

SECTION XVII.

ROADS AND RAILWAYS.

§ 1. Roads and Bridges.

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

2. **Expenditure on Roads and Bridges.**—Figures shewing the total expenditure on roads and bridges in the States are not available. The subjoined statement, however, gives the amounts of total loan expenditures by the State Governments up to the 30th June, 1909:—

ROADS AND BRIDGES.—TOTAL LOAN EXPENDITURE IN EACH STATE AND IN THE COMMONWEALTH UP TO THE 30th JUNE, 1909.

State, etc. ...	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
Expenditure	£1,801,497	£176,243	£923,656	£1,464,736	£211,226	£2,661,957	£7,239,315

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

ROADS AND BRIDGES.—LOAN EXPENDITURE BY STATE GOVERNMENTS, 1901-2 TO 1908-9.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1901-2 ...	150,777	47,104	...	185	740	77,536 ¹	276,342
1902-3 ...	73,471	44,770	1,333	200	...	55,687 ¹	175,461
1903-4 ...	47,812	17,267	...	78	...	39,037 ¹	104,194
1904-5 ...	59,019	14,945	...	...	...	55,303 ²	129,267
1905-6 ...	28,666	1,919	...	...	712	57,536	88,833
1906-7 ...	11,162	444	...	...	15,613	75,399	102,618
1907-8 ...	1,690	23	...	...	7,956	94,443	104,112
1908-9 ...	...	237	...	...	8,120	136,674	145,031

1. For the calendar years 1901, 1902, and 1903 respectively.

2. For the eighteen months ended 30th June, 1905.

The two tables given above shew only a small proportion of the actual expenditure upon roads and bridges in the different States, for the reason that (a) there have been

large expenditures from revenue, both by the central Governments and by local authorities, and (b) the State Governments have in many cases voted grants and subsidies on the amount of rates collected, and have issued loans to local authorities either for the express purpose of the construction of roads and bridges or for the general purpose of public works construction. Returns of expenditure, where available, are given below for each State. Although no revenue is now derived directly from roads and bridges, they are indirectly of great value to the community, forming, next to railways and public lands, the most considerable item of national property.

3. **New South Wales.**—The control of all roads, bridges, and ferries in New South Wales is now regulated by the Local Government Act 1906, which came into force on the 1st January, 1907 (see Section XXVI. hereinafter). Under the provisions of this Act the eastern and central divisions of the State are divided into shires and municipalities for the general purposes of local government, for the endowment of which a sum of not less than £150,000 is payable annually out of the consolidated revenue on the basis of a percentage subsidy on the proceeds of the general rates received by the District Councils. The control of all roads, bridges, and ferries (except those proclaimed "National") has been transferred from the Roads Department to the respective shire and municipal councils, who are now responsible for their construction and maintenance. Up to November, 1909, 117 bridges, 33 wharves, 2 mooring dolphins, 1 jetty, and 3 ferries had been proclaimed as "National" works. Particulars as to the length of roads and numbers of bridges and ferries transferred to the shire and municipal councils are not yet available. Power is given to construct new roads, to widen or close existing roads, to make by-laws for the regulation of traffic, etc.; in the case of the acquisition of land for the purpose of constructing new roads or of widening existing roads, the provisions of the Roads Act 1902 are incorporated.

(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 townships as far as Bourke, on the Darling River. (d) *The Northern Road*, 405 miles in length, runs from Morpeth, near Newcastle, as far as Maryland, on the Queensland border.

(ii.) *Length and Classification of Roads and Bridges.* Owing to the alteration in the arrangements for the collection of statistics necessitated by the inauguration of the new system of local government, particulars as to the length of roads and streets for years subsequent to 1906 are not generally available. The following tables give the length of roads, the number of culverts, bridges, and ferries at the end of the year 1906 :—

**NEW SOUTH WALES.—LENGTH OF ROADS, NUMBER OF CULVERTS, BRIDGES,
AND FERRIES, 1906.**

Year.					Miles of Roads.	Number of Culverts under 20 ft. Span.	Number of Bridges over 20 ft. Span.	Number of Punts, Boats and Ferries.
1906	...	...	...	...	58,326	43,564	3,548	457

NEW SOUTH WALES.—CLASSIFICATION OF ROADS ON THE 31st DECEMBER, 1906.

Classification.	Metalled, Wood- blocked, Ballasted, Gravelled or Cordu- royed.	Formed.	Cleared or Drained.	Bush or Un- touched Road.	Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
Scheduled (outside municipalities) ...	8,735	5,533	13,102	5,162	32,532
" (within ") ...	734	117	198	42	1,091
Unclassified (outside ") ...	422	1,202	4,410	9,540	15,574
" (within ") ...	58	34	57	49	198
Roads under municipal councils* ...	3,417	1,767	1,926	1,821	8,931
Total roads in New South Wales ...	13,366	8,653	19,693	16,614	58,326

* Particulars given are to the end of 1907.

The more important bridges have been proclaimed under the provisions of the Local Government Act as "National works," and these, together with the bridges, etc., in the Western Division, remain under the control of, and are maintained by, the Public Works Department.

(iii.) *Expenditure on Roads and Bridges.* The subjoined statement shews the total expenditure up to the year 1900, and the annual expenditure for succeeding years to 1908, by the central Government and by road trusts:—

NEW SOUTH WALES.—TOTAL AND ANNUAL EXPENDITURE BY ROADS DEPARTMENT AND BY ROAD TRUSTS, 1901 to 1908.

Year ended 30th June.	Expenditure by Roads Department.			Expenditure by Road Trusts.	Total Expenditure.
	Consolidated Revenue Fund.	Loans.	Total.		
From 1857 to 1900 ...	£ —	£ —	£ 18,790,410	£ 1,258,027	£ 20,048,437
1901 ...	696,102	130,499	826,601	9,074	835,675
1902 ...	689,398	150,777	840,175	7,817	847,992
1903 ...	591,265	73,471	664,736	6,517	671,253
1904 ...	438,752	47,812	486,564	3,404	489,968
1905 ...	386,872	59,019	445,891	2,132	448,023
1906 ...	468,395	28,666	497,061	1,171	498,232
1907 ...	401,169	11,162	412,331	*	*
1908 † ...	142,469§	2,361	146,830	*	*
Total ...	3,814,422	503,767	23,110,599	†1,288,142	†23,839,580

* Not available. † Incomplete. ‡ Expenditure by Works Department and Land Department. § Including £58,905 from the Public Works Fund.

The only expenditure now incurred by the Government on roads is in the Western Division of the State, or in shires and municipalities to make good the difference, if any, or part of the difference between the cost of up-keep of roads (maintained by the Government prior to the Local Government Act 1906), and the amount of land tax remitted to the various shires and municipalities.

4. **Victoria.**—Under the Local Government Act 1903, the control, construction, and maintenance of all roads, streets, and bridges are in the hands of Municipal Councils, who are empowered to open new roads, and to close, divert, or increase the width of any existing street or road, provided that no new road less than one chain in width may be opened without the consent of the Minister. The councils are also authorised to make and repair streets, lanes, or passages on private property, or forming 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 general or extra. The councils are empowered to raise loans for the purpose of making or opening new streets and roads, and for diverting, altering, or increasing the width of streets and roads, provided that the amount of such loan must not exceed ten times the average income of the council during the three years immediately preceding.

(i.) *General and Local Government Expenditure.* The gross amount expended by the State Government of Victoria on roads and bridges was £7,756,345 up to the end of June, 1900; figures for succeeding years are given in the table below. The annual expenditure from ordinary revenue by municipalities is not returned separately, but is included in Public Works Construction and Maintenance. 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 from 1901 to 1908, inclusive:—

VICTORIA.—EXPENDITURE ON ROADS AND BRIDGES, 1901 to 1908.

Financial Year. ¹	Annual Expenditure by State Government.	Municipal Loan Expenditure.		Formation of Private Roads, Streets, Lanes, etc. ²	
		Cities, Towns, and Boroughs.	Shires.	Cities, Towns, and Boroughs.	Shires.
	£	£	£	£	£
1901 ...	72,890	16,844	12,928	18,829	4,521
1902 ...	75,855	13,047	15,656	17,655	4,542
1903 ...	69,200	13,540	12,696	15,279	4,028
1904 ...	42,144	12,929	1,444	15,432	4,072
1905 ...	30,393	21,515	2,560	21,593	2,083
1906 ...	56,145	5,673	8,480	18,237	1,390
1907 ...	43,119	21,137	7,495	25,244	3,052
1908 ...	72,246	21,859	5,206	30,907	1,811

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

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

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

6. **South Australia.**—Under the provisions of the District Councils Acts, 1887 to 1904, and the Municipal Corporations Acts, 1890 to 1903, and of the Roads Acts, 1884 to 1908, the councils are invested with full powers as to the opening and making of new streets and roads, and the diverting, altering, or increasing the width of existing roads; as to raising, lowering, or altering the ground or soil of any street or road; and as to the construction, purchase, and management of bridges, culverts, ferries, and jetties.

(i.) *Main Roads and District Roads.* All the roads in each district are classified either as main roads or as district roads. Both classes of roads are under the direct control either of Municipal Corporations or of District Councils, but in the case of main roads the expenditure on construction and maintenance is chiefly provided for by Government grants, which are paid into a main road fund, while the expenditure on district roads is paid for out of general rates, and out of subsidies on the amount of such rates, granted by the central Government. Under the Main Roads Act 1908, a number of roads were declared to be main roads.

The total estimated length of streets and roads in South Australia up to the 30th June, 1908, was as follows:—

Particulars.	Woodblocked.	Macadamised.	Other.	Total.
Miles	—	8,480	25,240	33,720

(ii.) *Expenditure by Corporations on Main and District Roads.* The following table shews the expenditure by municipal corporations on both main and district roads during each year from 1901 to 1908 inclusive:—

**SOUTH AUSTRALIA.—EXPENDITURE BY CORPORATIONS ON STREETS, ROADS,
AND BRIDGES, 1901 TO 1908.**

Year.	District Roads.			Main Roads Fund.			
	Total Receipts.	Expenditure.		Receipts.		Expenditure.	
		Con- struction.	Main- tenance.	From Main Road Grants.	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£	£
1901 ...	148,872	4,906	50,628	7,403	8,738	159	7,745
1902 ...	159,753	11,671	46,980	5,470	7,249	117	6,580
1903 ...	155,857	3,005	52,539	5,458	6,986	...	6,433
1904 ² ...	158,540	10,235	50,769	5,116	6,559	85	6,109
1905 ...	162,850	17,475	43,245	6,125	8,420	419	7,320
1906 ...	166,097	14,521	48,901	7,028	8,144	192	7,291
1907 ...	154,918	5,697	47,024	6,815	7,506	681	6,703
1908 ...	169,058	3,968	43,538	7,178	7,917	130	8,054

1. Up to and including the year 1903 the financial year ended on the 31st December, but after that date ends on the 30th November. 2. For eleven months ended the 30th November.

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

**SOUTH AUSTRALIA.—EXPENDITURE BY DISTRICT COUNCILS ON STREETS,
ROADS, AND BRIDGES, 1901 to 1908.**

Year Ended 30th June.	District Roads.			Main Roads Fund.			
	Total Receipts.	Expenditure.		Receipts.		Expenditure.	
		Con- struction.	Main- tenance.	From Main Road Grants.	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£	£
1901 ...	147,309	18,026	47,379	72,980	100,077	11,861	67,487
1902 ...	134,780	22,925	43,430	62,990	87,070	6,039	63,084
1903 ...	134,216	20,573	44,070	56,092	74,877	5,766	54,778
1904 ...	140,216	22,682	47,519	54,645	69,868	6,280	49,465
1905 ...	150,309	32,157	37,613	55,799	75,622	4,650	56,448
1906 ...	132,085	24,564	47,502	60,558	63,723	5,293	54,027
1907 ...	128,787	27,795	47,731	70,560	70,769	5,598	57,152
1908 ...	134,169	35,161	48,289	80,834	80,875	6,277	70,343

7. **Western Australia.**—In Western Australia the construction, maintenance, and management of roads and bridges throughout the State, except those within the boundaries of municipalities, are under the control of District Road Boards, constituted by the Roads Acts 1902 to 1904.

(i.) *District Roads and Bridges.* Under the provisions of these Acts any part of the State, not within a municipality, may be constituted by the Governor-in-Council into a Road District, under the control of a Board of seven 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 Governor, nor any bridge or culvert at a greater cost than £100, except by the direction of the Minister. The construction of the more important bridges and culverts is generally carried out by the Government, the work, after completion, being handed over to the Road Board for maintenance. In case of land being required for the purpose of constructing a new street or road, or for widening an existing street or road, the provisions of the Public Works Act of 1902 are incorporated in the Roads Acts. A Board may levy general rates within its district not exceeding one shilling and sixpence in the £ on the annual ratable value, and, if valued on the basis of unimproved values of lands, the general rate must not exceed twopence half-penny in the £ on the capital unimproved value. Boards are also empowered to raise loans for the purpose of constructing new roads, but the amount of such loans must not be greater than ten times the average amount of general rates collected for two years. For the purpose of paying the interest on money borrowed a Board may levy a special rate not exceeding one shilling and sixpence in the £. District Road Boards may also exercise the powers of Drainage Boards under the provisions of the Land Drainage Act of 1900.

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

highway, and on such request the Governor may, by notice in the *Gazette*, proclaim such highway absolutely dedicated to the public.

(iii.) *Length of Roads, Number of Bridges, and Expenditure on Roads and Bridges.* The following table gives particulars of the operations of the Road District Boards since the 1st January, 1903, when the Roads Act of 1902 (now amended by the Act of 1904) came into force:—

WESTERN AUSTRALIA.—PARTICULARS OF ROADS UNDER CONTROL OF DISTRICT ROAD BOARDS, 1904 to 1908.

Year ended the 30th June.	Area.	Revenue.				Expenditure.	Length of Roads.				No. of Bridges and Culverts.	
		From General Rates.	From Grants and Subsidies.	From other Sources.	Total.		Cleared only.	Formed only.	Metalled or otherwise Constructed.	Total.	Bridges.	Culverts.
	Sq. m.	£	£	£	£	£	Miles.	Miles.	Miles.	Miles.	No.	No.
1904 ¹	976,006	18,593	141,409	16,139	176,141	126,736	6,498	2,625	1,395	10,513	287	2,745
1905	975,802	23,558	90,475	11,547	125,580	122,091	8,268	2,864	1,813	12,945	319	3,272
1906	975,792	28,219	85,250	12,746	126,245	125,616	8,556 ²	3,970 ²	1,952 ²	14,478 ²	443 ³	3,792 ³
1907	975,780	35,088	60,313	13,796	109,197	126,716	9,269 ⁴	3,878 ⁵	2,068 ⁵	15,235 ⁴	491 ⁶	3,961 ⁶
1908	975,780	40,491	58,311	14,707	113,509	120,088	10,821	4,760	2,337	17,918	509	4,148

1. The returns given for 1904 cover a period of eighteen months, from the 1st January, 1903, to the 30th June, 1904. 2. Exclusive of four Boards which have not supplied the information. 3. Exclusive of three Boards which have not supplied the information. 4. Exclusive of six Boards. 5. Exclusive of seven Boards. 6. Exclusive of five Boards.

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

WESTERN AUSTRALIA.—PARTICULARS OF STREETS, ROADS, AND BRIDGES UNDER THE CONTROL OF MUNICIPALITIES, 1901 to 1908.

Year ended the 31st October.	No. of Municipalit ^s .	Length of Streets, Roads, and Bridges.					Revenue.		Expenditure.		
		Paved, M't'l'd or Gr'v'ld	Form'd only.	Clear'd only.	Not Clear'd	Total.	From Rates.	From Grants.	Works and Impr'v- ments.	Street Light'g and Wat'rg	
		Miles.	Miles.	Miles.	Miles.	Miles.	£	£	£	£	
1901 ¹	...	42	195	30	149	137	511	78,021	66,850	111,256	15,969
1902	...	44	265	52	221	249	787	94,894	81,436	125,721	19,434
1903	...	44	291	55	282	227	855	104,760	80,938	142,347	20,745
1904	...	43	325	64	252	260	901	119,110	90,868	187,747	23,361
1905	...	43	354	74	258	256	942	130,575	85,798	183,226	25,404
1906	...	45	396	79	275	292 ²	1,042	146,206	95,997	165,421	31,045
1907	...	47	441	84	304	262 ²	1,091	136,868	85,473	132,103	34,135
1908	...	47	474	90	323	272 ²	1,159	139,228	67,315	103,943	31,682

1. Returns incomplete, not having been furnished when asked for. 2. Exclusive of three municipalities, which have not supplied the information. 3. Exclusive of four municipalities.

8. *Tasmania.*— In 1906 all the existing Road Trusts and Main Road Boards were abolished by the Local Government Act which provided that the councils of all municipalities constituted under the Act should exercise all powers conferred upon, and should be liable to all the obligations imposed upon Road District Trusts and Main Road Boards by the Roads Act of 1884. The whole State, with the exception of Hobart and Launceston, is divided into municipal districts, each of which is under the control of

a warden and councillors, and each of which is deemed to be a road district and a main road district for the purposes of the Roads Act 1884.

(i.) *Mileage of Main and Other Roads and Expenditure of Main Road Boards and Road Trusts, 1901 to 1907.* The subjoined table gives particulars as to lengths of roads open and as to the expenditure of Main Road Boards and Road Trusts, during the years 1901 to 1907 inclusive. Owing to the alteration in arrangements necessitated by the inauguration of the Local Government Act 1906, returns for the year 1908 from municipal councils constituted by that Act are too incomplete for publication.

