government railways. (f) For year ended 30th June, 1919. (g) Including 47.66 miles owned by the Emu Bay Railway and Mount Bischoff Railway Company. (h) Not available. (i) Including interest. (j) Included in working expenses. (k) Rental of Permanent Way Material. (l) Exclusive of live stock. (m) Exclusive of shipment coal. (n) For year ended 30th September, 1919. (o) For year ended 31st December, 1916.

10. Comparative Railway Statistics.—On page 657 *ante* a table is given showing the railway facilities in 1918-19 in the States, in the Northern Territory, and in the Commonwealth, the railway mileage open for traffic being compared both with the area and population.

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

COMPARATIVE RAILWAY STATISTICS, VARIOUS COUNTRIES.

Country.	Year.	Miles of Railway.	Population.	Area in Square Miles.	Miles of Railway.	
					Per 1,000 of Population.	Per 1,000 Sq. Miles of Territory.
Europe—						
United Kingdom ..	1915	23,709	44,481,494	121,633	0.53	194.93
Austria ..	1913	14,512	29,193,293	115,882	0.50	125.23
Belgium ..	1912	5,401	7,571,387	11,373	0.71	474.90
Denmark ..	1916	2,550	2,921,362	(c)15,042	0.87	169.53
France ..	1911	30,709	39,602,258	207,054	0.78	148.31
Germany ..	1914	39,439	67,812,000	208,780	0.58	188.90
Greece ..	1914	1,365	4,821,300	41,933	0.28	32.55
Hungary ..	1912	13,333	21,134,862	125,609	0.63	106.15
Italy ..	1916	11,722	36,546,437	110,632	0.32	105.95
Netherlands ..	1917	2,377	6,724,663	12,582	0.35	188.92
Norway ..	1918	2,007	2,632,010	124,643	0.76	16.10
Portugal ..	1911	1,780	5,957,985	35,490	0.30	50.16
Russia ..	1913	35,987	143,114,300	1,997,309	0.25	18.02
Spain ..	1917	8,993	20,818,995	(b)190,050	0.43	47.32
Sweden ..	1917	9,368	5,800,847	173,035	1.61	54.14
Switzerland ..	1916	3,705	3,937,000	15,976	0.94	231.91
Asia—						
India ..	1911	32,839	315,156,396	1,802,629	0.10	18.22
Russia ..	1913	10,586	27,787,800	6,641,587	0.38	1.59
Africa—						
Egypt ..	1917	2,874	12,569,000	350,000	0.23	8.21
Union of South Africa	1918	10,021	6,986,687	473,100	1.43	21.18
America, North—						
Canada ..	1917	38,191	8,361,000	3,729,665	4.57	10.24
Mexico ..	1912	15,804	15,501,684	785,881	1.02	20.11
United States ..	1916	266,031	102,826,309	2,973,890	2.59	89.46
America, South—						
Argentina ..	1918	21,858	8,284,266	1,153,119	2.64	18.96
Brazil ..	1917	17,159	27,473,579	3,275,510	0.62	5.24
Chile ..	1917	5,611	3,870,002	289,829	1.45	19.36
Australasia—						
Australia ..	1919	25,657	5,140,543	2,974,581	4.99	8.63
New Zealand ..	1919	3,012	1,124,618	104,751	2.68	28.75

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

It will be seen from the above table that per 1,000 of population the Commonwealth of Australia had the greatest mileage (in 1919), 4.99 miles; the next in magnitude being Canada (1917) with 4.57 miles, New Zealand (1919) with 2.68 miles, Argentina (1918) with 2.64 miles, and the United States (1916) with 2.59 miles.

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

With regard to the mileage per 1,000 square miles of territory, Belgium (1912) with 474.90 miles was easily first, followed by Switzerland (in 1916) with 231.91 miles, the United Kingdom (in 1915) with 194.93 miles, the Netherlands (in 1917) with 188.92 miles, and Germany (in 1914) with 188.90 miles.

The least mileage open per 1,000 square miles is that of Asiatic Russia (in 1913) with 1.59 miles, the next being 5.24 miles in the case of Brazil (1917).

§ 3. Tramways.

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

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

(i) *Total Mileage Open and Classification of Lines.* The following tables shew the total mileage of tramway lines open for general passenger traffic in each State and in the Commonwealth for the year 1918-19, and also in the Commonwealth as a whole for the years 1909-10 to 1918-19, classified (a) according to the motive power utilised, (b) according to the nature of the authority by which the lines are controlled and (c) according to gauge:—

TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC IN EACH STATE AND IN THE COMMONWEALTH, 1918-19.

Nature of Motive Power, Controlling Authority, and Gauge.	N.S. Wales.	Victoria.	Q'land.	South Australia.	Western Australia.	Tasmania.	C'wealth.
ACCORDING TO MOTIVE POWER.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric	154.56	94.58	42.60	65.66	50.22	23.25	430.87
Steam	74.49	1.15	6.00	..	17.75	28.30	127.69
Cable .. ..	..	45.92	..	..	..	..	45.92
Horse .. ..	..	0.63	..	17.36	5.75	..	23.74
Total	229.05	142.28	48.60	83.02	73.72	51.55	628.22
ACCORDING TO CONTROLLING AUTHORITY.							
Government	225.55	51.87	..	17.36	50.31	19.80	364.89
Municipal .. ..	..	55.60	6.00	65.66	8.66	23.25	159.17
Private	3.50	34.81	42.60	..	14.75	8.50	104.16
Total	229.05	142.28	48.60	83.02	73.72	51.55	628.22
ACCORDING TO GAUGE.							
Gauge—							
5 ft. 3 in. .. ..	..	5.16	..	17.35	..	..	12.51
4 ft. 8½ in.	229.05	135.97	42.60	65.66	..	..	473.28
3 ft. 6 in. .. ..	..	1.15	6.00	10.01	58.22	43.05	118.43
2 ft. 0 in. .. ..	..	..	..	..	15.50	8.50	24.00
Total	229.05	142.28	48.60	83.02	73.72	51.55	628.22

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

**TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC
IN THE COMMONWEALTH, 1909-10 TO 1918-19.**

Nature of Motive Power, Controlling Authority, and Gauge.	1909-10.	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.	1918-19.
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ACCORDING TO MOTIVE POWER.