**TASMANIA.—LENGTH OF ROADS AND EXPENDITURE OF MAIN ROAD BOARDS
AND ROAD TRUSTS, 1901 to 1907.**

Year.	Main Road Boards.		District Road Trusts.			
	Mileage Maintained.	Expenditure.	Number of Trusts.	Miles under Control.	Receipts.	Expenditure.
	Miles.	£	No.	Miles.	£	£
1901 ...	696	7,591	102	6,539	28,887	26,263
1902 ...	765	7,661	102	6,732	29,944	27,579
1903 ...	650½	8,805	105	6,855	25,359	30,368
1904 ...	650	6,954	104	7,045	29,638	29,459
1955 ...	678	7,028	104	7,124	30,063	28,566
1906 ...	678½	8,025	105	7,272	31,791	31,633
1907 ...	678½	3,209	103	7,590	34,612	34,153

§ 2. Railways.

(A.) General.

1. **Improvements in Railway Statistics.**—In February, 1909, a report was issued by the Commonwealth Statistician to the Minister for Home Affairs on the subject of *The Desirability of Improved Statistics of Government Railways in Australia*. In this report a number of matters were specified in respect to which there was want of uniformity in the form and basis of the statistics published in the annual reports of the Railway Departments of the several States, and the importance and desirability of obtaining more complete and uniform statistics, especially with regard to “passenger-miles” and “ton-miles,” were emphasised. This report was brought forward and considered by the Commissioners and General Managers of the Australian State Railways at their last annual conference, held in Melbourne in May, 1909, with the result that resolutions were passed agreeing to publish in the annual reports of the State Railway Departments uniform statistics regarding all the matters referred to by the Commonwealth Statistician, with two exceptions, viz.:—(a) with respect to the classification of tonnage carried and the revenue derived therefrom (see further (B) paragraph 17 hereof), and (b) with respect to “passenger-mileage” and “ton-mileage” (see further (B) paragraph 18 hereof). The resolutions referred to will take effect from the 1st July, 1909.

2. **Railway Communication in the Commonwealth.**—Although it was early recognised that railway construction was essential to the proper development and settlement, and to the future commercial prosperity of a large country like Australia, ill supplied with navigable rivers, the progress made in opening up lines during the twenty years which followed the completion of the first line in 1855,

was very slow. This was no doubt due partly to the difficulty of borrowing money at a reasonable rate of interest, owing to the depreciation of Australian securities in London, and partly to the sparseness of the population, which it was feared would not justify the necessary expenditure. In the vicinity of Sydney, also, the ranges of mountains in the districts near the coast had to be either traversed or pierced by tunnels at a considerable expenditure of time and money, thus retarding the expansion of the railway systems which have their starting point at that city. Since the year 1875, however, greater activity in the construction of railways has been manifested, and satisfactory progress has been made in all the States of the Commonwealth; the State Governments now fully recognise the great importance to the community of carrying on the work of construction, and of conducting the administration and management of the railways on businesslike principles, free from undue political influence, and yet with regard to the general development of the country. 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 roughly parallel to the coast. These are shewn on the accompanying map. In the east, lines radiating from Townsville, Rockhampton, Brisbane and Sydney extend inland in various directions for distances ranging up to over 600 miles; in the south-east there are numerous lines, those in Victoria converging towards Melbourne, while others in New South Wales have their terminus in Sydney; in the south there are three main lines, with numerous branches, running from Melbourne, while from Adelaide one main line, with several branches to the coastal towns, runs inland in a northerly direction for a distance of nearly 700 miles, and another line runs in a south-easterly direction to various ports and meeting the main line from Melbourne on the border of South Australia and Victoria. In addition to these main lines and their numerous branches, there are extensive suburban systems in Melbourne and some of the other cities of Australia, a considerable portion of the suburban traffic in Sydney being conducted by means of electric tramways. All these lines which have just been referred to are connected together by the main interstate line, which permits of direct communication between the four capital towns—Brisbane, Sydney, Melbourne, and Adelaide—a distance from end to end of 1790½ miles. The journey from Brisbane to Adelaide by rail occupies just over three days, including one stop of 8 hours 50 minutes at Sydney, and another of 3 hours 49 minutes at Melbourne. The distance between the capitals and the times occupied are as follows:—

Brisbane to Sydney	...	...	725 miles	...	27 hours 20 min.
Sydney to Melbourne	...	...	582½ "	...	16 " 51 "
Melbourne to Adelaide	...	...	482½ "	...	17 " 15 " -

The longest railway journey which can be undertaken in Australia, on one continuous line of railway, is from Longreach in Queensland to Oodnadatta in South Australia, a total distance of 3303 miles. In Western Australia there is a connected system of main or trunk lines between the ports of the State and the agricultural, pastoral, and mining districts. From these main lines a number of branches have been constructed, opening up fresh agricultural areas to the ports and markets of the State. The majority of such branch lines will, on being ultimately extended, form connections between main lines and thus provide short and convenient routes between principal centres. In the northern parts of Queensland and in the Northern Territory there are also a number of disconnected lines running inland from the more important ports. In Tasmania the principal towns are connected by a system of lines, and there are also, more especially in the western districts, several lines which have been constructed for the purpose of opening up mining districts.

3. Mileage Open for Traffic.—In all the States of the Commonwealth the principle that the control, construction, and maintenance of the railways should be in the hands of the Government has long been adhered to, excepting in cases presenting unusual circumstances. In various parts of the Commonwealth lines have been constructed and

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

(i.) *Mileage of Government and Private Lines, 1855 to 1909.* The subjoined table shews the mileage of both Government and private lines open for traffic (exclusive of sidings and cross-overs) in each State and also in the Commonwealth at suitable periods since the inauguration of railways in Australia in 1855 up to the year 1909. The figures from 1855 to 1881 are given as up to the end of the calendar year; later figures are as up to the end of the financial year ended on the 30th June, unless otherwise stated, excepting the mileages for private lines which are in all cases taken for the calendar year:—

GOVERNMENT AND PRIVATE RAILWAYS. —MILEAGE OPEN, 1855 to 1909.

Year.	N.S.W.	Vict.	Q'land.	S. Aust.	N. Ter.	W. Aust.	Tas.	Cwth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1855	14	23 $\frac{1}{2}$	*	†6 $\frac{1}{4}$	*	*	*	23 $\frac{1}{4}$
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	145 $\frac{3}{4}$	†656	†425	10,123 $\frac{3}{4}$
1900-1	2,926	3,238	2,904	1,736	145 $\frac{3}{4}$	1,984	\$618	13,551 $\frac{3}{4}$
1907-8	3,743 $\frac{1}{2}$	3,443	3,694 $\frac{3}{4}$	1,937 $\frac{1}{4}$	145 $\frac{3}{4}$	2,581 $\frac{1}{2}$	666 $\frac{3}{4}$	16,212 $\frac{1}{2}$
1908-9	3,888 $\frac{1}{2}$	3,456 $\frac{3}{4}$	3,865 $\frac{3}{4}$	1,946	145 $\frac{3}{4}$	2,683	666 $\frac{3}{4}$	16,652 $\frac{1}{2}$

* No railways yet constructed. † To the 31st December. This line between Goolwa and Port Elliot was opened in 1854 as a horse tramway, but now forms part of the railway system. ‡ To the 31st December, 1891. § 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. The greatest period of activity was from 1881 to 1891, when the average annual length opened for traffic was 594 miles for the whole Commonwealth; the corresponding figures for the following periods from June, 1891, to June, 1901, and from June, 1901, to June, 1907, were 342 miles and 340 miles respectively.

4. *Comparative Mileage of State-owned and Private Lines, 1909.*—The subjoined table shews for each State and for the Commonwealth (a) the length of lines owned by the respective State Governments, all of which lines are of course open for general use by the public, (b) the length of private lines available for general use by the public, and (c) the length not so available. The mileages specified in the case of State-owned lines are as up to the 30th June, 1909; those given for private lines are as up to the 31st December, 1908.

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARATIVE MILEAGE OF STATE-OWNED LINES, OF PRIVATE LINES AVAILABLE FOR GENERAL TRAFFIC, AND OF PRIVATE LINES NOT SO AVAILABLE, 1909.

State.	State-owned Lines.	Private Lines available for General Traffic.	Total Open for General Traffic.	Private Lines used for Special Purposes only.	Grand Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	3,623½	141	3,764½	124½	3,888½
Victoria...	3,410	14	3,424	32½	3,456½
Queensland ...	3,498	346	3,844	21½	3,865½
South Australia ...	1,888	...	1,888	58	1,946
Northern Territory	145½	...	145½	...	145½
Western Australia	2,044½	277	2,321½	361½	2,683
Tasmania ...	463	165	628	38½	666½
Commonwealth	15,072½	943	16,015½	637	16,652½

5. Comparative Railway Facilities in Different States, 1909.—The area of territory and the population per mile of line open to the public for general traffic (including both Government and private lines) on the 30th June, 1909, are shewn in the subjoined statement for each State and also for the Commonwealth :—

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARISON OF RAILWAY FACILITIES IN DIFFERENT STATES, 1909.

State.	Population.	Area.	Per Mile of Line Open.	
			Population.	Area.
	Number.	Sq. miles.	Number.	Sq. miles.
New South Wales ...	1,604,528	310,372	427	82.5
Victoria ...	1,283,149	87,884	375	25.6
Queensland ...	567,536	670,500	147	174.4
South Australia ...	407,124	380,070	215	201.3
Northern Territory ...	2,900	523,620	20	3,598.7
Western Australia ...	271,200	975,920	116	420.3
Tasmania ...	183,189	26,215	291	41.8
Commonwealth ...	4,319,626	2,974,581	269	185.7

6. Classification of Lines according to Gauge, 1909.—The subjoined tables shew the total mileage, exclusive of sidings and cross-overs, of (i.) Government railways; (ii.) Private railways open to the public for general traffic; and (iii.) Private lines used for special purposes, classified according to gauge. Particulars of Government railways are up to 30th June, 1909, and of private railways to the 31st December, 1908 :—

**GOVERNMENT AND PRIVATE RAILWAYS.—CLASSIFICATION ACCORDING TO GAUGE,
1909.**

State.	Mileage Constructed to Different Gauges.					Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft.	

GOVERNMENT RAILWAYS.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ...	...	3,623½	...	...	...	3,623½
Victoria ...	3,329	...	...	81	...	3,410
Queensland ...	...	...	3,498	...	...	3,498
South Australia ...	599½	...	1,434½	...	...	2,033½
Western Australia ...	...	...	2,044½	...	...	2,044½
Tasmania ...	...	...	439½	...	23½	463
Commonwealth ...	3,928½	3,623½	7,416½	81	23½	15,072½

PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC.

New South Wales ...	45	60	36	...	...	141
Victoria ...	14	...	...	...	...	14
Queensland ...	...	...	270	...	76	346
South Australia ...	...	...	...	...	...	...
Western Australia ...	...	...	277	...	...	277
Tasmania ...	...	...	155	...	10	165
Commonwealth ...	59	60	738	...	86	943

PRIVATE RAILWAYS FOR SPECIAL PURPOSES.

New South Wales ...	...	120¾	3½	...	...	124½
Victoria ...	28¾	...	4	...	...	32¾
Queensland ...	...	...	16¾	...	5	21¾
South Australia ...	...	...	58	...	...	58
Western Australia ...	...	...	361½	...	...	361½
Tasmania ...	...	...	24½	...	14½	38½
Commonwealth ...	28¾	120¾	468½	...	19½	637

TOTAL.

New South Wales ...	45	3,804	39½	...	...	3,888½
Victoria ...	3,371¾	...	4	81	...	3,456¾
Queensland ...	...	...	3,784½	...	81	3,865½
South Australia ...	599½	...	1,492½	...	...	2,091½
Western Australia ...	...	...	2,683	...	...	2,683
Tasmania ...	...	...	619½	...	47½	666½
Commonwealth ...	4,016	3,804	8,622½	81	128½	16,652½

(B.) Government Railways.

1. **Mileage Open, 1901 to 1909.**—The following table shews the length of Government railways open for traffic on the 30th June in each year since the inception of the Commonwealth:—

**GOVERNMENT RAILWAYS.—MILEAGE OPEN FOR TRAFFIC ON THE 30th JUNE
IN EACH YEAR FROM 1901 to 1909 INCLUSIVE.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	N. Ter.	W. Aust.	Tas.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1901 ...	2,345½	3,237	2,801	1,736	145½	1,355	*457½	12,577½
1902 ...	3,026	3,302	2,801	1,736	145½	1,360	*462	12,832½
1903 ...	3,138½	3,383	2,711.	1,736	145½	1,516	*462	13,092
1904 ...	3,281	3,381	2,928	1,736	145½	1,541	462	13,474½
1905 ...	3,281	3,394	3,092	1,745½	145½	1,605	462½	13,725½
1906 ...	3,390	3,394	3,137	1,745½	145½	1,611½	462½	13,886
1907 ...	3,453	3,396	3,137	1,832	145½	1,764	462½	14,190
1908 ...	3,472½	3,396	3,359	1,879½	145½	1,943	463	14,658½
1909 ...	3,623½	3,410	3,498	1,888	145½	2,044½	463	15,072½

* To the 31st December.

The following statement shews the actual mileage opened for traffic in the year 1908-9, and also the annual average increase in mileage opened since 1901 in each State:—

GOVERNMENT RAILWAYS.—MILEAGE OPENED ANNUALLY.

State	N.S.W.	Vic.	Qld.	S.A.	N.T.	W.A.	Tas.	Cwltth.
Mileage opened in 1908-9 ...	150½	*16	139	8½	...	101½	...	†414
Average annual mileage opened (1901 to 1909) ...	97½	21½	87	19	...	86	¾	311½

* Net increase 14 miles, owing to the Geelong Racecourse line (2 miles) having been dismantled. † Net increase.

(i.) *New South Wales.* In New South Wales extensions were opened during 1908-9 from Manilla to Barraba (32 miles), from Cryon to Walgett (32 miles), from Arian Park to Barellan (41 miles), from Trundle to Tullamore (22 miles), from Mudgee to Gulgong (20½ miles), and from Belmore to Bankstown (3½ miles).

(ii.) *Victoria.* The Rupanyup to Marnoo line, 15½ miles in length, was opened for traffic in June, 1909. Under an agreement with the New South Wales Government the Strathmerton to Tocumwal line was extended across the Murray river.

(iii.) *Queensland.* The increase of 139 miles in the mileage opened for traffic in 1909 was due to the opening of the following lines:—Inglewood to Goondiwindi (52½ miles), Sliepner Junction to Mount Chalmers (3½ miles), and from Julia Creek to Cloncurry (82½ miles).

(iv.) *South Australia.* The only line opened for traffic in this State during the year 1908-9 was that from Cummins to Yeelanna, a distance of 8½ miles.

(v.) *Western Australia.* The following new sections of railway were taken over from the Public Works Department during the year 1908-9 and opened for public traffic:—Narrogin to Wickepin (26½ miles), Noggerup to Boyup (23½ miles), Jarrahwood to Nannup (17½ miles), and Hopetoun to Ravensthorpe (33½ miles). The opening of the last named line, detached from the main system, has introduced a new feature into the Railway Department's operations.

2. Non-conformity of Gauge.—With but few exceptions all the railway lines in the Commonwealth open for general traffic are now owned and managed by the respective States in whose territory they run, but, unfortunately for the purpose of interstate traffic, the construction of the various systems in different parts of Australia has proceeded without uniformity of gauge. In 1846 Mr. Gladstone, then Colonial Secretary, recommended in a despatch to the Governor of New South Wales that the 4 ft. 8½ in. gauge should be adopted. In 1850, however, the engineer to the Sydney Railroad and Tramway Company strongly advocated the adoption of the 5 ft. 3 in. gauge, and in 1852 an Act was passed making it compulsory that all railways in New South Wales should be constructed to the wider gauge, the Governors of Victoria and South Australia being duly advised of the step that had been taken. But in 1852 the company mentioned, having changed their engineer, also changed their views as to the gauge question, and in the following year they succeeded in obtaining the repeal of the Act of 1852 and in passing another, under the provisions of which the narrower gauge was made imperative. This step was taken without the concurrence of the other States concerned, and a considerable amount of ill-feeling arose, especially in Victoria, where two private companies had already placed large orders for rolling stock constructed to the broad gauge originally chosen. The result was that it was decided in Victoria to adhere to the 5 ft. 3 in. gauge as the standard gauge for that State, while the Sydney Railroad and Tramway Company proceeded with the construction of their 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 have since adhered to that gauge throughout the State, so that all goods have to be discharged and reloaded at the boundary between that State and New South Wales. In South Australia the broad gauge of Victoria was at first adopted, and the part of the interstate line between Adelaide and the Victorian boundary was constructed to that gauge, so that the line from Melbourne to Adelaide is uniform. In the lines which have been constructed more recently, however, and in the Northern Territory, the South Australian Government has, with a view to economy in construction, adopted a gauge of 3 ft. 6 in. In Western Australia and Tasmania the 3 ft. 6 in. gauge was also adopted. It was recognised in both these States that the construction of railways was essential to their proper development, but as their financial resources would not bear a heavy initial expenditure in connection with the establishment of railway lines, it was decided to adopt the narrow gauge. In Victoria light railways have been constructed in recent years to a gauge of 2 ft. 6 in., whilst in Tasmania short lengths have been laid down to a 2 ft. gauge.

3. Interstate Communication.—Until the railway systems of the eastern States were connected at the common boundaries the inconvenience of non-conformity of gauge was not felt. Since then, however, the necessary transshipments of both passengers and goods have been a source of trouble, delay, and expense. On the 14th June, 1883, a railway bridge over the River Murray at Wodonga was opened for traffic, and communication was then established between Melbourne and Sydney; on the 19th January, 1887, the last section of the Victorian line to Serviceton, on the South Australian border, was completed, and a junction was thus effected with the South Australian line to Adelaide. On the 16th January, 1888, a junction was effected between the New South Wales and Queensland lines at Wallangarra, but there was still a break in the line from Sydney at the Hawkesbury River, thirty-six miles from Sydney. This last link was, however, completed on the 1st May, 1889, by the opening of the Hawkesbury River bridge, 2900 feet in length, and railway communication was thus established between the four capital cities, Brisbane, Sydney, Melbourne, and Adelaide.

4. Unification of Gauge.—The development of the railway systems of the Commonwealth has shewn that the adoption of different gauges on the main lines in the several States was a serious error. The extra cost, delay, and inconvenience incurred by the necessity of transferring through-passengers and goods at places where there are breaks of gauge, though not at present of any appreciable magnitude, are becoming more serious

as the volume of business increases. As an indication of the extra cost thus involved the following junction charges payable on interstate traffic between New South Wales and Victoria and *vice-versa* are given :—

JUNCTION CHARGES.—NEW SOUTH WALES AND VICTORIA, 1909.

General Merchandise. 1st to 3rd Classes.	Other Goods.*	Vehicles for which rate per mile operates.	Live Stock.
2s. 6d. per ton	1s. 6d. per ton	1s. 6d. each	3s. per truck.

* No junction charge is made on wool.

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. That its solution would facilitate the development of commerce and the settlement on the land throughout the Commonwealth, is now widely recognised. The economic disadvantages of breaks of gauge, and of any artificial restrictions in regard to trade finding its proper geographical outlets, are also seen by dispassionate observers. It is obvious, too, that in the event of a foreign invasion of any part of the seaboard, the interchange and concentrations of rolling stock for the transport of men and war material would be impeded, and might result in confusion and loss. It is asserted, moreover, that unification of gauges would tend to reduce to a negligible quantity all tendency to disorganisation and undue congestion likely to occur at times of bountiful seasons; that various trades and industries would be benefited by the concentration, at times of abnormal or periodic activity, of idle trucks from other States; that there would be a large saving in the aggregate capital expenditure on rolling stock; in other words, that the fullest use of all rolling stock and the meeting of all exigencies would be facilitated.

As regards the unification of gauges, the question naturally arises as to which gauge, if any, should be adopted as the universal gauge of the Commonwealth. As regards Government railways only, the New South Wales gauge has a mileage of 3623½; Victoria and South Australia have a combined mileage of 3,928½ of 5 ft. 3 in. gauge; while Queensland, South Australia, the Northern Territory, and Western Australia have together 6,976½ miles of 3 ft. 6 in. gauge. By far the greater part of the mileage of private railways open for general traffic has also been constructed to the 3 ft. 6 in. gauge. The mere question of preponderance of mileage, therefore, indicates the 3 ft. 6 in. gauge for adoption. But this question is obviously subordinate to those involving engineering and economic considerations. Thus the relative efficiency from the widest point of view, the relative costs of alterations of permanent way and rolling stock, of carrying capacity and speed, that is to say, questions of a technical nature about which figures are not available, enter into the grounds for decision. As regards the unification of the New South Wales and Victorian lines, the advantage of reducing the broad gauge to the 4 ft. 8½ in. gauge is that there would be no necessity for the alteration of tunnels, cuttings, bridges, or viaducts.

5. Average Mileage Worked, Train Miles Run, Number of Passenger Journeys, and Tonnage of Goods and Live Stock Carried on Government Railways, 1901 to 1909.—The preceding table gives the actual mileage open for traffic at the end of each financial year, but, in considering the returns relating to revenue and expenditure and other matters, it is desirable to know the average number of miles actually worked during each year. The next table shews the average number of miles worked, the total

number of train miles run, the number of passenger journeys, and the tonnage of goods and live stock carried by the Government railways of each State during each financial year from 1900-1 to 1908-9 inclusive:—

GOVERNMENT RAILWAYS.—AVERAGE MILEAGE WORKED, TRAIN MILES RUN, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1901 to 1909.

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	N. Ter.	West. Aust.	Tasmania.	C'wealth.
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AVERAGE MILEAGE WORKED.

1900-1	2,818	3,228	2,801	1,736½	145½	1,355	460*	12,544
1901-2	2,953	3,265	2,801	1,736½	145½	1,356	468*	12,725
1902-3	3,074	3,335	2,777	1,736½	145½	1,434	469*	12,971
1903-4	3,224	3,371	2,827	1,736½	145½	1,535	469	13,308
1904-5	3,281	3,384	3,066	1,744½	145½	1,568	470	13,659
1905-6	3,367	3,394	3,109	1,745½	145½	1,607	470	13,838
1906-7	3,428	3,395	3,137	1,814½	145½	1,676	470	14,066
1907-8	3,469	3,396	3,239	1,860½	145½	1,830	470	14,410
1908-9	3,560	3,397	3,444	1,881½	145½	1,971	470	14,869

TRAIN MILES RUN (,000 OMITTED).

1900-1	10,764	11,066	5,815	4,393	30	4,126	896*	37,090
1901-2	11,649	11,285	5,666	4,196	30	4,508	903*	38,237
1902-3	11,548	10,286	4,947	3,770	31	4,611	932*	36,125
1903-4	10,400	9,173	4,647	3,739	32	4,594	948†	33,533
1904-5	10,468	9,023	4,918	3,773	31	4,285	946	33,444
1905-6	11,864	9,392	5,282	3,875	30	4,360	946	35,749
1906-7	12,949	10,036	6,126	4,334	31	4,181	981	38,638
1907-8	14,251	10,383	6,558	5,010	31	3,964	1,028	41,225
1908-9	15,074	11,291	7,391	4,925	31	4,102	1,029	43,843

NUMBER OF PASSENGER JOURNEYS (,000 OMITTED).

1900-1	29,261	54,704	18,647	8,864	4	6,823	778	109,081
1901-2	30,885	57,465	18,421	9,643	4	8,158	*762	115,338
1902-3	32,384	54,798	17,353	9,061	4	9,106	*815	113,521
1903-4	33,793	54,282	17,528	9,747	4	10,226	†873	116,453
1904-5	35,158	59,702	7,656	9,867	4	11,845	824	125,056
1905-6	37,501	65,088	8,215	10,715	3	12,817	860	135,199
1906-7	41,413	70,170	9,302	11,498	3	13,180	952	146,518
1907-8	47,487	74,907	10,420	12,839	3	12,946	1,020	159,622
1908-9	52,052	81,021	11,522	13,853	3	12,717	1,547	172,715

TONNAGE OF GOODS AND LIVE STOCK CARRIED (,000 OMITTED).

1900-1	6,398	3,381	\$ 1,530	1,629	3	1,720	\$ *315	|| 14,976
1901-2	6,468	3,434	1,726	1,392	2	1,888	*407	15,317
1902-3	6,596	3,094	1,567	1,350	2	1,795	*419	14,823
1903-4	6,657	3,439	1,572	1,516	6	2,057	†425	15,672
1904-5	6,724	3,628	1,712	1,681	4	2,154	394	16,297
1905-6	7,629	3,676	1,792	1,732	5	2,097	399	17,330
1906-7	8,794	3,966	2,261	2,043	3	2,091	428	19,586
1907-8	10,175	3,755	2,424	2,256	3	2,059	465	21,137
1908-9	9,299	4,167	2,483	2,165	3	1,997	467	20,581

* For the calendar years 1901, 1902, and 1903 respectively. The average mileage worked is larger than the actual mileage open, owing to the fact that the Government Railways have running powers over certain private lines. † The returns are for a period of six months ended the 30th June, 1904; the figures here given are estimated for a full period of twelve months. ‡ These figures are partly estimated, the actual returns excluding journeys by season ticket holders. § Exclusive of live stock. || Exclusive of live stock returns for Queensland and Tasmania.

6. Length and Gauge of Railway System in each State.—A map shewing the State railway lines, and also the private lines open to the public for general traffic, in the different States of the Commonwealth is given at the end of this sub-section. In all the States the Government railways are grouped, for the purpose of convenience of administration and management, into several divisions or systems, some of which have already been briefly referred to above in dealing with the history of construction of the railways.

The subjoined summary shews concisely the gauge and length of the main and branch lines included in each division or system of the different States of the Commonwealth for the year ended the 30th June, 1909:—

GOVERNMENT RAILWAYS, 1909.

Particulars.				Length.	Gauge.
				Miles.	ft. in.
1. NEW SOUTH WALES.					
(i.) The Northern line and branches—					
(a) Main line. Strathfield-Wallangarra ...				489	4 8½
(b) Branch lines ...				472	4 8½
(ii.) The Grafton-Tweed line ...				149	4 8½
(iii.) The Western line and branches—					
(a) Main line. Granville-Bourke ...				495	4 8½
(b) Branch lines ...				714½	4 8½
(iv.) The Southern line—					
(a) Main line. Granville-Wodonga ...				381	4 8½
(b) Branch lines ...				742½	4 8½
(v.) The South-coast (Illawarra) line—					
(a) Main line. Sydney to Nowra...				93	4 8½
(b) Branch lines ...				7	4 8½
(vi.) Suburban lines ...				40½	4 8½
(vii.) Broken Hill line. Broken Hill-Tarrawingee ...				40	4 8½
Total ...				3,623½	...
2. VICTORIA.					
(i.) The South-eastern system—					
(a) Main lines. Dandenong-Port Albert, Aspendale-Stony Point ...				145	5 3
(b) Branch lines ...				14	5 3
(ii.) The Eastern system—					
(a) Main lines. Dandenong-Bairnsdale, Bayswater-Gembrook, Croydon-Healesville ...				18	2 6
				202	5 3
(b) Branch lines ...				97	5 3
				3	2 6
(iii.) The North-eastern system—					
(a) Main line. Craigieburn-Wodonga ...				171	5 3
(b) Branch lines ...				30	2 6
				442	5 3
(iv.) The Northern system—					
(a) Main line. Digger's Rest-Echuca ...				135	5 3
(b) Branch lines ...				925	5 3
(v.) The North-western system—					
(a) Main line. Rockbank-Serviceton ...				266	5 3
(b) Branch lines ...				210	5 3
(vi.) The Western and South-western system—					
(a) Main line. Werribee-Portland ...				272	5 3
(b) Branch lines ...				30	2 6
				262	5 3
(vii.) The Suburban system—					
Including the lines to Aspendale, Dandenong, Bayswater, Croydon, Eltham, Craigieburn, Digger's Rest, Rockbank, and Werribee ...				188	5 3
Total ...				3,410	...

Particulars.				Length.	Gauge.
				Miles.	ft. in.
3. QUEENSLAND.					
(i.) The Southern division—					
(a)	The Southern line.	Brisbane-Wallangarra	...	233	3 6
(b)	The Western line.	Gowrie Junction-Cunnamulla	...	495	3 6
(c)	The Nth.-coastline.	Northgate Junction-235 mls. 14 chs.	...	229	3 6
(d)	The South-coast line.	Yeerongpilly-Tweed Heads	...	69	3 6
(e)	Suburban lines	...	...	76	3 6
(f)	Branch lines	...	...	608	3 6
(ii.) The Central division—					
(a)	The Coast line.	235 miles 14 chains-Rockhampton	...	161	3 6
(b)	The Central line.	Archer Park-Longreach	...	429	3 6
(c)	Branch lines	...	...	236½	3 6
(iii.) The Northern division—					
(a)	Mackay line	...	...	42	3 6
(b)	Bowen line	...	...	48	3 6
(c)	The Great Nthn. Rlwy.	Townsville-Winton branches	...	638½	3 6
(d)	Cairns line	...	...	69	3 6
(e)	Cooktown line	...	...	68	3 6
(f)	Normanton line	...	...	96	3 6
Total				3,498	...
4. SOUTH AUSTRALIA.					
(i.) The Midland system—					
(a)	Main line.	Adelaide-Terowie	...	140	5 3
(b)	Branch lines	...	...	101	5 3
(ii.) The Northern system—					
(a)	Terowie-Oodnadatta	...	...	548	3 6
(b)	Other lines	...	...	455	3 6
				5	5 3
(iii.) The Southern system—					
(a)	Main line.*	Adelaide to Serviceton	...	194½	5 3
(b)	Branch lines	...	...	158½	5 3
(iv.) The South-eastern system—					
(a)	Wolseley-Mount Gambier	...	...	112	3 6
(b)	Branch lines	...	...	113	3 6
(v.)	Port Broughton line	...	...	10	3 6
(vi.) The Western system—					
	Port Lincoln-Yeelanna	...	...	50½	3 6
Total				1,888	...
5. WESTERN AUSTRALIA.					
(i.) Eastern railway—					
(a)	Main line.	Fremantle-Beverley	...	111	3 6
(b)	Branch lines	...	...	94½	3 6
(ii.) Eastern Goldfields railway—					
(a)	Main line.	Northam-Laverton	...	520	3 6
(b)	Branch lines	...	...	136½	3 6
(iii.) South-western railway—					
(a)	Main line.	Perth-Bunbury	...	115	3 6
(b)	Branch lines	...	...	322½	3 6
(iv.) Great Southern railway—					
(a)	Beverley-Albany Jetty	...	...	243	3 6
(b)	Branch lines	...	...	113	3 6
(v.) Northern railway—					
(a)	Main line.	Geraldton-Nannine	...	310	3 6
(b)	Branch lines	...	...	45	3 6
(vi.)	Hopetoun-Ravensthorpe railway	...	...	34	3 6
Total				2,044½	...

Particulars.					Length.	Gauge.
6. NORTHERN TERRITORY.					Miles.	ft. in.
Palmerston-Pine Creek					145½	3 6
7. TASMANIA.						
(i.) Main line. Hobart-Evandale Junction					122½	3 6
(ii.) Derwent Valley line. Bridgewater-Glenora					24½	3 6
(iii.) Apsley line. Brighton Junction-Apsley					26	3 6
(iv.) Parattah-Oatlands line					4½	3 6
(v.) Fingal line. St. Mary's-Conara					46½	3 6
(vi.) Western line. Launceston-Burnie					111½	3 6
(vii.) Chudleigh line					12½	3 6
(viii.) Scottsdale line. Launceston-Scottsdale					47½	3 6
(ix.) Sorell-Bellerive line					14½	3 6
(x.) Zeehan line. Regatta Point-Zeehan					29½	3 6
(xi.) North-east Dundas tramway. Zeehan-Williamsford					19	2 0
(xii.) Comstock tramway					4½	2 0
Total					463	...
Grand total of Government railways in the Commonwealth					15,072½	...

7. Administration and Control of Government Railways.—In each State of the Commonwealth the policy has now been established that the railway should be kept under the control of the Government. This policy, as has been shewn, was early actualised in Australia, and, excepting in cases presenting unusual circumstances, may be regarded as the settled policy of the country. It may here be observed that for many years past nationalisation of railways throughout Europe has been a feature of the development of railway policy, and so far there is no sign of any movement in an opposite direction. Indeed it may be said that the Governments have recognised the supreme importance of a railroad policy, not only as an element in the industrial, but even in the political life of nations, and have felt that nothing short of complete ownership and direct management of the railroads would give them the power which, for national reasons, they must exert. And in America the modern tendency is to so condition the freights by Governmental action as to give at least a quasi-national character to the railways.

(i.) *New South Wales.* Prior to the year 1888 the control of the State railways in New South Wales was vested in the Minister for Works, under the provisions of the Railways Act of 1858, the actual management being in the hands of a Commissioner. In 1888, however, the Act referred to was repealed by a new Act, the object of which was to improve the administration and to free it from political influences. Under this Act, as amended in 1901, three Commissioners were appointed for a period of seven years, but in 1906 an amending Act was passed, which provides for the appointment of a Chief Commissioner with supreme power, an Assistant Commissioner for Railways, and an Assistant Commissioner for Tramways. The Chief Commissioner is required to present an annual report to Parliament, through the Minister for Railways, setting forth an account of his proceedings, and of the revenue and expenditure during the previous year. New lines are constructed by the Railway and Tramway Construction Branch of the Public Works Department, and on completion are handed over to the control of the Chief Commissioner.

(ii.) *Victoria.* In consequence of general dissatisfaction in regard to the management of the railways by political heads, a new Railway Act was passed and came into

force on the 1st November, 1883. Under its provisions the management and control of the State railways were placed in the hands of three Commissioners, who supervised the construction of new lines as well as the general management of lines already open for traffic. On the 1st January, 1892, the duty of the construction of new lines was transferred to the Board of Land and Works, and the Minister, under the provisions of the Railways Act of 1891, was given greater powers to interfere in matters of policy. In 1895 the Government appointed a Board to inquire into and report upon the general working of the Railway Department, and as a result of their report the Railways Act of 1896 was passed. The management was again placed in the hands of one Commissioner until the year 1903, when the Victorian Railway Commissioners Act was passed, and the administration was again placed in the hands of three Commissioners.

Proposals for the construction of new lines are in every case, in which the estimated cost is in excess of £20,000, investigated by the Parliamentary Standing Committee on Railways, whose recommendation is submitted to the Legislature. Any new line authorised by Parliament is constructed under the supervision of the Chief Engineer for Railway Construction, who is responsible to the Minister of Railways for the time being, and is not subject to the control of the Commissioners. New lines are constructed under the authority of the Railway Lands Acquisition Acts 1893 to 1899.