	Miles.									
Electric ..	272.57	297.34	322.24	345.07	365.39	386.30	404.76	422.89	426.40	430.87
Steam ..	76.41	96.66	91.78	91.65	108.65	112.50	112.50	113.06	120.61	127.69
Cable ..	46.04	46.04	46.04	46.04	46.04	46.04	46.04	46.04	46.04	45.92
Horse ..	70.00	60.61	51.44	50.51	54.51	53.05	42.97	43.61	41.12	23.74
Total ..	465.02	500.65	511.50	533.27	574.59	597.89	606.27	625.60	634.17	628.22

ACCORDING TO CONTROLLING AUTHORITY.

Government ..	217.69	241.72	247.61	256.96	309.44	319.50	322.75	371.08	372.44	364.89
Municipal ..	68.79	78.69	82.86	102.85	114.55	129.86	143.32	158.13	158.03	159.17
Private ..	178.54	180.24	181.03	173.46	150.60	148.53	140.20	96.39	103.70	104.16
Total ..	465.02	500.65	511.50	533.27	574.59	597.89	606.27	625.60	634.17	628.22

ACCORDING TO GAUGE.

Gauge—										
5 ft. 3 in. ..	14.77	14.77	14.77	14.80	14.80	15.12	15.12	12.51	12.51	12.51
4 ft. 8½ in. ..	349.56	374.17	384.89	407.62	420.93	438.97	444.60	467.46	469.76	473.28
3 ft. 6 in. ..	72.94	83.96	84.09	86.02	114.03	118.97	121.72	121.45	120.41	118.43
2 ft. 0 in. ..	27.75	27.75	27.75	24.83	24.83	24.83	24.83	24.18	31.49	24.00
Total ..	465.02	500.65	511.50	533.27	574.59	597.89	606.27	625.60	634.17	628.22

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, 1919, seven such systems in operation within the metropolitan area, the most important being the city and suburban lines, 112.97 miles in length (206.50 miles single track); the North Shore line, 21.14 miles in length (36.41 miles single track); the Ashfield to Mortlake line, 8.47 miles in length (15.12 miles single track); Manly to the Spit, Brookvale, and Narrabeen, 10.73 miles in length (15.47 miles single track); and Rockdale to Brighton-le-Sands, 1.25 miles in length (single track). The last-mentioned line was purchased from a private company and opened for traffic on 7th June, 1914. All of these systems are now operated by electricity. There are two systems on which the motive power used is steam, namely—(a) from Kogarah to Sans Souci, 5.56 miles in length (6.99 miles single track), and (b) from Arncliffe to Bexley, 2.62 miles long (single track).

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

(a) *Sydney Tramways.* In October, 1862, a horse tramway, 1½ miles long, was opened for traffic in Sydney. Owing to the rails being laid higher than the road surface, the inconvenience thus caused to other traffic necessitated its removal under the authority of an Act passed in November, 1865, and it was not until the 15th September, 1879, that the first steam tramway was opened, running from Bridge-street to Hay-street via Elizabeth-street. In the following few years the steam tramways were considerably extended. The electric system was commenced by the opening of a section of the North Sydney lines on the 20th September, 1893. This was followed by the opening of the Ocean-street-Rose Bay line on the 4th October, 1898, and by the opening of the George-street-Pyrmont line on the 8th September, 1899, which introduced the electric system into the city. The tramways in the heart of the city, running along King-street to the suburb of Woollahra, as well as those in North Sydney, were originally worked by underground cables, and have since been converted into electric lines on the overhead trolley system. With the exception of the Kogarah-Sans Souci and the Arncliffe-Bexley lines, the whole of the steam tramways in Sydney and suburbs have now been converted into electric lines, and provision for the extra power required for the electrification of the former of these two lines has been made at the central power station.

(b) *Other Tramway Systems.* In Newcastle the first section of the tramways, from Perkins-street to Plattsburg, was opened on 31st December, 1887; the total length open on the 30th June, 1919, was 34.07 miles (44.42 miles single track). At Broken Hill and Parramatta the first sections of the tramways were opened in 1902. On the 30th June, 1918, the mileage open at Broken Hill amounted to 10.05 miles (11.44 miles single track), and at Parramatta to 6.69 miles (single track). The line from East to West Maitland, 4.59 miles long (single track), was opened in February, 1909, and the line from Sutherland to Cronulla, 7.40 miles long (single track), on the 12th June, 1911. Further particulars are given below.

(c) *Particulars of all Government Tramways.* The following table shews the total length, the capital cost, the gross revenue, working expenses, net earnings, interest, percentages of working expenses on gross revenue, and of net earnings on capital cost, passengers carried and persons employed for the financial years 1915 to 1919:—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF GOVERNMENT TRAMWAYS, 1915 TO 1919.