(iii.) *Queensland.* The first Act referring to the construction of railways, passed by the Queensland Legislature in 1863, provided for the appointment of a Commissioner of Railways, who was to be the permanent head of the Railway Department, but was, however, also to be subordinate, as regards all matters of administration, to the Minister in charge of the railways for the time being. This arrangement was continued until the year 1888, when an Act was passed providing for the appointment of three Commissioners invested with full powers as to the administration, management, and construction of the railways, the control of which was thus removed from political influence. The functions of a Minister for Railways were not abolished, but they were so defined and limited that the Minister became in effect an intermediary between the Commissioners and Parliament, to which body the Commissioners were bound to make an annual report, setting forth an account of their proceedings and a financial statement for the previous year. The Railways Act Amendment Act of 1896 again provided for the appointment of one Commissioner only, for a term not exceeding three years, extended in 1902 to a maximum term of seven years. Under the Act of 1896 the Commissioner is required to prepare an annual report of the Railway Department. New lines are constructed by the Commissioner under the Railways Act of 1906. Under this Act the ratepayers in any district in which a new line is constructed are liable for the amount of any deficiency in case the earnings in any year are less than the working expenses, together with interest at the rate of 3 per cent. on the cost of construction. The separation from each other by long distances of some of the railway lines in Queensland puts difficulties in the way of their economical administration and supervision, since it is found necessary to maintain, in connection with each of the principal detached lines, a separate staff of engineering and managing officials.

(iv.) *South Australia.* The Railway Clauses Consolidation Act, passed in South Australia in March, 1847, was the first Act passed in Australia referring to the construction of railways; its provisions, however, contained many obsolete clauses of English railway legislation, and were soon modified. In 1887 an Act to make better provision for the construction, maintenance, and management of railways was passed, and came into force on the 1st June, 1888; it removed the control of the railways from political influence and provided for the appointment of three Commissioners, into whose hands the management and the supervision of the railways passed. The Act of 1887 was, however, amended by the Railway Commissioners Act of 1894, which provides for one Commissioner only, assisted by a Board of Advice. Under the Act of 1894 the Commissioner has the same

powers as were vested in the three Commissioners under the Act of 1887. Further amendments were made in the years 1902 and 1906, but since the Act of 1894 was passed the management, maintenance, and construction of the railways have remained in the hands of one Commissioner, who is required to present to Parliament an annual report of his proceedings, and of the revenue and expenditure during the previous year.

(v.) *Western Australia.* From the time of the inception of railways in this State until the granting of responsible government in 1890, the construction, maintenance, and control of all railways were in the hands of an official holding the title of Commissioner of Railways, and having a seat in the Executive Council. This official was invested with very extensive powers for all purposes connected with railways, and had also to supervise the safe working and the charges made by private railway owners. On the institution of responsible government the office of Commissioner was converted into a Ministerial one; the active management was placed in the hands of an officer styled General Manager of Railways, while construction works on new lines were carried out by the Department of Public Works. In 1902 a Bill was introduced into Parliament providing for the appointment for a term of five years of a Railway Commissioner to be free from political influence. This Bill received the Vice-regal assent on the 20th December, 1902. The former Railway Acts, of which the Act in question was an amendment, continued to remain in force, with the result that certain anomalies and ambiguities arose, in consequence of which a Consolidating Government Railways Act was passed in 1904. Under its provisions the administration of all Government railways was placed in the hands of the Commissioner, who was relieved from the supervision of private railways. The construction of new railways or of extensions is left, as formerly, in the hands of the Minister controlling the Department of Public Works. The Act of 1904 was amended in certain details in 1907.

(vi.) *Tasmania.* The law relating to the control and management of the Tasmanian Government railways was amended and consolidated by the Railway Management Act of 1891, which has in turn been amended by Acts passed in 1893, 1896, and 1901. The control and construction of Government railways is vested in a responsible Minister, the active management and maintenance being in the hands of an officer styled the General Manager, who is subject to such directions as he may receive from the Minister.

8. Lines under Construction, and Authorised and Proposed Lines, 1909.—The following statement gives particulars up to the 30th June, 1909, of the mileage of Government railways (a) under construction, and (b) authorised for construction but not commenced:—

MILEAGE UNDER CONSTRUCTION AND AUTHORISED, 30th JUNE, 1909.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwllth.
Mileage under construction	233½	145½	376	24½	187	29½	996½
Mileage authorised	298	55½	19	24½	187	...	584

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

the lines under construction are chiefly of the "pioneer" class, and are made with a view to affording railway communication over level country to districts in which the traffic would not warrant the expenditure necessary to provide thoroughly equipped lines. As the traffic increases the permanent way is strengthened in order to allow the heavy types of engines to run over it. It is probable that railway extension in New South Wales, in the near future, will be mainly confined to lines of the "pioneer" class. Two of the most important lines now under construction are those from Maitland to Dungog, a distance of $32\frac{1}{2}$ miles, and from Gloucester to Taree, a distance of 44 miles. The extension of these lines as far as Grafton, a further distance of 234 miles, has been authorised, and, when completed, will form part of an alternative main route between Newcastle and Brisbane. Other lines under construction are as follow:—Lockhart to Clear Hills ($50\frac{1}{2}$ miles), Cowra to Canowindra ($24\frac{1}{2}$ miles), Narromine to Peak Hill (36 miles), Casino to Kyogle ($19\frac{1}{2}$ miles), and Gulgong to Dunedoo ($26\frac{3}{4}$ miles). (b) *Victoria*. In this State the following lines were under construction by the Board of Land and Works on the 30th June, 1909:—5 ft. 3 in. gauge: Mildura to White Cliffs (7 miles), Ultima to Chillingollah (20 miles), Alexandra Road extension (4 miles), Ouyen to Kow Plains (57 miles), and Nyora to Woolamai (17 miles), making in all 105 miles. 2 ft. 6 in. gauge: Moe to Walhalla ($26\frac{1}{2}$ miles), and Beech Forest to Crowe's ($14\frac{1}{2}$ miles). (c) *Queensland*. At the end of the year 1908-9, eleven railways, having a total length of 376 miles, were under construction, viz.:—Kannangur to Blackbutt (28 miles), Goondiwindi to Talwood (56 miles), Caboolture to Woodford (18 miles), Boyne Valley line (52 miles), Mt. Chalmers to Yeppoon (16 miles), Atherton to Evelyn (31 miles), Tolga to Johnstone River (19 miles), Clermont to Blair Athol (11 miles), Kingsthorpe towards Main Range (21 miles), Dalby to Tara (52 miles), Cloncurry to Mt. Elliot (72 miles). (d) *South Australia*. In this State the only line under construction on the 30th June, 1909, was the line from Laura to Booleroo Centre ($24\frac{1}{2}$ miles), the gauge being 3 feet 6 inches. (e) In *Western Australia* the following lines were in course of construction by the Public Works Department on the 30th June, 1909:—Widgiemooltha to Norseman ($55\frac{1}{2}$ miles), Pinjarra to Marrinup ($14\frac{3}{4}$ miles), Newcastle to Bolgart ($23\frac{1}{2}$ miles) and Mt. Magnet to Black Range ($93\frac{1}{4}$ miles).

(ii.) *Lines Authorised for Construction*. (a) In *New South Wales*, in addition to the North-coast railway extension from Dungog to Gloucester, and from Taree to Grafton, a total of 234 miles, the construction of a line from Cooma to Bombala (64 miles) had been authorised up to the 30th June, 1909:—(b) In *Victoria* the following lines were authorised, but their construction had not been commenced up to the end of June, 1909:—5 ft. 3 in. gauge, Beeac to Newtown ($35\frac{3}{4}$ miles); 2 ft. 6 in. gauge, Whitfield to Tolmie (20 miles). (c) *Queensland*. In addition to the new lines upon which work has been commenced an extension from Warwick to Maryvale (19 miles) has been approved by Parliament. (d) In *South Australia* the construction of a line from Gawler to Angaston ($24\frac{1}{4}$ miles), on the 5 ft. 3 in. gauge was authorised during the year 1908-9. It is proposed to electrify the Adelaide-Glenelg ($6\frac{1}{2}$ miles) line at an estimated cost of £115,000, and also to construct light lines in newly settled districts to be run by District Councils. (e) In *Western Australia* four lines having a total length of 187 miles were authorised for construction up to the 30th June, 1909. These lines were—the Upper Chapman line (26 miles), Port Hedland to Marble Bar (115 miles), Bridgetown to Wilgarrup (22 miles), and Nannine to Meekatharra (24 miles). (f) *Tasmania*. On the 30th June, 1909, two lines were in course of construction, viz.:—(a) from Glenora to Russell ($5\frac{3}{4}$ miles), and (b) from Scottsdale to Branxholme ($23\frac{3}{4}$ miles), both to a 3 ft. 6 in. gauge.

(iii.) *Proposed Transcontinental Lines*. (a) A proposal which has recently received considerable attention is to connect the railways of the eastern and southern districts of Australia with the Western Australian lines by the construction of a line between Port Augusta, in South Australia, and Kalgoorlie, on the Western Australian goldfields, a distance of 1100 miles. The Transcontinental Railway Bill, passed in 1907 by the Federal

Houses of Parliament, provided for the expenditure of a sum of £20,000 for a preliminary survey of the proposed line. This survey was commenced in 1908, and was completed in March, 1909. The route of the preliminary survey may be seen on reference to the map on page 723 hereof; the route *via* Tarcoola was, for several reasons, chosen in preference to that *via* Gawler Range and Fowler's Bay. It is stated in the report of the surveyors that while some part of the country which it is proposed to traverse is impossible for settlement, there is an area of good country, extending to about 40,000 square miles, which can be considered favourable for pastoral development. The estimated cost of construction and equipment of the line on the basis of a 4 ft. 8½ in. gauge is £3,988,000. It is claimed that the line would be of immense benefit in the expedition of the European mails to the southern and eastern parts of the continent, and, if occasion should arise, in facilitating the transport of troops. (b) Another proposal is to extend the main northern line from Adelaide, which at present terminates at Oodnadatta, as far as Pine Creek, the southern terminus of the Northern Territory line from Palmerston. The distance between Oodnadatta and Pine Creek by the route followed by the telegraph wire is 1140 miles, and it is claimed that, if a railway line were constructed between these two places, it would be practicable for passengers and mails to reach London from Adelaide in seventeen days, *via* Port Darwin and the trans-Siberian railway. In the course of the year 1896 offers were made on behalf of various syndicates to construct this line, but the Government was not at that time prepared to recommend the acceptance of any offer based upon the land grant or guarantee system. In 1902, however, the Trans-continental Railway Act was passed, and the Government invited tenders for the construction of 1063 miles of 3 ft. 6 in. line on the land grant system, to be built at the rate of at least 100 miles in any one year, the grant of land offered amounting to nearly 80,000,000 acres. No tenders were accepted and subsequent offers have been refused. The country through which this line would pass presents no great engineering difficulties; for the most part it is one vast plain, with an occasional sand ridge or a watercourse. The construction of this line is provided for in the Northern Territory Acceptance Bill. (See pages 22 and 23 hereinbefore.)

9. **Cost of Construction and Equipment of Government Railways.**—The total cost of construction and equipment of the State railways of the Commonwealth at the 30th June, 1909, amounted to £143,375,340, or to an average of £9512 per mile open for traffic. Particulars as to the capital expenditure incurred in each State are given in the following table :—

**GOVERNMENT RAILWAYS.—COST OF CONSTRUCTION AND EQUIPMENT TO THE
30th JUNE, 1909.**

State.	Length of Line Open.	Total Cost of Construction and Equipment.	Average Cost per Mile Open.	Cost per Head of Population.
	Miles.	£	£	£
New South Wales	3,629½	47,612,666	13,142	29.67
Victoria	3,410	42,486,323	12,459	33.11
Queensland	3,498	23,395,322	6,688	40.22
South Australia	1,888	13,687,065	7,248	33.62
Northern Territory	145½	1,173,288	8,063	404.58
Western Australia	2,044½	11,016,837	5,387	40.62
Tasmania	463	4,003,839	8,648	21.86
Commonwealth	15,072½	143,375,340	9,512	33.19

It will be seen that the lowest average cost per mile open is in Western Australia, and is only £5387, which is less than one-half of the highest average cost, namely, £13,142 in New South Wales, compared with an average of £9512 for the whole Commonwealth. In Western Australia there have been comparatively few engineering difficulties to contend with, and also the system has been adopted in that State of giving contractors the right to carry traffic during the period of their contracts, with the result that, at all events in all goldfields railway contracts, the cost of construction has been considerably lessened.

(i.) *Reduction of Cost per Mile in Recent Years.* The average cost per mile of the lines constructed lately in the Commonwealth is very much less than the figure given in the above table, in consequence of the construction of light "pioneer" lines, which have already been referred to, and which it was originally considered in New South Wales could be laid down at a cost of £1750 per mile (exclusive of stations and bridges). It should also be remembered that in the early days of railway construction there were considerable engineering difficulties to overcome, and that labour was scarce and dear. Since 1891 over one thousand miles of the "pioneer" lines have been opened in New South Wales, the average cost ranging from about £2000 to £7500 per mile, according to the difficulties met in the country traversed. The lowest cost per mile for any line previously constructed had been that of the line from Nyngan to Cobar, the average cost of which, to the end of June, 1909, was £3758. In Victoria also the cost of construction has been greatly reduced in recent years. The total cost to the 30th June, 1909, of the narrow gauge (2 ft. 6 in.) lines, having a length of eighty-one and a half miles, was only £171,779, which gives an average cost per mile of only £2108. In the other States also the cost of construction per mile has been reduced by building light railways as cheaply as possible. Fairly substantial permanent way is laid down with reduced ballast, and, as settlement progresses and traffic increases, the road is strengthened and the stations and siding accommodation enlarged. The subjoined table gives examples of some of the more expensive lines, most of which were built in the early days.

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

Line	Gauge.	Length.	Total Cost.	Average Cost per Mile.	Date of Opening.
	ft. in.	Miles.	£	£	
NEW SOUTH WALES—					
Penrith to Bathurst ...	4 8½	112½	2,790,269	24,883	1876
Sydney to Kiama ...	4 8½	72½	2,029,316	27,951	1887
Homebush to Waratah ...	4 8½	95½	2,969,048	31,094	1887
VICTORIA—					
Melbourne to Bendigo ...	5 3	101	4,841,544	47,988	1862
Geelong to Ballarat ...	5 3	45½	1,900,903	35,725	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 426½ miles comprised in the above table was £34,060, whereas the average cost of the 547 miles referred to in the next table was £1778.

**GOVERNMENT 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	62½	130,749	2,081	1898
Dubbo to Coonamble ...	4 8½	95½	235,064	2,452	1903
VICTORIA—					
Wangaratta to Whitfield ...	2 6	30½	38,966	1,278	1899
Birchip to Cronomby ...	5 3	26½	38,836	1,468	1899
Rupanyup to Marnoo ...	5 3	15½	24,311	1,581	1909
QUEENSLAND—					
Dalby to Bell ...	3 6	23½	31,280	1,331	1906
Jericho to Blackall ...	3 6	71	135,321	1,901	1908
SOUTH AUSTRALIA—					
Port Lincoln to Cummins ...	3 6	42	82,090	1,959	1907
Tailem Bend to Pinnaroo ...	5 3	86½	119,794	1,384	1906
WESTERN AUSTRALIA—					
Goomalling to Dowerin ...	3 6	15½	17,726	1,171	1906
Coolgardie to Widgiemooltha ...	3 6	51½	78,433	1,527	1908
Narrogin to Wickepin ...	3 6	26½	39,983	1,515	1909

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

(ii.) *Proposed Adoption of Special Locomotives.* The adaptation of the steam locomotive to the working of steep gradients and sharp curves has progressed during late years, so that very steep gradients, which were at one time considered to be only workable by a rack or grip rail with special complicated engines running at very slow speeds, are now being worked by adhesion locomotives. In view of the great importance of supplying a cheap and effective pioneer railway service to many parts where the steep and broken nature of the country would involve great expenditure on lines built to suit the standard classes of locomotives, the Standing Committee on Railways in Victoria has considered the advisability of adopting a special form of geared locomotive which would not be suitable for high speeds, but which could be worked on steep gradients and on curves of small radius. It is suggested that by the adoption of locomotives of this type considerable saving in cost could be made, due to (a) shortening of distance by use of steeper grades in places where easier grades would necessitate long detours. (b) Reduction of sub-grade works, i.e., earthworks, culverts, trestles, etc., by use of steeper grades and sharper curves to keep the formation nearer to the natural surface. (c) Cheaper track by using lighter rails and less ballast than necessary for standard adhesion locomotives.

A Renard road train has recently been equipped for use in connection with the Queensland Government railways. If successful, it is proposed to extend the use of these trains to act as feeders to the railways.

(iii.) *Capital Cost of Construction and Equipment, Total and per Mile Open, 1901-9.* The increase in the total capital cost of construction and equipment of Government railways in each State and in the Commonwealth on the 30th June in each year, from 1901 to 1909, inclusive is shewn in the following table :—

**GOVERNMENT RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT,
1901 to 1909.**

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	N. Ter.	West. Aust.	Tas.	C'wealth.
TOTAL COST (£,000 OMITTED).								
1901 ...	£ 38,933	£ 40,145	£ 19,740	£ 12,707	£ 1,165	£ 7,098	£ 3,790 ¹	£ 123,587
1902 ...	40,565	40,614	20,119	12,826	1,155	7,410	3,841 ¹	126,530
1903 ...	41,655	40,974	20,302	12,952	1,169	8,142	3,834 ¹	129,078
1904 ...	42,289	41,217	20,868	13,068	1,175	8,956	3,901	131,494
1905 ...	43,063	41,279	21,611	13,138	1,173	9,808	3,921	133,993
1906 ...	43,626	41,398	21,741	13,141	1,173	9,966	3,927	134,972
1907 ...	44,700	41,533	21,839	13,254	1,173	10,301	3,944	136,744
1908 ...	45,683	41,929	22,576	13,439	1,173	10,733	3,978	139,511
1909 ...	47,613	42,486	23,395	13,687	1,173	11,017	4,004	143,375
COST PER MILE OPEN.								
1901 ...	£ 13,690	£ 12,402	£ 7,047	£ 7,320	£ 8,007	£ 5,239	£ 8,304 ¹	£ 9,861
1902 ...	13,405	12,300	7,183	7,388	7,940	5,449	8,317 ¹	9,895
1903 ...	13,270	12,112	7,489	7,460	8,038	5,371	8,411 ¹	9,893
1904 ...	13,889	12,191	7,134	7,528	8,076	5,812	8,449	9,792
1905 ...	13,125	12,162	6,989	7,526	8,066	6,111	8,476	9,795
1906 ...	13,869	12,197	6,931	7,528	8,066	6,182	8,490	9,754
1907 ...	13,945	12,235	6,962	7,235	8,065	5,840	8,526	9,669
1908 ...	13,156	12,346	6,721	7,151	8,063	5,524	8,500	9,550
1909 ...	13,142	12,459	6,688	7,248	8,063	5,387	8,648	9,512

1. To the 31st December, 1901, 1902, and 1903 respectively.

(iv.) *Loan Expenditure on Railways and Tramways, 1901 to 1909.* The subjoined table shews the total loan expenditure on Government railways and tramways (including lines both open and unopen) in each State during each financial year from 1901 to 1908, and on railways only for the year 1908-9. Figures shewing loan expenditures on railways only are not available for years prior to 1909 :—

GOVERNMENT RAILWAYS AND TRAMWAYS.—LOAN EXPENDITURE, 1901 to 1909.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1901-2	£,000 2,244	£,000. 483	£,000. 751	£,000. 122	£,000. 579	£,000. *81	£,000. 4,260
1902-3	1,684	371	696	144	1,059	*57	4,011
1903-4	806	253	388	120	443	*38	2,053
1904-5	502	172	120	101	348	†19	1,262
1905-6	529	78	158	70	220	6	1,061
1906-7	422	74	555	47	330	15	1,443
1907-8	1,363	250	885	55	306	39	2,898
1908-9	1,710	544	1,053	241	538	69	4,155

* For the calendar years 1901, 1902, and 1903 respectively. † For the eighteen months ended 30th June, 1905. ‡ Railways only.

The following statement shews the total loan expenditure to the 30th June, 1909 :—

**GOVERNMENT RAILWAYS.—TOTAL LOAN EXPENDITURE IN EACH STATE AND IN
THE COMMONWEALTH TO THE 30th JUNE, 1909.**

State, etc.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
Expenditure	£ 48,704,395	£ 39,661,443	£ 24,565,469	£ 14,237,812	£ 10,770,197	£ 4,251,614	£ 142,190,930

10. Gross Revenue, Total, per Average Mile Worked, and per Train-mile Run, 1901 to 1909.—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 1901 to 1909 inclusive :—

**GOVERNMENT RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE
WORKED, AND PER TRAIN MILE, 1901 to 1909.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	N. Ter.	W. Aust.	Tas.	C'wealth.
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TOTAL GROSS REVENUE (£ ,000 OMITTED).

	£	£	£	£	£	£	£	£
1900-1 ...	3,574	3,338	1,317	1,236	14	1,353	*206	11,038
1901-2 ...	3,669	3,368	1,382	1,085	13	1,521	*233	11,271
1902-3 ...	3,315	3,047	1,234	1,077	11	1,553	*248	10,485
1903-4 ...	3,436	3,438	1,305	1,161	17	1,588	†248	11,193
1904-5 ...	3,684	3,582	1,413	1,273	16	1,610	244	11,822
1905-6 ...	4,235	3,787	1,546	1,350	15	1,634	241	12,808
1906-7 ...	4,709	4,013	1,830	1,575	14	1,537	258	13,936
1907-8 ...	4,944	3,873	1,951	1,741	14	1,502	278	14,303
1908-9 ...	5,028	4,178	2,103	1,639	13	1,509	280	14,750

GROSS REVENUE PER AVERAGE MILE WORKED.

	£	£	£	£	£	£	£	£
1900-1 ...	1,268	1,034	470	712	95	939	*447	880
1901-2 ...	1,242	1,031	493	625	86	1,122	*498	886
1902-3 ...	1,078	914	444	620	78	1,083	*528	808
1903-4 ...	1,066	1,020	462	668	117	1,035	†529	841
1904-5 ...	1,123	1,059	461	730	106	1,027	518	866
1905-6 ...	1,258	1,116	497	773	102	1,017	513	926
1906-7 ...	1,374	1,182	583	868	96	917	549	991
1907-8 ...	1,425	1,141	602	936	99	821	590	993
1908-9 ...	1,412	1,230	611	868	90	765	596	992

GROSS REVENUE PER TRAIN-MILE RUN.

	d.	d.	d.	d.	d.	d.	d.	d.
1900-1 ...	79.69	72.39	54.35	67.56	109.75	78.74	*55.14	71.43
1901-2 ...	75.58	71.62	58.55	62.07	99.27	81.00	*61.99	70.74
1902-3 ...	68.89	71.09	59.87	68.53	89.13	80.85	*63.80	69.66
1903-4 ...	79.30	89.96	67.43	74.50	129.38	82.96	†62.79	80.12
1904-5 ...	84.46	95.28	68.98	80.99	120.61	90.18	61.80	84.84
1905-6 ...	85.67	96.79	70.26	83.59	117.37	89.98	61.19	85.99
1906-7 ...	87.28	95.96	71.68	87.23	108.87	88.25	63.15	86.57
1907-8 ...	83.26	89.53	71.40	83.41	111.94	90.93	64.81	83.27
1908-9 ...	80.06	88.81	68.29	79.87	100.85	88.25	65.31	80.74

* For the financial years 1901, 1902, and 1903 respectively.

† For twelve months ended the 30th June, 1904.

11. Coaching, Goods, and Miscellaneous Receipts, 1901 to 1909.—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, during the years 1901 to 1909 inclusive, classified according to the three chief sources of receipts. The total of the three items specified has already been given in the preceding paragraph hereof :—

COACHING, GOODS, AND MISCELLANEOUS RECEIPTS, 1901 to 1909.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.*	C'wealth.
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COACHING TRAFFIC RECEIPTS (£ ,000 OMITTED).

	£	£	£	£	£	£	£
1900-1 ...	1,336	1,561	446	363	383	99	4,188
1901-2 ...	1,368	1,580	435	373	443	110	4,309
1902-3 ...	1,371	1,525	430	345	450	116	4,237
1903-4 ...	1,405	1,562	456	371	435	†119	4,398
1904-5 ...	1,428	1,598	478	383	503	118	4,508
1905-6 ...	1,563	1,720	529	405	507	121	4,845
1906-7 ...	1,736	1,863	614	455	497	129	5,294
1907-8 ...	1,850	1,936	672	515	483	137	5,593
1908-9 ...	2,008	2,041	730	533	489	138	5,939

GOODS AND LIVE STOCK TRAFFIC RECEIPTS (£ ,000 OMITTED).

1900-1 ...	2,203	1,712	772	852	870	99	6,508
1901-2 ...	2,264	1,720	862	689	1,037	116	6,688
1902-3 ...	1,908	1,455	767	710	1,047	121	6,008
1903-4 ...	1,990	1,793	810	773	1,067	†120	6,553
1904-5 ...	2,213	1,919	900	870	1,061	117	7,080
1905-6 ...	2,628	2,001	983	920	1,081	111	7,724
1906-7 ...	2,923	2,081	1,181	1,092	992	120	8,389
1907-8 ...	3,043	1,868	1,251	1,193	974	132	8,461
1908-9 ...	2,965	2,067	1,347	1,067	974	134	8,554

MISCELLANEOUS RECEIPTS (£ ,000 OMITTED).

1900-1 ...	34	65	99	36	100	8	342
1901-2 ...	37	68	84	36	42	7	274
1902-3 ...	36	67	37	33	57	10	240
1903-4 ...	41	83	39	34	37	†9	243
1904-5 ...	43	65	35	37	46	8	234
1905-6 ...	43	67	34	40	46	9	239
1906-7 ...	50	69	35	42	48	9	253
1907-8 ...	51	70	28	47	45	9	250
1908-9 ...	56	70	26	52	45	8	257

* Tasmanian figures for 1901, 1902, and 1903 are for years ended the 31st December. † For twelve months ended the 30th June, 1904.

(i.) *New South Wales.* In New South Wales, owing, no doubt, to the considerable reductions made in rates and fares in recent years, and to the general prosperity of the State, the traffic receipts continue to shew substantial development in several directions, the total earnings for the past year having, for the first time in any of the States, exceeded £5,000,000. The chief increases in earnings were in respect of passengers, parcels, etc., wool, and grain, flour, etc.

(ii.) *Victoria.* In Victoria the marked improvement in the revenue from goods traffic in the last year was practically all attributable to the favourable grain harvest as compared with that of the previous year. There were also noticeable increases in the revenue from fertilisers, timber, and machinery and castings, but, owing to the unfavourable weather conditions, there was a falling-off in the revenue from wool, butter, and other dairy produce. The improvement in the revenue from passenger traffic, notwithstanding the reductions in fares which became operative on the 1st March,

1908, was no doubt mainly due to the general prosperity of the community and partly to the extra traffic occasioned by the visit of the United States Fleet to Melbourne in September, 1908.

(iii.) *Queensland.* In Queensland the chief increases in earnings were in respect of passengers (£42,846), live stock (£42,000), and wool (£23,016).

(iv.) *South Australia.* In this State the increase for the last year in coaching traffic receipts amounted to £17,926; there were also considerable increases in respect of wheat (£25,353) and live stock (£20,188). There was, however, a decrease in respect of minerals amounting to £120,474, due to the suspension of work at the Broken Hill mines for a period of nearly five months, while the total receipts from the Barrier traffic shewed a decrease of £198,653.

(v.) *Western Australia.* Although the number of passenger journeys slightly decreased, the revenue from passenger traffic shews an increase for the year 1908-9. For goods traffic the net result is a decrease of 76,201 in the tonnage carried, but in only £3108 in the revenue therefrom; the chief decreases were in the tonnages of agricultural products and of minerals other than coal, coke, and shale.

(vi.) *Tasmania.* The gross revenue in 1908-9 was the largest yet recorded. As compared with 1907-8, the increase from passenger traffic was £551; goods and minerals, £1882; and live stock, £75.

The following table shews for the year 1908-9 the percentage which each class of receipts bears to the total gross revenue:—

PERCENTAGE OF REVENUES FROM VARIOUS SOURCES ON TOTAL REVENUE, 1908-9.

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Cwth.
	%	%	%	%	%	%	%
Coaching traffic receipts ...	39.93	48.85	34.70	32.27	32.41	49.16	40.27
Goods and live stock traffic receipts	58.96	49.48	64.05	64.59	64.60	47.81	57.99
Miscellaneous receipts ...	1.11	1.67	1.25	3.14	2.99	3.03	1.74

12. Coaching Traffic Receipts per Average Mile Worked, per Passenger-train Mile, and per Passenger Journey.—The subjoined table shews the receipts from coaching traffic per average mile of line worked, per passenger-train mile, and per passenger journey in each State and in the Commonwealth for the year ended the 30th June, 1909:—

GOVERNMENT RAILWAYS.—COACHING TRAFFIC RECEIPTS PER MILE OPEN, PER PASSENGER JOURNEY, AND PER PASSENGER-TRAIN MILE, 1909.

State.	Number of Passenger-Train Miles.	Number of Passenger Journeys.	Coaching Traffic Receipts.		
			Gross.	Per Passenger-Train Mile.	Per Passenger Journey.
	No. ,000.	No. ,000	£ ,000.	d.	d.
New South Wales ...	7,233	52,051	2,008	66.63	9.26
Victoria ...	6,452 *	81,021	2,041	75.93	6.04
Queensland ...	2,340	11,522	730	74.85	15.20
South Australia ...	1,976	13,855	529	64.29	9.17
Northern Territory ...	10	2	4	87.44	418.33
Western Australia ...	2,091 †	12,717	489	56.12	9.23
Tasmania ...	374 ‡	1,547	138	88.34	21.36
Commonwealth ...	20,476	172,715	5,939	69.61	8.25

* The returns include 2,522,366 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.
† The returns include 861,940 mixed-train mileage, which has been divided as just stated. ‡ The returns include 711,786 mixed-train mileage, which has been divided as just stated.

The above table shews that, in the several States, there is a considerable difference in the amount of the average receipts per passenger journey. Disregarding the Northern Territory, this amount ranges from 6.04 pence in Victoria, where there is a large metropolitan suburban traffic, to 21.36 pence in Tasmania. The difference in these amounts cannot be accounted for by the amounts of rates charged, which are fairly uniform in the several States (see paragraph 20 hereof), but is largely due to the different traffic conditions which prevail on various lines in the Commonwealth (see paragraph 17 hereof). In order to adequately analyse these figures it would be necessary to have particulars regarding the number of passenger-miles, *i.e.*, the total distance travelled by passengers, in each State, which particulars are not generally available (see paragraph 18 hereof).

The preponderance in the number of passenger journeys in Victoria is accounted for, to a great extent, by the large number of metropolitan suburban passengers in that State. Of the total number of passengers carried in Victoria, 74,541,251 were metropolitan suburban passengers, *i.e.*, were carried between stations within twenty miles of Melbourne, while in New South Wales the number of suburban passengers (between stations within thirty-four miles of Sydney and Newcastle, and including Richmond and Branxton lines) was 46,734,076. In Sydney a large proportion of the metropolitan suburban traffic is carried on the electric tramways, the number of passenger journeys during the year 1908-9 being 173,733,133. In Melbourne, on the other hand, the number of passengers carried on the cable tramways systems during the same period was 66,522,463; and on the St. Kilda-Brighton and the North Melbourne tramways was 2,924,903, making a total of 69,447,366, which is not as great as the number carried on the metropolitan suburban railways in Melbourne. This matter is referred to hereinafter. (See para. 17.)

13. 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, 1909:—

GOVERNMENT RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS PER MILE WORKED, PER GOODS-TRAIN MILE, AND PER TON CARRIED, 1909.

State.	Number of Goods-Train Miles.	Goods and Live-Stock Tonnage.	Goods and Live-Stock Traffic Receipts.		
			Gross.	Per Goods-Train Mile.	Per Ton Carried.
	No. ,000.	Tons ,000.	£ ,000.	d.	d.
New South Wales ...	7,841	9,299	2,965	90.72	76.51
Victoria ...	4,839†	4,167	2,067	102.52	119.06
Queensland ...	5,051	2,483*	1,347	64.00	130.20
South Australia ...	2,950	2,166	1,060	86.24	117.46
Northern Territory ...	20	3	7	83.34	638.16
Western Australia ...	2,011‡	1,997	974	116.29	117.11
Tasmania ...	655§	467*	134	49.06	68.81
Commonwealth ...	23,367	20,582	8,554	87.86	99.75

* Exclusive of live-stock tonnage. † The returns include 2,522,366 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. ‡ The returns include 861,940 mixed-train mileage, which has been divided as just stated. § The returns include 711,786 mixed-train mileage, which has been divided as just stated.

From the above table it may be seen that, disregarding the Northern Territory, the average amount of freight paid per ton ranges from 68.81 pence in Tasmania to 130.20 pence in Queensland. The remarks made in the preceding paragraph (12) hereof with regard to the average fare paid per passenger and to passenger-miles, apply equally to the average amount of freight paid per ton and to ton-miles.

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

The following table shews the total annual expenditure, comprising expenses on (a) maintenance of way, works, and buildings; (b) locomotive power—repairs and renewals; (c) carriages and waggons—repairs and renewals; (d) traffic expenses; (e) compensation; and (f) general and miscellaneous charges; and also the percentage of these expenditures upon the corresponding gross revenues in each State from 1901 to 1909:—

GOVERNMENT RAILWAYS.—TOTAL WORKING EXPENSES AND PERCENTAGES OF WORKING EXPENSES UPON GROSS REVENUES, 1901 to 1909.

Year.	N.S.W.	Victoria.*	Q'land.	S. Aust.	N. Ter.	W. Aust.	Tas.	C'wealth.
TOTAL WORKING EXPENSES (£,000 OMITTED).								
	£	£	£	£	£	£	£	£
1900-1	2,043	2,075	1,058	729	25	1,045	1174	7,149
1901-2	2,267	2,166	993	690	35	1,256	1173	7,580
1902-3	2,266	2,032	863	625	13	1,248	1166	7,213
1903-4	2,259	2,022	812	675	13	1,180	1166	7,127
1904-5	2,192	2,222	815	737	13	1,256	172	7,407
1905-6	2,309	2,216	863	764	14	1,202	173	7,541
1906-7	2,500	2,353	913	868	13	1,136	185	7,968
1907-8	2,715	2,436	1,054	969	14	1,008	202	8,398
1908-9	2,953	2,515	1,227	940	13	974	204	8,826

PERCENTAGE OF WORKING EXPENSES TO GROSS EARNINGS.