Year ended 30th June—	Mileage Open for Traffic. (Route.)	Total Cost of Construction and Equipment.	Gross Revenue.	Working Expenses.	Net Earnings.	Interest	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost.	Passengers carried.	Persons employed.
	Miles.	£	£	£	£	£	%	%	No. '000s.	No.
1915 ..	219.81	7,970,293a	1,986,060	1,611,287	374,773	284,639	81.13	4.70	289,283	9,205
1916 ..	220.83	8,166,423a	1,991,628	1,602,650	388,978	302,686	80.47	4.76	292,022	9,806
1917 ..	223.98	8,309,629a	2,008,539	1,691,367	317,172	335,361	84.21	3.82	295,304	9,763
1918 ..	225.35	8,470,091a	1,992,641	1,603,260	389,381	348,546	80.46	4.60	255,741	8,955
1919 ..	225.54	8,568,138a	2,237,701	1,850,724	386,977	368,529	82.71	4.52	268,798	9,028

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

The net result, after providing for all working expenses and £368,529 for interest on the capital invested, was a profit of £18,448 in 1918-19 as compared with a profit of £40,835 in the preceding year. During the year 1918-19, 268,797,814 passengers were carried, an increase of 13,057,006 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 in 1918-19:—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF VARIOUS GOVERNMENT TRAMWAYS, 1918-19.

Line.	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Gross Revenue.	Working Expenses.	Net Earnings.	Interest.	Profit or Loss.(a)	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost.
	Route.	Track.								
	Miles.	Miles.	£	£	£	£	£	£	%	%
Sydney and Suburban—Electric	154.56	274.75	7,779,227	2,063,055	1,673,536	+ 389,519	335,482	+ 54,037	81.12	+ 5.01
Steam	8.18	9.61	51,107	14,744	18,176	- 3,432	2,223	- 5,655	123.28	- 6.72
Total	162.74	284.36	7,830,334	2,077,799	1,691,712	+ 386,087	337,705	+ 48,382	81.42	+ 4.93
Parramatta—Steam	6.69	6.69	39,252	9,058	9,610	- 552	1,707	- 2,259	106.09	- 1.41
Sutherland to Cronulla—Steam	7.40	7.40	51,776	11,012	10,516	+ 1,396	2,233	- 837	88.28	+ 2.70
Newcastle—Steam	34.07	44.42	516,414	116,480	112,027	+ 4,453	21,215	- 16,762	96.18	+ 0.86
East to West Maitland—Steam	4.59	4.59	38,888	4,537	5,424	- 887	1,602	- 2,579	119.55	- 2.28
Broken Hill—Steam	10.05	11.44	91,474	17,915	21,435	- 3,520	3,977	- 7,497	119.65	- 3.85
Total	225.54	358.90	8,568,138	2,237,701	1,850,724	+ 386,977	368,529	+ 18,448	82.71	4.52

(a) + indicates a profit; - indicates a loss.

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

CAPITAL COST OF NEW SOUTH WALES GOVERNMENT TRAMWAYS AS AT 30th JUNE, 1919.

Permanent Way.	Rolling Stock.	Power-houses, Sub-stations, and Plant.	Machinery.	Work-shops.	Furniture.	Store Advances Account.	Total.
£	£	£	£	£	£	£	£
4,326,300	1,828,460	1,814,390	144,782	227,814	2,392	224,000	8,568,138

The average cost per mile open was £19,182 for permanent way and £18,807 for all other charges, making a total of £37,989 per mile.

During the year 1918-19, one new extension, 0.19 mile in length, was opened for traffic.

(e) *Sydney Electric Tramways.* The current for the operation of the city and suburban tramways is generated at the power-houses at Ultimo and White Horse Bay, which have been erected at a total cost of £1,814,390, including the cost of the sub-stations and plant. The total output of the power-houses, for both lighting and traction purposes, during the year 1918-19 was 99,048,075 kilowatt-hours, of which the direct-current supply was 114,335, and the alternating current 98,933,740 kilowatt-hours. The following table gives particulars of the working of the electric tramways for the financial years 1914-15 to 1918-19 :—

NEW SOUTH WALES.—PARTICULARS OF SYDNEY ELECTRIC TRAMWAYS,
1914-15 TO 1918-19.

Year ended 30th June—	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Route.	Track.				
	Miles.	Miles.				
1915 ..	150.04	261.09	7,349,866	81,591,224	25,406,807	269,633,638
1916 ..	151.05	266.18	7,526,701	81,688,434	25,008,055	272,048,293
1917 ..	152.99	270.84	7,615,110	80,608,220	23,955,722	275,180,334
1918 ..	154.37	274.55	7,738,377	73,384,629	20,618,808	239,442,696
1919 ..	154.56	274.75	7,779,227	83,780,703	23,298,238	250,706,503

Year ended 30th June—	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Working Expenses on Gross Revenue.	Cars in Use.	Persons Employed.
	£	£	£	%	No.	No.
1915 ..	1,834,022	1,469,227	364,795	80.11	1,430	8,743
1916 ..	1,838,708	1,452,470	386,238	78.99	1,402	9,308
1917 ..	1,853,399	1,535,423	317,976	82.84	1,398	9,295
1918 ..	1,847,868	1,457,349	390,519	78.87	1,398	8,463
1919 ..	2,063,055	1,673,536	389,519	81.12	1,393	8,610

(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 1919 the number of tram miles run was 18,200, and the number of passengers conveyed 120,946.

(iii) *Sydney Harbour Ferries.* As the ferry services on the waters of Port Jackson are mainly supplementary to the suburban railway and tramway systems, it has been thought advisable to include them here rather than under Shipping. Returns for the year 1918-19

were received from three companies, and shew that these companies had 63 boats in commission, which were licensed to carry a total of 40,371 passengers, or an average of 641 per boat and per trip. The total number of passengers carried during the year is stated as 35,319,759, an average of 96,766 per day. In addition to the ordinary passenger traffic there are two lines providing for vehicular traffic, which afford the only rapid means of transit for such traffic between the city and the northern suburbs. The three companies employed during the year a total of 973 persons. The gross revenue during 1918-19 amounted to £429,130, and the expenditure to £335,550, thus giving a net revenue of £93,580. The services are well managed, and the boats constructed during recent years—double-ended screwboats—are claimed to be superior in size and equipment to boats employed on similar service in any part of the world.