	%	%	%	%	%	%	%	%
1900-1	57.17	62.17	80.34	58.95	182.59	77.19	184.26	64.76
1901-2	61.80	64.32	71.83	63.54	276.70	82.58	174.31	67.25
1902-3	68.37	66.69	69.95	58.01	113.40	80.33	167.16	68.80
1903-4	65.74	58.82	62.19	58.19	77.73	74.28	164.68	63.62
1904-5	59.50	62.04	57.64	57.66	84.70	78.01	70.47	62.65
1905-6	54.51	58.51	55.84	56.63	93.00	73.52	71.56	58.87
1906-7	53.08	58.65	49.88	55.10	94.74	73.89	71.84	57.18
1907-8	54.91	62.89	54.01	55.68	97.22	67.10	72.70	58.71
1908-9	58.72	60.19	58.35	57.39	99.52	64.56	72.89	59.84

* Including amounts paid for pensions and gratuities, and also special expenditures and charges for belated repairs and in reduction of deficiencies as follows:—For the year 1900-1, £111,943; for 1901-2, £115,244; for 1902-3, £196,137; for 1903-4, £220,092; for 1904-5, £351,141; for 1905-6, £217,179; and for 1906-7, £276,630; and for 1907-8, £150,122. † For the calendar years 1901, 1902, and 1903 respectively. ‡ Estimated for a period of twelve months ended the 30th June, 1904.

From the above table it may be seen that during the last two financial years there have been for the whole Commonwealth increases in the percentages of working expenses

to gross earnings. This increase is partly due to the fact that in four of the States, consequent on the favourable results of previous years, reductions were made in passenger fares and freight rates.

(i.) *Working Expenses per Average Mile Worked and per Train Mile Run, 1901 to 1909.* The following table shows the working expenses per average mile worked and per train mile run in each State for the years 1901 to 1909 inclusive:—

**GOVERNMENT RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED,
AND PER TRAIN MILE RUN, 1901 to 1909.**

Year.	N.S.W.	Victoria.†	Q'land.	S. Aust.	N. Ter.	W. Aust.	Tas.	Cwlth.
WORKING EXPENSES PER AVERAGE MILE WORKED.								
	£	£	£	£	£	£	£	£
1900-1 ...	725	643	378	420	174	771	*377	570
1901-2 ...	768	663	354	397	238	927	*370	596
1902-3 ...	737	609	311	360	88	870	355	556
1903-4 ...	701	560	287	389	91	768	†354	536
1904-5 ...	668	657	266	422	90	801	365	542
1905-6 ...	686	653	278	438	95	748	367	545
1906-7 ...	729	693	291	478	91	678	395	566
1907-8 ...	783	717	325	521	97	551	429	583
1908-9 ...	829	740	356	500	87	494	434	594
WORKING EXPENSES PER TRAIN MILE RUN.								
	d.	d.	d.	d.	d.	d.	d.	d.
1900-1 ...	45.56	45.01	43.66	39.83	200.39	60.78	*46.46	46.26
1901-2 ...	46.71	46.07	42.05	39.44	274.67	66.89	*46.06	47.58
1902-3 ...	47.10	47.41	41.88	39.75	101.07	64.95	*42.85	47.92
1903-4 ...	52.13	52.92	41.93	43.35	100.57	61.62	†42.05	51.01
1904-5 ...	50.26	59.11	39.76	46.87	102.16	70.34	43.55	53.15
1905-6 ...	46.70	56.63	39.23	47.34	109.15	66.16	43.79	50.62
1906-7 ...	46.33	56.28	35.75	48.06	103.14	65.21	45.36	49.50
1907-8 ...	45.72	56.31	38.56	46.44	108.83	61.01	47.12	48.89
1908-9 ...	47.01	53.46	39.84	45.84	100.37	56.98	47.60	48.32

* For the years 1901, 1902, and 1903 respectively. † Estimated for a period of twelve months ended the 30th June, 1904. ‡ Including special expenditure and charges referred to above.

15. *Distribution of Working Expenses, 1901 to 1909.*—The subjoined table shows the distribution of working expenses, among four chief heads of expenditure, for each year from 1901 to 1909 inclusive:—

GOVERNMENT RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1901 to 1909.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	N. Ter.	W. Aust.	Tas.	C'wealth.
MAINTENANCE (£,000 OMITTED).								
	£	£	£	£	£	£	£	£
1900-1 ...	485	518	409	185	18	194	*60	1,869
1901-2 ...	522	502	356	167	29	247	*58	1,881
1902-3 ...	487	438	293	139	7	265	*52	1,681
1903-4 ...	519	449	278	164		265	†49	1,731
1904-5 ...	491	502	278	207			55	1,884
1905-6 ...	540	372	288	203		293	54	1,958
1906-7 ...	593	589	295	274		266	58	2,082
1907-8 ...	622	649	323	313		226	62	2,203
1908-9 ...	628	626	395	270	7	210	62	2,198

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Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	N. Ter.	W. Aust.	Tas.	C'wealth.
LOCOMOTIVE, CARRIAGE, AND WAGGON CHARGES (£,000 OMITTED).								
1900-1 ...	936	793	396	363	4	497	*64	3,053
1901-2 ...	1,060	855	390	344	3	670	*64	3,386
1902-3 ...	1,090	763	344	317	3	643	*62	3,222
1903-4 ...	1,054	720	318	343	4	582	†64	3,085
1904-5 ...	1,024	763	314	360	3	577	63	3,104
1905-6 ...	1,057	788	337	386	3	567	66	3,204
1906-7 ...	1,132	845	358	405	3	535	73	3,351
1907-8 ...	1,250	956	417	442	4	494	81	3,634
1908-9 ...	1,409	993	477	441	4	472	81	3,877

TRAFFIC EXPENSES (£,000 OMITTED).								
1900-1 ...	537	609	233	165	2	296	*41	1,883
1901-2 ...	589	641	226	163	2	306	*42	1,969
1902-3 ...	605	593	207	152	2	312	*43	1,914
1903-4 ...	602	586	197	152	2	307	†43	1,889
1904-5 ...	596	563	205	153	2	302	44	1,865
1905-6 ...	631	588	218	158	2	305	45	1,947
1906-7 ...	683	593	238	172	2	301	46	2,035
1907-8 ...	742	613	280	196	2	270	50	2,163
1908-9 ...	805	641	330	210	2	264	51	2,303

OTHER CHARGES (£,000 OMITTED).								
1900-1 ...	85	154	21	17	...	58	*9	344
1901-2 ...	97	168	21	17	...	33	*8	344
1902-3 ...	85	239	20	16	...	27	*9	396
1903-4 ...	84	268	19	16	...	27	†9	423
1904-5 ...	81	395	18	17	...	33	10	554
1905-6 ...	80	268	20	17	...	37	9	431
1906-7 ...	91	326	21	18	...	35	9	500
1907-8 ...	102	218	23	19	...	27	9	398
1908-9 ...	110	254	25	21	...	28	10	448

* For the calendar years 1901, 1902, and 1903 respectively. † Estimated for a period of twelve months ended the 30th June, 1904. ‡ Including special expenditure and charges referred in paragraph 14 hereof.

16. **Net Revenue, Total and per Cent. of Capital Cost, 1901 to 1909.**—The table given hereunder shews the net sums available to meet interest charges, and also the percentage of such sums upon the capital cost of construction and equipment, in each State for the years 1901 to 1909 inclusive:—

GOVERNMENT RAILWAYS.—NET REVENUE AND PERCENTAGE OF NET REVENUE UPON CAPITAL COST, 1901 to 1909.

Year.	N.S.W.	Victoria.*	Q'land.	S. Aust.	N. Ter.	W. Aust.	Tas.	Cw'ith.
NET REVENUE (£,000 OMITTED).								
1900-1 ...	£ 1,531	£ 1,262	£ 259	£ 508	£ —12	£ 309	£ †32	£ 3,889
1901-2 ...	1,401	1,202	389	396	—22	265	†60	3,691
1902-3 ...	1,049	1,015	371	452	—2	306	†81	3,272
1903-4 ...	1,177	1,416	494	485	4	408	†82	4,066
1904-5 ...	1,492	1,360	599	536	2	354	72	4,415
1905-6 ...	1,926	1,571	683	585	1	433	69	5,268
1906-7 ...	2,210	1,659	917	707	1	401	73	5,968
1907-8 ...	2,229	1,438	897	772	...	494	76	5,906
1908-9 ...	2,076	1,663	876	698	...	535	76	5,924

PERCENTAGE OF NET REVENUE TO CAPITAL EXPENDITURE.								
1900-1 ...	% 3.93	% 3.14	% 1.31	% 3.86	% —0.98	% 4.35	% †0.85	% 3.15
1901-2 ...	3.45	2.96	1.94	2.98	—1.91	3.58	†1.56	2.92
1902-3 ...	2.52	2.48	1.83	3.37	—0.13	3.75	†2.09	2.53
1903-4 ...	2.78	3.43	2.36	3.59	0.32	4.56	†2.10	3.09
1904-5 ...	3.46	3.29	2.77	3.95	0.20	3.61	1.83	3.30
1905-6 ...	4.42	3.80	3.14	4.30	0.09	4.24	1.75	3.90
1906-7 ...	4.94	4.00	4.20	5.16	0.06	3.90	1.84	4.36
1907-8 ...	4.88	3.43	3.97	5.57	0.03	4.60	1.91	4.23
1908-9 ...	4.36	3.91	3.74	5.10	...	4.85	1.90	4.13

* In addition to ordinary working expenses, special expenditures and charges paid out of each year's gross revenue have been deducted; see paragraph 14 above. † For the calendar years 1901, 1902, and 1903 respectively. ‡ Partly estimated.

(i.) *Net Revenue per Average Mile Worked and per Train Mile Run, 1901 to 1909.*—Tables shewing the gross earnings and the working expenses per average mile worked and per train mile run have been given above. The net earnings, i.e., the excess of gross earnings over working expenses, per average mile worked and per train mile run are shewn in the following tables :—

**GOVERNMENT RAILWAYS.—NET REVENUE PER AVERAGE MILE WORKED AND
PER TRAIN MILE RUN, 1901 to 1909.**

Year.	N.S.W.	Vic.*	Q'land.	S. Aust.	N. Ter.	W. Aust.	Tas.	C'wealth.
NET REVENUE PER AVERAGE MILE WORKED.								
	£	£	£	£	£	£	£	£
1900-1 ...	543	391	92	292	— 79	228	†70	310
1901-2 ...	475	368	139	228	—152	195	†128	290
1902-3 ...	341	304	134	260	— 10	213	†173	252
1903-4 ...	365	420	175	279	26	266	†174	306
1904-5 ...	455	402	195	308	16	226	153	323
1905-6 ...	572	463	220	335	7	269	146	381
1906-7 ...	645	489	292	390	5	239	155	424
1907-8 ...	643	423	277	415	2	270	161	410
1908-9 ...	583	490	254	371	...	271	162	398
NET REVENUE PER TRAIN MILE RUN.								
	d.	d.	d.	d.	d.	d.	d.	d.
1900-1 ...	34.13	27.38	10.69	27.73	— 90.64	17.96	†8.68	25.17
1901-2 ...	28.87	25.56	16.50	22.53	—175.40	14.11	†15.93	23.16
1902-3 ...	21.79	23.68	17.99	28.78	— 11.94	15.90	†20.95	21.74
1903-4 ...	27.17	37.04	25.49	31.15	28.81	21.34	†20.74	29.10
1904-5 ...	34.20	36.17	29.22	34.11	18.45	19.84	18.25	31.69
1905-6 ...	38.97	40.16	31.02	36.25	8.22	23.82	17.40	35.37
1906-7 ...	40.95	39.68	35.93	39.17	5.73	23.04	17.78	37.07
1907-8 ...	37.54	33.22	32.83	36.97	3.11	29.82	17.69	34.38
1908-9 ...	33.05	35.36	28.44	34.03	0.48	31.28	17.70	32.43

* See footnote * to preceding table. † See footnote † to preceding table.
‡ See footnote ‡ to preceding table.

17. Traffic Conditions.—Reference has already been made to the difference in the traffic conditions on many of the lines of the Commonwealth (see paragraphs 12, 13, and 14 hereof). These conditions differ not only in the several States, but also on different lines in the same State, and this is true with regard to both passenger and goods traffic. By far the greater part of the population of Australia is confined to a fringe of country near the coast, more especially in the eastern and southern districts. A large proportion of the railway traffic between the chief centres of population is therefore carried over lines in the neighbourhood of the coast, and is thus, in some cases, open to sea-borne competition. On most of the lines extending into the more remote interior districts traffic is light; the density of population diminishes rapidly as the coastal regions are left behind; there is a corresponding diminution in the volume of traffic, while, in comparison with other more settled countries, there is but little back-loading.

As an indication of the different traffic conditions prevailing in the several States, the following table is given shewing the numbers of passenger journeys and the tons of goods carried (a) per 100 of the mean population; and (b) per average mile worked in each State during the financial year 1908-9 :—

PASSENGER JOURNEYS AND TONNAGE OF GOODS AND LIVE STOCK, 1908-9.

Particulars.		N.S.W.	Vic.	Q'land.	S.A.	N.T.	W.A.	Tas.	Cwlth.
(a) PER 100 OF MEAN POPULATION.									
Passenger journeys	... No.	3,270	6,374	2,086	3,427	71	4,761	832	4,040
Goods and live stock	... Tons	584	328	*450	536	89	748	*251	481
(b) PER AVERAGE MILE OF LINE WORKED.									
Passenger journeys	... No.	14,621	23,851	3,345	7,363	15	6,452	3,292	11,616
Goods and live stock	... Tons	2,612	1,226	*721	1,151	18	1,013	*994	1,384

* Exclusive of live stock.

Particulars of the actual numbers of passengers and tons of goods and live stock carried have already been given (see paragraph 5 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, though it is understood that for the year 1909-10 and for future years such particulars will be available for all the States on a uniform basis. The subjoined table shews the number of metropolitan and country passengers carried in each of the States mentioned and the revenue derived therefrom during the year 1908-9:—

METROPOLITAN, SUBURBAN, AND COUNTRY PASSENGER TRAFFIC, 1908-9.

Particulars.	Number of Passenger Journeys.			Revenue.		
	Metropolitan.	Country.	Total.	Metropolitan.	Country.	Total.
N.S.W. ...	*46,734,076	5,317,480	52,051,556	*£546,904	£1,173,988	£1,720,892
Vic. ...	†74,541,251	6,479,369	81,020,620	†746,844	1,039,243	1,786,087

* Within 34 miles of Sydney and Newcastle, and including Richmond and Braxton lines.
† Within 20 miles of Melbourne.

From this table it may be seen that the number of passenger-journeys in country districts in Victoria is only slightly greater than the corresponding number in New South Wales, while the number of metropolitan passenger-journeys in Victoria is far greater than in New South Wales, although in the latter State both Sydney and Newcastle are included. In Sydney a larger proportion of the suburban traffic is carried by the tramway systems than in Melbourne.

(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 except Tasmania; information regarding the revenue derived from each class of commodity is not, however, generally available in a comparable form. In this connection it may be stated that the following resolution was passed at the Interstate Conference of Railway Commissioners held in Melbourne in May last (see paragraph 1, page 686 hereof):—"That in view of the variations in the character and classification of the goods traffic in the different States the sub-divisions of tonnage carried and revenue in each State shall be those which best suit local conditions."

The following table 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 1908-9:—

CLASSIFICATION OF COMMODITIES CARRIED, 1908-9.

State.	Minerals.	Fire-wood.	Grain and Flour.	Hay, Straw, and Chaff.	Wool.	Live Stock.	All other Com-modities.	Total.
TONS CARRIED.								
New South Wales ...	Tons. 1,581,343	Tons. 250,058	Tons. 447,755	Tons. 180,290	Tons. 132,092	Tons. 436,656	Tons. 1,643,650	Tons. 8,971,544
Victoria ...	467,494	589,455	915,899	239,702	61,082	363,067	1,510,077	4,166,786
Queensland ...	1,035,664	239,752	29,952	158,169	53,920	...	965,926	2,483,413
South Australia ...	965,782	117,930	417,018	91,490	24,214	53,799	495,366	2,165,619
Western Australia...	317,117	673,679	107,586	92,788	5,192	44,739	755,999	1,997,100
PERCENTAGE ON TOTAL TONNAGE CARRIED.								
New South Wales ...	% 65.56	% 2.79	% 4.99	% 2.10	% 1.48	% 4.76	% 18.32	% 100.00
Victoria ...	21.22	14.15	21.98	5.75	1.47	9.19	36.24	100.00
Queensland ...	41.70	9.65	3.21	6.37	2.17	5	38.90	100.00
South Australia ...	44.60	5.44	19.26	4.22	1.12	2.48	22.88	100.00
Western Australia...	15.87	33.74	5.38	4.65	0.26	2.25	37.85	100.00

1. Exclusive of 327,085 tons of coal, on which only shunting and haulage are collected. 2. Coal, stone, lime, and bricks. 3. Flour only. 4. Sugar cane. 5. Not available.