3. Victoria.—In Melbourne there are several tramway systems carried on under the control of various authorities, the most important being the cable system worked by the Melbourne Tramway and Omnibus Company up to the 1st July, 1916, and since that date by the Melbourne Tramway Board, to which reference will be made further on. There are also six lines of electric tramways, viz. :—(a) St. Kilda to Brighton, belonging to the Government and under the control of the Railway Commissioners; (b) an electric tramway between Sandringham and Black Rock, 2.41 miles in length, which has been constructed by the Railway Department and was opened for traffic on 11th March, 1919; (c) Flemington Bridge to the Saltwater River and Keilor-road, owned by a private company; (d) lines connecting Prahran, Windsor, St. Kilda and Elsternwick with Glen Huntly, Caulfield, Malvern, Glenferrie and Kew, controlled by the Prahran and Malvern Tramways Trust; (e) lines from Queensberry-street, Melbourne, to Bell-street, Coburg, and Moreland-road to Baker's-road, Fawkner, owned by the Melbourne, Brunswick, and Coburg Tramways Trust, and (f) Prince's-bridge to Burwood; Burke-road to Boundary-road, Wattle Park; and Bridge-road, Richmond, to Power-street, owned by the Hawthorn Tramways Trust. There is also a cable tramway, 2½ miles in length, between Clifton Hill and Preston, owned by the Northcote municipality. There is a short steam tramway, about 1 mile long, at Sorrento, and there are also systems of electric tramways at Ballarat, Bendigo, and Geelong, constructed and run by private companies. A number of tramways has been constructed for special purposes in various parts of the State under the provisions of the Tramway Act 1890. These, however, correspond to the description of private railways referred to in sub-section 1 hereof. A tramway to the Zoological Gardens, with horse traction, is operated by the Melbourne Tramway Board.

(i) *Melbourne Cable Tramways.* A short account of the formation of the Melbourne Tramway and Omnibus Company, and of the Tramway Trust, will be found in previous issues of this book. (See Year Books No. 7, page 652, and No. 9, page 679.) The company was required by the original Act, as amended in 1892, to complete the tramways by the end of the year 1893, and in return a thirty-two years' lease of the tramways was granted to it, dating from the 1st July, 1884—when the liability for interest on the loans commenced—and expiring on the 1st July, 1916. The total amount the Trust was empowered to borrow was £1,650,000, which was raised in London by means of debentures bearing interest at 4½ per cent. The premiums received amounted to £55,794, making a total of £1,705,794. This amount had been expended by the end of the year 1893, when further loan expenditure ceased. Up to the 30th June, 1919, the total cost of construction and equipment of the tramways amounted to £2,078,257. The first line—that to Richmond—was opened for traffic on the 11th November, 1885, and the work being rapidly pushed on, the other lines were opened at short intervals, and the whole system was completed in 1891. The complete system consisted of 43.68 miles of double-track cable lines, using constantly over 90 miles of wire rope, and 4.47 miles of horse tram line. Of the latter, 1.79 miles were transferred to the Kew Council in November, 1914, and 2.06 miles to the Hawthorn Tramway Trust in January, 1916, for electrification, leaving 0.62 mile of horse tramway at Royal Park. The gauge of track is 4 feet 8½ inches. The company also had omnibuses at work for many years down to 3rd May, 1916, when the East Brunswick line of omnibuses ceased running owing to the construction of an electric tramway along the route.

(a) *Particulars of Working.* The subjoined statement shows the tram mileage, the number of passengers carried, and the revenue and expenditure for the years 1915 to 1919 :—

**MELBOURNE CABLE TRAMWAYS.(b)—PARTICULARS OF WORKING,
1915 TO 1919.**

Year ended 30th June—	Mileage Open (Route).			Mileage Run during Year.				Number of Passengers Carried.			
	Cable.	Horse.	Total.	Tram.		Omni- bus.	Total.	Tram.		Omni- bus.	Total.
				Cable.	Horse.			Cable.	Horse.		
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	No.	No.	No.	No.
1915	43.68	2.68	46.36	11,887,462		90,458	11,977,920	87,707,934		352,189	88,060,123
1916	43.68	0.62	44.30	11,977,916		68,569	12,046,485	96,290,131		412,812	96,702,943
1917	43.68	0.62	44.30	12,413,455	10,444	..	12,423,929	(a)	(a)	..	103,118,377
1918	43.68	0.62	44.30	12,822,147	10,382	..	12,833,029	112,754,979	279,178	..	113,034,157
1919	43.68	0.62	44.30	13,138,992	10,645	..	13,149,637	118,043,604	259,177	..	118,302,781

Year ended 30th June—	Traffic Revenue.				Working Expenses.				Percentage of Working Expenses on Revenue.	No. of Employees at end of Year.
	Tram.		Omni- bus.	Total.	Tram.		Omni- bus.	Total.		
	Cable.	Horse.			Cable.	Horse.				
	£	£	£	£	£	£	£	%	No.	
1915	..	734,177	1,468	735,645	(a)	(a)	425,831	57.89	1,959	
1916	..	807,356	1,721	809,077	(a)	(a)	435,423	53.82	1,992	
1917	..	(a)	(a)	841,784	(a)	(a)	462,132	54.90	2,104	
1918	..	902,471	549	903,020	513,717	735	514,452	56.97	2,273	
1919	..	945,286	513	945,799	577,736	1,154	578,890	61.21	2,400	

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

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

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

(c) *Metropolitan Tramway Board.* In the last issue of the Year Book, No. 12, pp. 698-9, reference was made to the *Melbourne and Metropolitan Tramways Act 1918*, and to the terms under which it was to come into operation. In June, 1919, the appointments of the chairman and other members of the Tramway Board were made by the Governor-in-Council, and it was arranged that the Board should take over control of the Melbourne Cable Tramway System and of the Royal Park Horse Tramway on the 1st November, 1919.