18. Passenger-Mileage and Ton-Mileage.—The useful comparisons and analyses which can be made with regard to the operations of the Government railways in the Commonwealth are to some extent limited, by the absence in the annual reports of the Railway Departments of some of the States of particulars relating to "passenger-mileage" (*i.e.*, the total distance travelled by passengers) and "ton-mileage" (*i.e.*, the total distance for which goods and live stock are carried), and it is not possible to furnish totals for the Commonwealth in respect of these important particulars. The matter of passenger-mileage and ton-mileage has already been referred to (see page 686). The following resolution in regard thereto was passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909:—"That, in view of the differing conditions in each State, and of the expense involved, it is undesirable to include passenger-mile and ton-mile statistics in the annual reports." The general question as to the desirability of collecting and publishing "passenger-mile" and "ton-mile" statistics by railway companies in the United Kingdom has recently been made the subject of inquiry by a departmental committee appointed by the President of the Board of Trade. The report of this committee has been published in England as a parliamentary paper.¹

Information regarding "passenger-miles" and "ton-miles" is available either wholly, or in part, for four of the States only, viz., New South Wales, South Australia, Western Australia, and Tasmania, but is not available at all for either Victoria or Queensland. Of the four States which give particulars of the nature indicated, New South Wales is the only one which furnishes the information in a classified form according to class of passengers and nature of commodities carried. The

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

other three States supply particulars for all classes of passengers and goods together respectively. The mere record of the total number of passenger-miles and ton-miles for all classes of passengers and for all classes of goods respectively, although of considerable value, would appear to be insufficient to enable the whole field of railway operations to be adequately analysed, or the extent to which efficiency has been secured and improvements in working have been effected to be accurately gauged.

(i.) *Passenger-Miles.* Particulars for the whole of the Commonwealth period regarding total "passenger-miles" are available for one State only, namely, Tasmania. For New South Wales particulars are available for suburban and extended-suburban traffic—i.e., including all stations within 22 miles of Newcastle, within 34 miles of Sydney, and including Richmond and Branxton. For South Australia particulars are available for each year since 1904. No particulars are available for other States. In the tables given below the average number of passengers carried per "train," etc., is obtained by dividing the number of "passenger-miles" by the number of "passenger-train-miles." The averages given for New South Wales are naturally smaller than those for the other States, since the figures for New South Wales refer to suburban and extended-suburban traffic only.

SUMMARY OF "PASSENGER-MILES," 1901 to 1909.

Year ended the 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 Rate per Passenger-journey.
NEW SOUTH WALES.†								
	Miles.	No. (,000 omitted).	No. (,000 omitted).	£	No.	Miles.	d.	d.
1901	*	26,042	164,638	344,873	*	6.32	0.50	3.17
1902	*	27,999	184,064	361,849	*	6.57	0.47	2.92
1903	*	29,799	186,803	381,245	*	6.27	0.49	3.07
1904	*	31,116	202,550	396,923	*	6.51	0.47	3.06
1905	*	31,855	204,604	400,944	*	6.42	0.47	3.02
1906	*	34,040	223,985	426,931	*	6.58	0.45	3.01
1907	*	37,975	241,836	462,404	*	6.37	0.46	2.92
1908	*	42,730	284,465	504,646	*	6.65	0.43	2.83
1909	*	46,734	310,399	546,904	*	6.64	0.42	2.81
SOUTH AUSTRALIA (PROPER).								
1905	1,489,035	9,867	114,378	312,179	77	11.61	0.65	7.59
1906	1,538,166	10,715	125,862	334,797	82	11.75	0.64	7.50
1907	1,667,324	11,498	138,689	337,916	83	12.06	0.58	7.05
1908	1,874,318	12,839	154,038	426,261	82	12.00	0.66	7.97
1909	1,975,455	13,855	160,763	435,430	81	11.60	0.65	7.54
TASMANIA.								
1901	352,705	777	19,563	78,327	55	25.16	0.96	24.18
1902	335,604	761	19,444	88,541	58	25.60	1.09	27.91
1903	337,773	814	19,373	93,969	57	23.78	1.16	27.69
1904†	357,144	873	21,000	99,632	59	24.05	1.10	27.13
1905	343,868	824	20,693	95,335	60	25.16	1.10	27.77
1906	348,006	860	21,712	98,202	62	25.23	1.08	27.38
1907	357,076	952	23,756	105,555	67	24.95	1.06	26.61
1908	356,845	1,439§	32,639§	112,987	91	22.65	0.83	18.84
1909	373,633	1,547§	32,476§	113,546	87	20.99	0.84	17.61

* Not available for suburban lines. † Suburban lines only; includes distances within 34 miles of Sydney and including Richmond and Branxton. ‡ Partly estimated. § Compiled on new basis, so as to be uniform with other States.

(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 last two years only. The average freight-paying load carried per "train" is obtained by dividing the total "ton-miles" in the third column by the goods-train mileage in the first column. In New South Wales the tonnage carried is exclusive of coal, on which only shunting and haulage charges are collected, and the amount of earnings specified excludes terminals. In South Australia and Tasmania they include terminals, while in Western Australia they exclude wharfage and jetty dues, but include all other charges.

SUMMARY OF "TON-MILES," 1901 to 1909.

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-miles."
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NEW SOUTH WALES.							
	No.	No. (,000 omitted.)	No. (,000 omitted.)	£	Tons.	Miles.	d.
1901	5,836,587	6,398	404,740	1,904,371	69.34	63.26	1.13
1902	6,586,032	6,164	436,814	1,947,305	66.32	70.87	1.07
1903	6,405,756	6,304	399,579	1,624,248	62.38	63.38	0.98
1904	5,304,660	6,376	393,094	1,692,966	74.10	61.65	1.03
1905	5,431,974	6,418	437,416	1,899,289	80.53	68.15	1.04
1906	6,512,145	7,335	478,642	2,268,321	73.50	65.25	1.14
1907	7,294,165	8,472	564,709	2,516,038	77.42	66.66	1.07
1908	7,746,484	9,804	617,642	2,597,980	79.73	63.00	1.01
1909	7,841,413	8,972	613,469	2,544,457	78.23	68.38	1.00

SOUTH AUSTRALIA PROPER.							
1901	2,686,789	1,628	202,649	843,019	75.42	124.44	1.00
1902	2,468,326	1,392	170,523	681,045	69.09	122.48	0.96
1903	2,311,250	1,350	165,357	703,522	71.55	122.52	1.02
1904	2,247,003	1,516	178,443	761,298	79.41	117.74	1.02
1905	2,284,071	1,681	201,789	860,037	88.35	120.04	1.02
1906	2,337,001	1,732	205,079	910,106	87.75	118.38	1.07
1907	2,666,919	2,043	239,855	1,083,504	89.94	117.41	1.08
1908	3,135,803	2,256	272,373	1,184,867	86.86	120.73	1.04
1909	2,949,901	2,166	267,271	1,060,077	90.60	123.42	0.95

§ WESTERN AUSTRALIA.							
1907	1,939,959	2,091	144,856	964,653	74.67	69.26	1.60
1908	1,976,204	2,059	142,719	948,373	72.22	69.32	1.59
1909	2,011,468	1,997	143,629	945,956	71.41	71.92	1.58

* TASMANIA.							
1901†	542,977	315	12,848	93,025	23.66	40.93	1.73
1902†	567,314	407	14,331	109,266	25.26	35.30	1.82
1903†	593,943	419	13,791	113,597	23.22	34.86	1.97
1904†	609,914	425	14,900	114,361	24.43	35.05	1.84
1905	601,984	377	14,802	109,220	24.59	37.58	1.77
1906	597,913	399	13,626	104,416	22.79	25.46	1.83
1907	624,303	428	14,822	112,457	23.74	34.59	1.82
1908	671,185	465	17,141	123,493	25.54	36.84	1.73
1909	655,486	467	17,257	125,375	26.33	36.92	1.74

* Exclusive of live stock. † To 31st December for years 1901, 2, and 3; to 30th June for succeeding years. ‡ Partly estimated. § Particulars for previous years not available.

(iii.) *Density of Traffic, 1908-9.* The average densities of passenger traffic and of goods traffic, obtained by dividing the passenger-mileage and the ton-mileage respectively by the average length of line open for traffic, are shewn in the following table for the year 1908-9 for those States for which particulars are available :—

DENSITY OF TRAFFIC PER AVERAGE MILE OF LINE OPEN, 1908-9.

Density of	N.S.W.	S. Aust. (proper).	W. Aust.	Tasmania.
Passenger traffic	*	85,444	*	69,095
Goods „	172,322	142,052	72,871	36,717

* Not available.

(iv.) *Classification of Commodity Ton Mileage, 1909.* New South Wales is the only State for which particulars, specifying the ton-mileage and the earnings per ton-mile for various classes of commodities, are available. It is hoped that in future years it will be possible to give corresponding particulars for the other States.

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

**NEW SOUTH WALES.—SUMMARY OF TON-MILEAGE FOR YEAR ENDED
30th JUNE, 1909.**

Particulars.	Total Tons Carried.	Total Miles.	Average Miles per Ton.	Earnings (exclusive of Ter- minals).	Earnings per Ton- Mile.	Percentage on Total Tonnage.
	1000 Tons.	1000 Miles.	Miles.	£	d.	per cent.
Coal, coke, and shale ...	5,549	121,832	21.96	273,250	0.54	61.85
Other minerals ...	333	16,784	50.46	45,636	0.65	3.71
Crude ores ...	142	13,807	97.18	29,740	0.52	1.58
Miscellaneous ...	405	27,757	68.52	83,888	0.73	4.52
Firewood ...	250	6,556	26.22	21,406	0.78	2.79
Fruit ...	39	3,871	99.41	17,168	1.06	0.43
Grain and flour ...	448	106,651	238.19	161,423	0.36	4.99
Hay, straw, and chaff ...	180	35,462	197.25	62,018	0.42	2.01
Frozen meat ...	25	1,942	78.92	8,375	1.03	0.27
General goods ...	2	722	358.98	7,728	2.57	0.02
A Class ...	494	51,926	105.00	225,495	1.04	5.51
B „ ...	264	26,848	101.73	201,397	1.80	2.94
C „ ...	25	1,251	50.68	10,585	2.03	0.28
1st Class ...	104	14,313	137.17	175,809	2.93	1.16
2nd „ ...	96	17,175	178.18	269,794	3.77	1.07
3rd „ ...	47	6,904	146.67	132,355	4.60	0.53
Wool Class ...	132	37,363	282.85	311,508	2.00	1.47
Live stock ...	437	122,305	280.09	506,882	0.99	4.87
Total ...	8,972	613,469	68.38	2,544,457	1.00	10.000

19. Interest Returned on Capital Expenditure.—It may be seen from the figures given in the table in paragraph 16 hereof, that the Government railways in Australia have, on the whole, made a substantial profit during each year since the inception of the Commonwealth, but unfortunately the community does not get the full benefit of this profit, owing to the high rates of interest at which money for railways was borrowed in the early days. Though the average rate during the year ended the 30th June, 1909, was about $3\frac{1}{2}$ per cent., an average does not accurately express the position. At an early period the need of constructing railways for the sole purpose of opening up undeveloped districts was recognised, and lines were built which could not possibly pay for some years to come; as these railways always preceded population the money had to be raised at an almost speculative rate of interest, frequently amounting to 6 per cent., while the more recent loans have been effected at less than 3 per cent., hence the railways have been handicapped by a burdensome interest. At the present time also spur lines are constructed, which can scarcely be expected to instantly return revenue in excess of the expenditure, and so must, for a time at any rate, be a charge on the more developed branches of the railway systems, and tend to increase the ratio of working costs to revenue. It may be noted, however, that although the loans made for expenditure on railway construction and equipment very largely increase the amount of the public debt of the Commonwealth, forming, in fact, more than half 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 is represented to a large extent by public works which pay a direct return, which is, on the whole, greater than the amount of interest due upon capital invested. In addition to the purely commercial aspect of the figures relating to the revenue and expenditure of the Commonwealth 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 the railway systems of the Commonwealth 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. Further, the money has been spent in developing immense agricultural, pastoral, and mineral resources, which add to the wealth of the community, while the benefits conferred in providing a cheap and convenient mode of transit, and in generally furthering the trade and the best interests of the Commonwealth, are incalculable.

(i). *Profit or Loss after Payment of Working Expenses and Interest, 1901 to 1909.* The net revenue of the Government railways in each State after payment of working expenses is shewn in paragraph 16 hereof. The following table shews the amount of interest payable on expenditure from loans on the construction and equipment of the railways in 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.

In this table the positive sign indicates a profit, the negative a loss. It may be seen that for the Commonwealth as a whole there has been a net profit on the Government railways during each of the last four years of the period dealt with.

**GOVERNMENT RAILWAYS.—INTEREST ON LOAN EXPENDITURE, PROFIT OR LOSS,
AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST, 1901 to 1909.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	N. Ter.	W. Aust.	Tas.	Cwlth.
AMOUNT OF INTEREST ON RAILWAY LOAN EXPENDITURE (£,000 OMITTED).								
	£	£	£	£	£	£	£	£
1900-1 ...	1,425	1,465	819	454	46	225	142	4,576
1901-2 ...	1,435	1,493	837	470	47	235	140	4,657
1902-3 ...	1,474	1,474	860	467	47	257	142	4,721
1903-4 ...	1,484	1,516	873	471	47	277	143	4,811
1904-5 ...	1,527	1,462	876	469	47	309	144	4,834
1905-6 ...	1,541	1,472	881	475	47	324	148	4,888
1906-7 ...	1,599	1,483	901	480	47	333	148	4,991
1907-8 ...	1,649	1,484	932	494	47	343	149	5,098
1908-9 ...	1,687	1,428	935	500	47	355	150	5,102

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

	£	£	£	£	£	£	£	£
1900-1 ...	+ 105	-202	-560	+ 53	- 57	+ 83	-109	- 687
1901-2 ...	- 33	-291	-448	- 74	- 69	+ 30	- 81	- 966
1902-3 ...	-426	-459	-489	- 14	- 48	+ 48	- 61	-1,449
1903-4 ...	-307	-100	-379	+ 14	- 43	+131	- 61	- 745
1904-5 ...	- 35	-102	-278	+ 68	- 44	+ 45	- 72	- 418
1905-6 ...	+385	+ 99	-199	+110	- 45	+109	- 80	+ 379
1906-7 ...	+611	+176	+ 16	+228	- 46	+ 68	- 76	+ 977
1907-8 ...	+580	- 47	- 35	+277	- 46	+151	- 73	+ 807
1908-9 ...	+389	+235	- 59	+198	- 47	+179	- 74	+ 821

**PERCENTAGE OF PROFIT OR LOSS TO CAPITAL COST OF CONSTRUCTION AND
EQUIPMENT.***

	%	%	%	%	%	%	%	%
1900-1 ...	+0.27	-0.50	-2.84	+0.43	-4.88	+1.17	-2.87	-0.55
1901-2 ...	-0.06	-0.71	-2.22	-0.59	-5.96	+0.41	-2.10	-0.76
1902-3 ...	-1.02	-1.12	-2.41	-0.12	-4.10	+0.59	-1.57	-1.12
1903-4 ...	-0.73	-0.24	-1.81	+0.12	-3.65	+1.46	-1.57	-0.56
1904-5 ...	-0.08	-0.25	-1.28	+0.51	-3.76	+0.47	-1.83	-0.31
1905-6 ...	+0.88	+0.24	-0.91	+0.82	-3.87	+1.09	-2.03	+0.28
1906-7 ...	+1.36	+0.42	+0.07	+1.66	-3.91	+0.66	-1.92	+0.71
1907-8 ...	+1.27	-0.11	-0.15	+1.99	-3.92	+1.41	-1.84	+0.58
1908-9 ...	+0.82	+0.55	-0.26	+1.11	-3.98	+1.63	-1.85	+0.57

* The positive sign indicates a profit, the negative a loss. † Allowing for payment of special expenditure and charges (see paragraph 14 above).

20. Passenger Fares and Goods Rates.—Considerable reductions have been made in recent years in passenger fares and in freight rates. These fares and rates are not only changed from time to time to suit the convenience and varying necessities of the railways, but, as traffic is developed and revenue increased, they are also 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. During the last financial year reductions were made in the rates and fares in three of the States. In Victoria reductions were made during the year in the charges for the carriage of goods and in the fares for the conveyance of passengers equivalent respectively to approximately £47,000 and £67,000, a total of approximately £114,000 per annum. In Queensland rates and fares were reduced to the extent of £100,000 per annum. The charges on the Mackay, Bowen, Cairns, Cooktown, and Normanton lines were previously on higher scales than on the larger systems, and the opportunity was taken to reduce them to the same level on all lines in the State. In Western Australia reductions were made in rates in many directions. These account to a large extent for the falling-off in revenue as compared with the previous year, more especially in respect to goods earnings (see paragraph 11 hereof). In New South Wales

the accumulated reductions in rates and fares made since October, 1906, amount to £337,000 per annum, and the rebates from the carriage of fodder and starving stock during the three years prior to June, 1909, to about £140,000.

(i.) *Passenger Fares.* On the Australian Government railways two classes are provided for passenger traffic. The fares charged may be classified as follows:—(a) Fares between specified stations (including suburban fares). (b) Fares computed according to mileage rates. (c) Return, season, and excursion fares. (d) Special fares for working-men, school pupils, and others. Fares in class (a) are issued at rates lower than the ordinary mileage rates. Fares in class (b) are charged between stations not included in class (a). Generally it may be said that mileage-rate fares are computed on the basis of about twopence per mile for first-class and about $1\frac{1}{4}$ pence per mile for second-class single tickets. In Tasmania, however, the fares are computed on the general basis of $1\frac{1}{4}$ pence per mile first-class, one penny per mile second-class, with one-sixth added, and a terminal charge of one penny. In New South Wales 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. First-class return fares are generally about $1\frac{1}{2}$ to $1\frac{3}{4}$ times the single fare, and the second-class are about 30 to 45 per cent. lower than the first-class fares. In Tasmania, however, return fares (except excursions) are double the single fares. Excursion tickets are issued for the return journey at from about single fare to about $1\frac{1}{4}$ times the single fare. Season tickets and special fares are issued at reduced rates.