On the 6th January, 1920, a proclamation was made under which the Board were to assume control of the Prahran and Malvern, Hawthorn, Melbourne, Brunswick and Coburg, Fitzroy, Northcote and Preston, and Footscray Tramway Trusts on the 2nd February following, after which date the Tramway Trusts were to cease to exist. The

Board thus assumed control of all the Metropolitan tramways, with the exception of the Northcote Council Cable Tramway and the North Melbourne Electric Tramway, both of which the Board has power to acquire.

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

(a) *The St. Kilda-Brighton Line.* Under the St. Kilda and Brighton Electric Street Railway Act 1904, the Board of Land and Works was authorised to construct a tramway from St. Kilda to Brighton. The amount of interest payable on the cost of the land acquired for the tramway was guaranteed by the municipalities of St. Kilda and Brighton for a period of twenty years, and authority was given by the Act to the municipalities to levy either a general or special rate not exceeding one shilling in the pound for the purpose of paying the guarantee. The profit, if any, during the first twenty years is to be set off in reduction of the guarantee. The line was opened for traffic between St. Kilda and Park-street, Middle Brighton, on the 7th of May, 1906, and the extension to Brighton Beach was opened on the 22nd of December following. The capital cost to the 30th June, 1919, exclusive of rolling stock, was £115,113, and of rolling stock £49,234, making a total of £164,347. 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, 1915 to 1919:—

ST. KILDA-BRIGHTON ELECTRIC STREET TRAMWAY, 1915 TO 1919.

Year ended 30th June—	Mileage Open (Route).	Total Cost of Construction and Equipment	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses	Interest.	Net Profit or Loss. (a)
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	£	£
1915 ..	5.16	101,726	769,380	577,468	2,718,972	22,614	19,905	3,428	— 719
1916 ..	5.16	132,300	810,510	597,819	3,126,984	25,580	22,844	4,697	— 1,961
1917 ..	5.16	156,242	780,320	572,735	3,450,442	27,919	20,502	6,250	+ 1,167
1918 ..	5.16	158,986	745,853	521,525	3,854,677	31,614	23,653	6,359	+ 1,602
1919 ..	5.16	164,347	932,010	527,305	4,945,627	40,048	27,207	6,574	+ 6,267

(a) Profit is indicated by +, loss by —.

The average fare paid per passenger was 1.94 pence in 1918–19 as against 1.96 pence in 1917–18. The gross revenue in 1918–19 was 18.23 pence per passenger car mile and £3,881 per mile of single track open.

(b) *The Sandringham-Black Rock Line.* This line has a length of 2.41 miles and, as already mentioned, was opened for traffic on 11th March, 1919.

The capital cost to the 30th June, 1919, exclusive of rolling-stock, was £42,706. The cost of rolling-stock is included in that for the St. Kilda-Brighton line. The gauge of this line is 4 ft. 8½ in. The subjoined statement gives particulars of the working of this line to the 30th June, 1919:—

SANDRINGHAM-BLACK ROCK ELECTRIC STREET TRAMWAY, 1919.

Year ended 30th June—	Mileage Open (Route).	Total Cost of Construction.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses	Interest.	Net Profit.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	£	£
1919 ..	2.41	42,706	38,650	29,008	616,746	3,751	1,792	529	1,430

(c) *The North Melbourne Tramways*, extending through the northern suburbs to the Saltwater River and to Keilor-road, were constructed by a private company, and were opened for traffic on the 11th October, 1906. The route and track mileage for year ended 30th September, 1919, were 7.51 and 11.43 miles respectively, the gauge of line being 4 feet 8½ inches. The number of passengers carried during the same period was 3,456,442. The current used during the year for traction purposes was 794,705 kilowatt-hours, while the number of persons employed was 126.

(d) *The Prahran and Malvern Tramways Trust*. The lines were constructed under the control of a trust, which consisted of seven members appointed from the councils of Prahran, Malvern, St. Kilda, Caulfield, Hawthorn, Kew, and Camberwell. At the 30th September, 1919, the total route mileage open was 35.15 miles, the total track mileage being 68.38 miles, and the total capital cost £817,165. The gauge of the track is 4 ft. 8½ in. The current is supplied by the Melbourne Electric Supply Company Limited at a price varying according to the consumption of current and the price of fuel. Any surplus revenue, after providing for operating expenses, interest, sinking fund and renewal reserve, is to be paid to the municipal councils interested, in proportion to the car mileage run in their respective districts. The first section of the lines was opened for traffic on 31st May, 1910. During the year ended 30th September, 1919, the current used for traction purposes was 6,891,877 kilowatt-hours, and the number of tram miles run was 3,093,901, the number of passengers carried 29,616,772, the gross revenue £214,728, and the working expenses £159,354. The number of cars in use was 95, and the number of persons employed 610.

(e) *The Melbourne, Brunswick and Coburg Tramways Trust*. The first section of these tramways, that between Moreland-road and Bell-street, was opened for traffic on 27th April, 1916. At the 30th September, 1919, the route and track mileages open for traffic were 7.03 and 12.29 miles respectively. During the year ended 30th September, 1919, the current used for traction purposes was 1,247,510 kilowatt-hours, the tram miles run 669,029, the number of passengers carried 5,886,253, the gross revenue £40,049, and the working expenses £28,389. Eighteen cars were in use, and the number of persons employed was 121.

(f) *The Hawthorn Tramways Trust*. The first section of these tramways, that from Prince's Bridge to Power Street, Hawthorn, was opened for traffic on 6th April, 1916, and on 30th September, 1919, the route and track mileages in operation were 11.17 and 18.00 miles respectively. During the year ended 30th September, 1919, the current used for traction purposes was 2,613,316 kilowatt-hours, the tram miles run 947,740, number of passengers carried 9,661,176, the gross revenue £72,560, and the working expenses £54,369. The number of cars in use was 32, and the number of persons employed 171.

(g) *The Ballarat and Bendigo Electric Tramways* are under the control of a private company, and run along the main streets and to and from the outlying suburbs of the two cities. The total length of lines open for traffic is 21.25 route miles and 25.86 track miles, the gauge being 4 ft. 8½ in. During the year ended 31st December, 1919, 5,031,092 passengers were carried, the gross revenue being £48,345, and the working expenses £36,825. The number of cars in use was 55, and the number of persons employed 133.

(h) *The Geelong Electric Tramways*, which are privately owned, were opened for traffic on the 14th March, 1912, and up to the 31st August, 1919, the cost of construction and equipment, exclusive of generating plant, totalled £61,020. The system has a route and track mileage of 4.90 and 5.67 miles respectively, the gauge being 4 ft. 8½ in. The car mileage for the year ending on the last-mentioned date was 220,265 miles, and the number of passengers carried 1,539,170. For the same period the revenue was £17,032, and the expenditure £13,558.

(i) *Particulars of Working of all Electric Tramways.* The following table gives particulars of the working of all electric tramways in Victoria for each year from 1915 to 1919 inclusive:—

VICTORIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1915 TO 1919,

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1915	69.47	1,299,786	7,445,978	4,358,030	30,150,912	223,056	164,313	193	811
1916	83.91	1,765,854	9,553,034	5,327,895	39,928,454	288,206	206,367	235	1,009
1917	89.08	1,861,771	11,910,707	6,462,318	51,586,576	373,594	271,315	255	1,074
1918	92.17	1,939,887	13,169,343	6,775,538	57,020,726	432,921	318,163	268	1,167
1919	94.58	2,027,057	13,955,124	6,832,873	60,753,278	463,320	344,220	274	1,318

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 42.60 route miles at the end of the year 1919. There is also a steam tramway in operation at Rockhampton having a length of 6 route miles.

(i) *Brisbane Electric Tramways.* These tramways are run on the overhead trolley system, the voltage of the line current being 550. The total cost of construction and equipment to the end of the year 1917 was £1,435,414, the gauge of line being 4 ft. 8½ in. The following table gives particulars of these tramways for the calendar years 1915 to 1919:—

QUEENSLAND.—BRISBANE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING 1915 TO 1919.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1915	40.20	1,476,866	11,563,696	4,339,863	49,695,313	372,383	233,761	161	803
1916	40.45	1,468,906	9,272,709	4,286,802	51,029,668	364,745	216,607	172	921
1917	41.58	1,435,414	8,964,113	4,377,104	51,860,308	371,850	257,035	172	1,121
1918	41.58	(a)1,435,414	9,453,441	4,379,679	57,456,832	412,569	264,858	173	1,103
1919	42.60	(a)1,435,414	10,309,349	4,600,482	61,415,350	445,333	295,697	174	1,073

(a) Figures for 1917.

(ii) *Rockhampton Municipal Tramways.* These tramways were opened for traffic in 1909, the motive power being steam. The length of line is 6 route miles, and the gauge 3 ft. 6 in. The capital cost to 31st December, 1919, was £42,000. During the year 1,654,971 passengers were carried, the revenue being £12,572, and working expenses £11,337. The number of the staff at end of year was 40.

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

5. **South Australia.**—Up to the year 1906 the tram service in the principal streets of Adelaide and suburbs was a horse system run by various private companies. Power to acquire these lines, and to provide for their extension and management by means of a Trust, was given to the Government by the Municipal Tramways Trust Act 1906. In accordance with the provisions of the Act, a Trust consisting of eight members, of whom two were nominated by the Governor, two elected by the City Corporation, and two each by the Suburban Corporations and the District Councils involved, was formed in 1907, and a length of 49 route miles of horse traction tramways was purchased from the private companies for a sum of £282,582. On the 10th March, 1909, the electric car system was inaugurated on the Kensington route. At the end of July, 1919, a length of 65.66 route miles had been electrified and opened for traffic, the corresponding length of track opened being 113.31 miles, all of which are of a gauge of 4 ft. 8½ in. The cost of construction and equipment on the 31st July, 1919, was £1,789,487. The following table gives particulars of the tramways for the years ended 31st July, 1915 to 1919 :—

SOUTH AUSTRALIA.—ADELAIDE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING, 1915 TO 1919.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1915	54.42	1,451,989	9,428,315	4,914,357	42,287,503	309,915	191,070	170	1,045
1916	54.42	1,486,546	9,286,910	4,719,043	43,141,885	322,759	193,965	170	1,120
1917	64.46	1,703,151	10,382,667	4,954,848	45,431,691	338,361	211,662	170	1,200
1918	65.66	1,751,943	10,758,897	5,359,776	46,466,258	414,836	250,586	174	1,099
1919	65.66	1,789,487	10,730,307	5,176,264	45,882,376	428,477	284,993	185	1,337

There are also in South Australia 19.86 miles of Government horse tramways in country districts, worked in connexion with the railway system, of which 17.36 miles are used for passenger service, and 2.50 miles for special purposes. The subjoined statement gives various particulars of these lines :—

SOUTH AUSTRALIA.—PARTICULARS OF HORSE TRAMWAYS, 1919.

GOVERNMENT TRAMWAYS.

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

(a) Included in mileage of Government railways.

6. **Western Australia.**—Apart from the electric tramways, there are in this State several tramways, amounting in all on the 30th June, 1919, to a length of 23½ miles, which are the property of the Government. Of these, which are under the control of the Harbour and Light Department, the most important is the line between Roebourne and Cossack, constructed on a 2-ft. gauge. The length of this line is 12½ miles, and it is worked by steam. The remaining 11 miles belonging to the Government are made up of several short lengths, worked by steam or horses, in connexion with the jetties at certain ports for the purpose of providing the necessary communication between such

jetties and the goods sheds or warehouses. In addition to these Government lines there are electric tramway systems at Perth, under Government control; at Kalgoorlie and Boulder City, carried on by private companies; and at Fremantle, under municipal control.

(i) *Steam and Horse Tramways.* Particulars as to the working of the Government steam or horse tramways for the year ended 30th June, 1919, shew that the capital cost of the lines to that date was £85,451, the gross revenue for the year being £13,037, and the working expenses £7,300. The number of passengers carried was 9,403, and the tonnage of goods conveyed 38,588.

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

(a) *The Perth Electric Tramways* were opened for traffic by a private company on the 24th September, 1899, and the system has since been extended to many of the suburbs. This tramway system was taken over by the Government on 1st July, 1913, and is now running in conjunction with the Government railways. On the 30th June, 1919, the route and track miles open for traffic were 26.81 and 36.10 miles respectively, the total cost of construction and equipment to that date being £592,361. During the year, 13,510,694 passengers were carried, the gross revenue being £134,059 and the working expenses £111,098. Seventy-three motors were in use, and the number of employees was 356. The gauge of line is 3 ft. 6 in.

(b) *The Fremantle Tramways* were opened in November, 1905, under the control of the municipality. On the 31st August, 1919, there were 8.64 route and 11.55 track miles of line open for traffic, the cost of construction and equipment at that date being £105,339. This line has a gauge of 3 ft. 6 in. During the year 5,514,111 passengers were carried, the gross revenue being £42,601 and the working expenses £34,440. Twenty-five cars were in use, and the number of employees was 131.

(c) *The Kalgoorlie and Boulder Tramways* are run by a private company, the first line being opened in 1902. At the beginning of 1904 legislative authority was given for the construction of lines in Boulder and suburbs, and in November, 1904, the last section of the Boulder system was completed. At the end of the year 1919 the total mileage of the whole system—in Kalgoorlie and Boulder—amounted to 14½ route or 20½ track miles, the total cost of construction and equipment being £452,318. During the year 1,929,774 passengers were carried, the gross revenue being £33,004 and the working expenses £24,722. Twenty-five motors and seven trailers were in use, and the number of employees was 68. The gauge of this line is 3 ft. 6 in.

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

(e) *Particulars of Working of all Electric Tramways.* The subjoined table shews so far as returns are available, particulars of the working of all electric tramway systems in the State for the years 1915 to 1919:—

WESTERN AUSTRALIA.—PARTICULARS OF ELECTRIC TRAMWAYS,
1915 TO 1919.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1915	50.75	1,092,289	55,045,163	2,793,519	17,568,161	182,935	130,868	121	471
1916	52.98	1,132,169	55,191,398	2,861,959	18,315,719	189,140	139,633	123	573
1917 ^a	51.61	1,161,478	5,799,337	2,955,503	19,178,047	197,880	153,847	122	526
1918	50.62	1,152,417	6,118,637	3,127,284	21,218,019	215,011	169,058	130	503
1919	50.22	1,150,018	5,922,421	2,951,653	20,954,579	209,664	170,261	130	545

(a) Exclusive of Leonora tramway.

(iii) *Perth Ferries.* As the Perth ferry services are mainly used for suburban passenger traffic, they are referred to in this section rather than under *Shipping*. Of the twelve boats in service, four are under the control of the Western Australian Government, the other eight belonging to a private company. The number of passengers carried during the year 1918-19 was 925,281, the revenue and expenditure for the same period being £11,795 and £10,820 respectively, and the number of persons employed 24.

7. *Tasmania.*—(i) *Tramways.* In Hobart there is a system of electric tramways, the first line of which was opened for traffic in 1893, amounting in all to a length of 13 and 16.30 route and track miles respectively. This was originally owned by a private company, but is now the property of the Hobart Municipal Council. Under the authority of the Launceston Tramway Act of 1906 the Launceston City Council entered into an agreement with a private company for the construction of a system of electric tramways in the city and suburbs of Launceston. The agreement provided that the company was to run the tramways for a period of 25 years, when the council could purchase the lines and stock at cost price; the electric power required was to be supplied by the Council. This agreement, however, lapsed, and the Council has constructed the tramways, and is running them as a municipal undertaking. The system, which was opened on the 16th August, 1911, has a route and track mileage of 10.25 and 12.88 miles respectively. The gauge of track in both these systems is 3 ft. 6 in.

The following table gives particulars of the working of the two systems for the years 1915 to 1919:—

TASMANIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS,
1915 TO 1919.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1915	21.43	347,214	1,493,183	999,315	7,462,782	68,170	46,568	60	314
1916	21.95	373,812	1,576,839	1,058,979	7,963,040	73,424	46,758	60	250
1917	21.95	383,219	1,687,407	1,115,090	8,349,789	79,693	49,930	60	259
1918	22.00	389,659	1,913,720	1,192,955	9,785,155	81,918	56,103	60	253
1919	23.25	400,375	2,396,717	1,215,663	10,070,263	97,459	63,561	60	288

There is also a tramway from Smithton to Marawah, 26.50 miles in length, operated by the Government. Of this distance 8.75 miles are worked as a horse tram, the rest being for steam traction. In the year ended 30th June, 1919, 400 passengers and 6,000 tons of goods were conveyed, the number of employees being 7.

A private steam tram at Zeehan, 1.50 miles in length, is also in operation. In 1919, 260 passengers and 4,800 tons of goods were conveyed, the number of persons employed being 4. There is also a private steam tram running from Tullah to Farrell's Siding, a distance of 7 miles. In 1918, 1,476 passengers and 3,040 tons of goods were conveyed, the number of persons employed being 4.

(ii) *Ferries.* The Hobart ferry service, being of a suburban character, is referred to here rather than under *Shipping*. There is one company controlling a fleet of five boats, and also a ferry operated by the Public Works Department with two boats. In the year 1918-19 the number of passengers carried was 870,453, the revenue £13,234, the working expenses £11,393, and the number of persons employed 37.

8. *Electric Traction in Commonwealth, 1918-19.*—The subjoined table gives particulars of electric tramways for each State and the Commonwealth. The returns for the Hobart tramways in Tasmania, for the Ballarat and Bendigo tramways in Victoria, for the Kalgoorlie tramways in Western Australia, and for the Brisbane tramways, are for the calendar year 1919; and for other tramways the returns are, generally, for the financial year 1918-19.

ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1918-19.

State.	Mileage open for Traffic (Route).	Total Cost of Construction and Equipment.	Current used for Traction purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Percentage of Working Expenses on Gross Revenue.	Cars, Motors and Trailers.	Persons Employed.
	Miles.	£	Kilowatt-hours.	Nb.	No.	£	£	%	No.	No.
N. S. W. . .	154.56	7,779,227	83,780,703	23,298,238	250,706,503	2,063,055	1,673,536	81.12	1,393	8,610
Victoria . .	94.58	2,027,057	13,955,124	6,832,873	60,753,278	463,320	344,220	74.29	274	1,318
Q'land . . .	42.60	1,435,414	10,309,349	4,060,482	61,415,350	445,332	295,697	66.40	174	1,073
S. Aust. . .	65.66	1,789,487	10,730,307	5,176,264	45,882,376	428,477	284,993	66.51	185	1,337
W. Aust. . .	50.22	1,150,018	5,922,421	2,951,653	20,954,579	209,664	170,261	81.21	130	545
Tasmania . .	23.25	400,375	2,396,717	1,215,663	10,070,263	97,459	63,561	65.22	60	288
C'wealth	430.87	14,581,578	127,094,621	44,075,173	449,782,349	3,707,307	2,832,268	76.40	2,216	13,171

(a) For year 1917.

The percentage of working expenses on gross revenue for all electric tramways in the Commonwealth was 76.40, the range for the States being 65.22 in the case of Tasmania and 81.21 in the case of Western Australia. The latter rate was, however, only slightly higher than that for New South Wales, viz., 81.12.

In the Transportation Bulletin No. 11, Table No. 20, will be found an analysis of the figures in the foregoing table in respect of revenue, working expenses, etc., for the year 1918-19.

In the following table particulars are shown as to the operations of electric tramways in the Commonwealth for the period 1910 to 1919 :—

ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1910 TO 1919.

Year.	Mileage open for Traffic (Route).	Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Miles.	£	Kilowatt-hours.	No.	No.
1909-10 . . .	272.24	7,954,192	(b)62,173,735	30,482,066	268,251,284
1910-11(a) . . .	297.47	8,747,597	(b)80,804,252	33,625,344	312,857,166
1911-12 . . .	322.24	9,669,808	93,897,694	37,256,203	363,959,404
1912-13 . . .	345.07	11,147,493	106,967,982	41,258,696	405,480,511
1913-14 . . .	365.39	12,365,142	(b)118,894,845	44,147,626	435,058,023
1914-15 . . .	386.30	13,018,010	(b)116,567,559	42,811,891	416,798,309
1915-16 . . .	404.76	13,753,988	(b)116,569,324	43,262,733	432,427,059
1916-17(b) . . .	421.68	14,197,194	119,352,451	43,820,585	451,586,745
1917-18 . . .	426.40	14,441,189	114,798,667	41,454,040	431,389,686
1918-19 . . .	430.87	14,581,578	127,094,621	44,075,173	449,782,349

Year.	Gross Revenue.	Working Expenses.	Percentage of Working Expenses on Gross Revenue.	Cars, Motors and Trailers.	Persons Employed.
	£	£	%	No.	No.
1909-10 . . .	1,731,637	1,297,379	74.92	1,401	8,372
1910-11(a) . . .	2,030,533	1,512,473	74.49	1,506	9,329
1911-12 . . .	2,345,428	1,775,927	75.72	1,628	11,063
1912-13 . . .	2,635,526	2,092,810	79.41	1,864	12,208
1913-14 . . .	2,915,272	2,239,584	76.82	2,071	12,548
1914-15 . . .	2,990,481	2,235,806	74.76	2,135	12,077
1915-16 . . .	3,076,982	2,255,800	73.31	2,162	13,181
1916-17(b) . . .	3,214,777	2,479,212	77.12	2,177	13,475
1917-18 . . .	3,405,123	2,516,117	73.89	2,203	12,588
1918-19 . . .	3,707,307	2,832,268	76.40	2,216	13,171

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

(b) Exclusive of Leonora tramway.

During the ten years included in the last table the percentage of working expenses on the gross revenue of all electric tramways in the Commonwealth had a maximum of 79.41 in 1912-13 and a minimum of 73.31 in 1915-16, the average over the whole period being 75.70.