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 GOVERNMENT RAILWAYS, 1909.

State.	For a journey of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
FIRST-CLASS SINGLE FARES.						
New South Wales ...	s. d. 7 10	s. d. 15 8	s. d. 30 3	s. d. 44 10	s. d. 57 4	s. d. 65 8
Victoria ...	7 6	15 0	30 0	44 6	58 2	72 0
Queensland ...	8 6	16 0	31 0	45 1	58 2	71 4
South Australia* ...	8 4	16 8	33 4	50 0	66 8	83 4
Western Australia ...	8 4	16 8	33 4	50 0	66 8	83 4
Tasmania ...	7 6	14 8	...	...	...	...
Average† ...	8 0	15 9	31 7	46 11	61 5	75 2
Average per passenger-mile† d.	1.92	1.89	1.88	1.87	1.84	1.80
SECOND-CLASS SINGLE FARES.						
New South Wales ...	s. d. 4 8	s. d. 9 5	s. d. 17 9	s. d. 26 1	s. d. 33 5	s. d. 39 8
Victoria ...	5 0	10 0	20 0	29 8	38 10	47 10
Queensland ...	5 8	10 4	19 9	28 2	35 8	43 2
South Australia* ...	5 3	10 5	20 10	31 3	41 8	52 1
Western Australia ...	5 3	10 5	20 10	31 3	41 8	52 1
Tasmania ...	5 0	9 9	...	...	...	...
Average† ...	5 2	10 1	19 10	29 3	38 3	47 0
Average per passenger-mile† d.	1.24	1.21	1.19	1.17	1.15	1.12

* Ordinary mileage rates are not published; the amounts given are therefore computed from fares between specified stations. † Exclusive of Tasmania for hauls of 200 miles and upwards.

(ii.) *Parcel Rates.* In all the States parcels may be transmitted by passenger train upon payment of the prescribed rates, which are based upon weight and distance carried. The rates vary slightly in the different States. In New South Wales they range from threepence for a parcel not exceeding 3 lbs. for any distance up to 87 miles, to fifteen shillings for a parcel weighing from 98 lbs. to 112 lbs., for a distance over 510 miles. In Victoria the charge for a parcel weighing from 84 lbs. to 112 lbs. for a distance over 450 miles is twelve shillings. The corresponding rate in Queensland is twelve shillings and sixpence; in South Australia eleven shillings and threepence; in Western Australia thirteen shillings; and in Tasmania for a distance of 250 miles the rate is five shillings and sixpence.

(iii.) *Goods Rates.* The rates charged for the conveyance of goods and merchandise may generally be divided into three classes, viz.:—(a) Mileage rates, (b) District or "development" rates, and (c) Commodity rates. In each of the States there is a number—ranging from 5 in Tasmania to 9 in Victoria—of different classes of freight. 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. 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 special rates, lower than the mileage rates, under class (c). Special low rates are also charged for truck loads of various commodities.

Space will not permit of anything like a complete analysis of goods rates in the several States being here given. As an indication of the range and amount of such rates the following table is given shewing for each State the charges made per ton for hauls of different distances in respect of (a) agricultural produce not otherwise specified; (b) the highest-class freight; and (c) the lowest-class freight:—

ORDINARY GOODS MILEAGE RATES ON GOVERNMENT RAILWAYS, 1909.

State.	Charge per Ton for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
AGRICULTURAL PRODUCE.*						
New South Wales* ...	s. d. 6 8	s. d. 11 8	s. d. 20 0	s. d. 26 3	s. d. 30 5	s. d. 34 7
Victoria ...	5 6	9 0	11 9	13 8	15 4	17 0
Queensland* ...	5 8	10 11	18 9	23 11	29 2	34 4
South Australia† ...	6 2	8 9	12 11	17 1	21 3	25 5
Western Australia* ...	7 11	11 9	15 9	21 8	28 0	30 0
Tasmania* ...	6 9	9 8	13 10	...	...	...
Averages§ ...	6 5	10 4	15 6	20 6	24 10	28 3
Average per ton-mile§	d. 1.54	1.24	0.93	0.82	0.75	0.68

OTHER HIGHEST-CLASS FREIGHT.

New South Wales ...	29 10	54 10	100 8	131 11	144 5	160 8
Victoria ...	26 0	51 0	57 0	134 6	167 9	201 0
Queensland ...	41 8	75 0	133 4	191 8	220 10	235 0
South Australia ...	27 1	52 1	97 11	134 7	166 8	194 2
Western Australia ...	32 1	54 2	97 6	135 5	167 11	195 0
Tasmania ...	32 0	50 0	96 0	...	...	...
Averages§ ...	31 5	56 2	97 1	145 7	173 6	197 2
Average per ton-mile§	d. 7.54	6.74	5.82	5.85	5.20	4.73

* See also following paragraph and table. † Hay, straw and chaff in truck loads at these rates plus 5 per cent.; smaller consignments at higher rates. § Exclusive of Tasmania for hauls of 300 miles and upwards.

ORDINARY GOODS MILEAGE RATES.—Continued.

State.	Charge per Ton for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
OTHER LOWEST-CLASS FREIGHT.						
New South Wales ...	5 1	8 11	14 1	18 3	22 5	24 6
Victoria ...	4 3	7 6	11 3	15 10	21 0	23 2
Queensland ...	4 7	8 9	15 0	19 2	23 4	27 6
South Australia ...	4 2	7 10	13 7	17 9	21 11	26 1
Western Australia ...	5 0.	8 4	14 2	19 2	23 4	27 6
Tasmania ...	18 8.	27 0	41 9	...	...	...
Average\$...	6 11	11 5	18 4	18 0	22 5	25 9
Average per ton-mile\$	d. 1.66	1.37	1.09	0.72	0.67	0.62

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

The rates in the first part of the above table are general mileage rates for agricultural produce. In some of the States, however, a great part of the traffic in many classes of agricultural produce is carried in truck loads in up transit to ports at rates considerably lower than those specified in the above table. Such special mileage rates for agricultural produce are in force in New South Wales, Queensland, Western Australia and Tasmania and are shewn in the following table:—

SPECIAL MILEAGE RATES FOR AGRICULTURAL PRODUCE IN TRUCK LOADS IN UP TRANSIT.

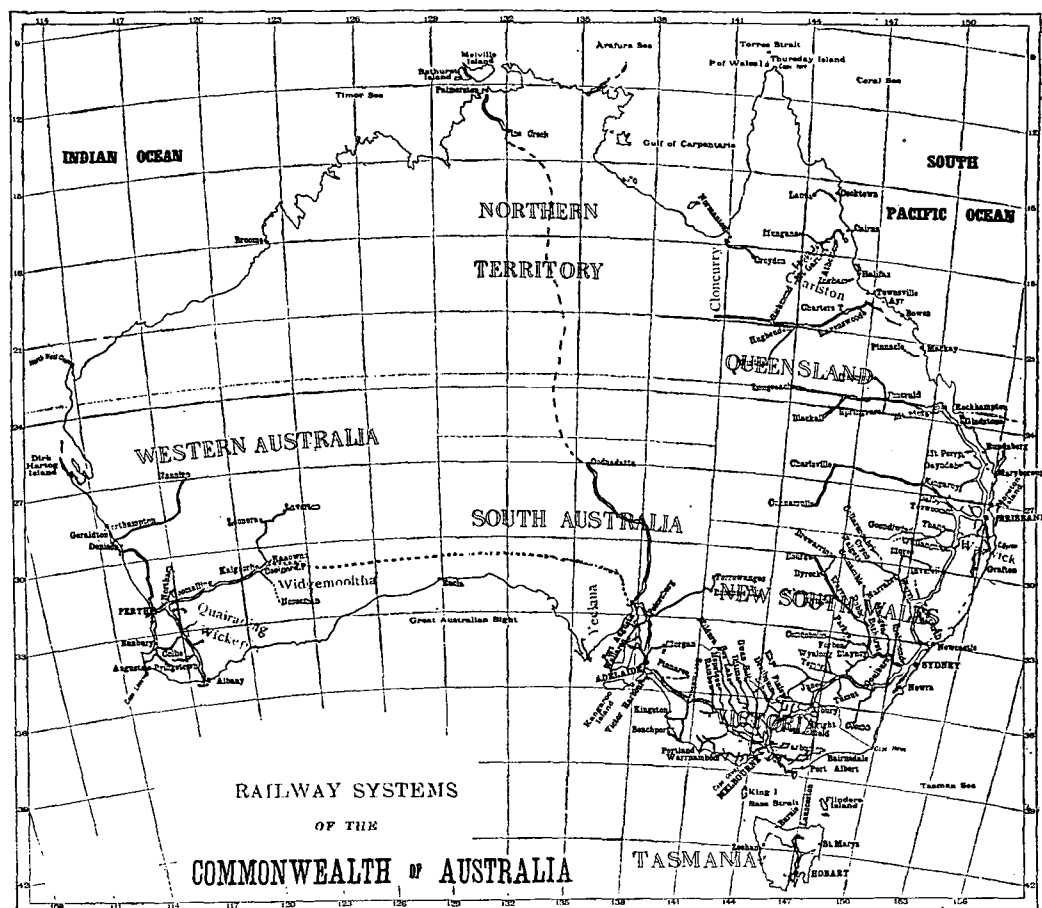
State.	Charge per ton for a haul of—					
	50 miles.	100 miles.	200 miles.	300 miles.	400 miles.	500 miles.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales*	5 0	7 6	9 6	10 6	11 4	12 0
Queensland† ...	4 7	8 9	11 0	12 0	13 0	14 0
Western Australia‡	6 3	8 11	12 1	17 0	22 0	24 0
Tasmania§ ...	4 2	8 4	...	...	...	...

* Grain, flour, meal, malt, bran, pollard, millet seed, green chicory root, cabbage, cauliflowers, potatoes, pumpkins, melons, turnips and other agricultural produce not otherwise specified in up transit, also manures in up or down transit. † Wheat, barley, flour, bran, pollard, semolina, and wheatmeal. ‡ Grain and gristed products of grain. § Exclusive of terminal charges; hay, horse-feed, husks, chaffs, mangolds, turnips, carrots, etc.; minimum charge 8s. 6d.

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 benzine and petroleum, belting, cardboard boxes, vehicles, calcium-chloride, china and glassware, drugs and medicines, electroplate ware, fireworks, furniture and household goods, guns, instruments, safes, plants, saddlery, empty tanks, and venetian blinds. In the same State the lowest-class freight comprises agricultural and vegetable seeds, asbestos, bark, barley, screenings, bisulphide of carbon, bones and bonedust, bricks and

THE GOVERNMENT RAILWAY SYSTEMS OF AUSTRALIA.



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

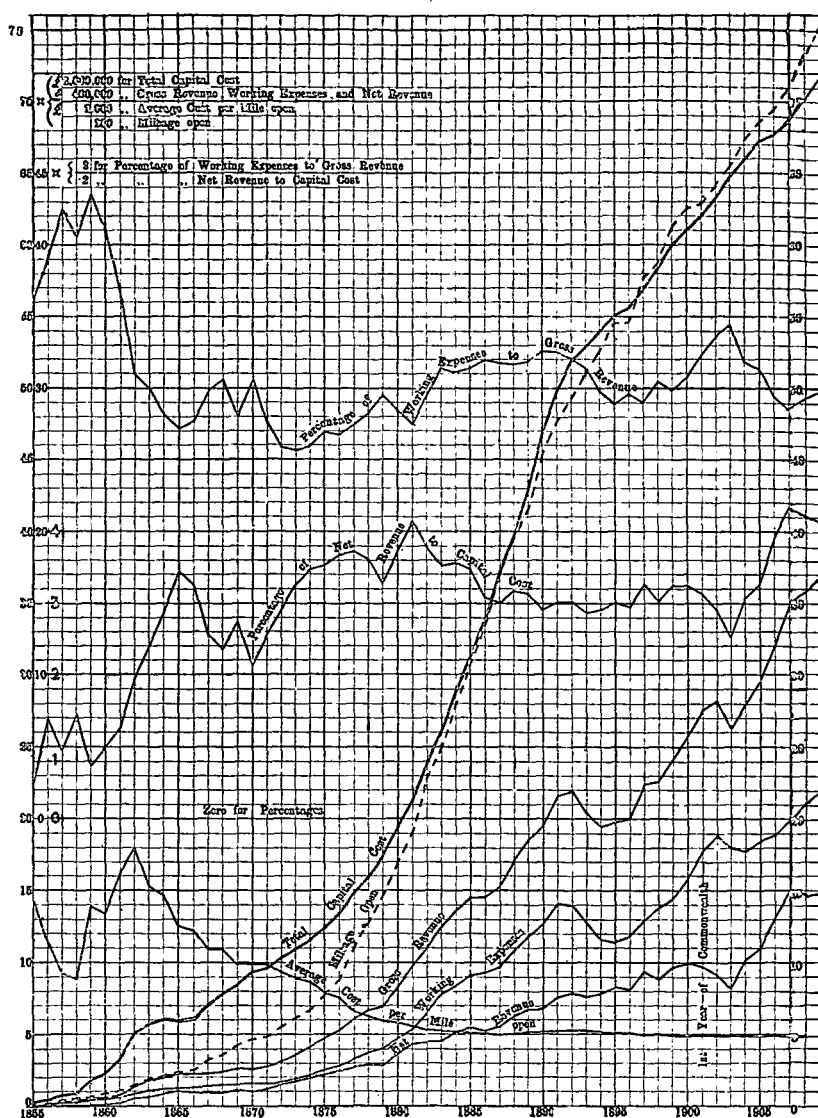
Lines in course of construction are shewn by dotted lines, thus

A proposed transcontinental line, joining the railways of South and Western Australia—and thus connecting continuously by railway Queensland, New South Wales, Victoria, South Australia, and Western Australia—is shewn by dots, thus and one connecting Oodnadatta in South Australia with Pine Creek in the Northern Territory, thus - - - - -

LIST OF PRINCIPAL SECTIONS OF RAILWAYS.

Miles.	Miles.	Miles.
Townsville to Winton ... 368	Sydney to Hay ... 460	Adelaide to Broken Hill 334
Rockhampton to Longreach 428	" Cooma ... 266	" Oodnadatta 688
Brisbane to Cunnamulla... 604	" Melb'rne (17 hrs.) 582½	Perth to Leonora ... 536
Toowoomba to Newcastle 520	Melb'rne to Adelaide (17½ hrs.) 482½	" Nannine ... 616
Brisbane to Sydney (28 hrs.) 725	" Mildura ... 351	" Albany ... 340
Newcastle to Inverell ... 405	" Swan Hill ... 215	Hobart to Launceston ... 133
Sydney to Bourke ... 508		

GRAPHS SHEWING THE FINANCIAL POSITION OF THE GOVERNMENT RAILWAYS OF AUSTRALIA, 1855 TO 1909.



(See pages—total capital cost, 704; mileage open, 691; gross revenue, 705; working expenses, 709; net revenue, 711; average cost per mile, 704; percentage of working expenses to gross revenue, 709; percentage of net revenue to capital cost, 711.)

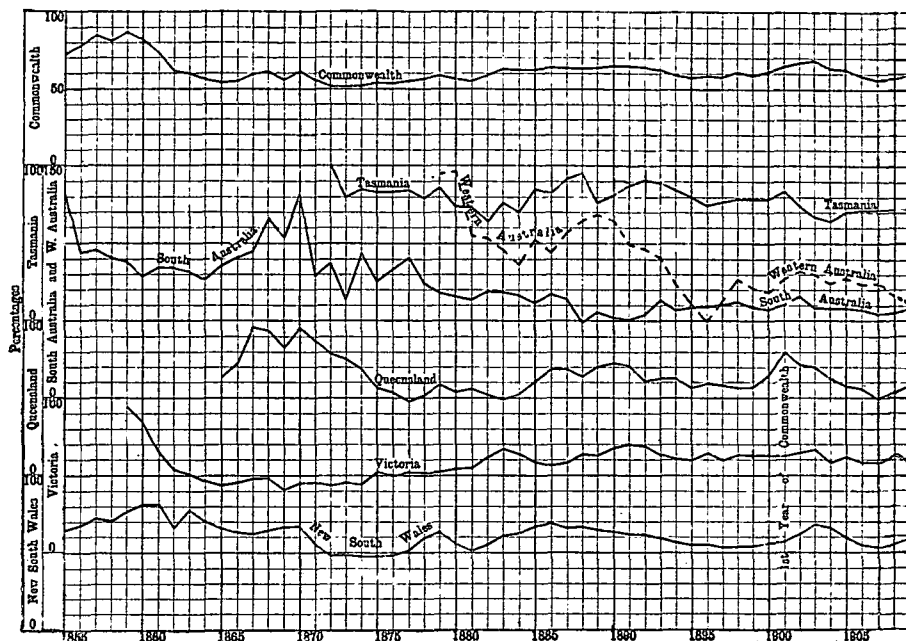
EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The significance of the vertical height of each square varies, however, according to the nature of the several curves.

In the heavy curve denoting the total capital cost of the railways of the Commonwealth, each vertical side of each square denotes £2,000,000.

In the three lighter curves, representing (i.) gross revenue, (ii.) working expenses, and (iii.) net revenue, the vertical height of each single 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 shown by dotted curves, the vertical side of each square representing 200 miles.

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

GRAPHS SHEWING PERCENTAGES OF WORKING EXPENSES TO GROSS REVENUE FOR
STATES AND COMMONWEALTH, 1855 TO 1909.

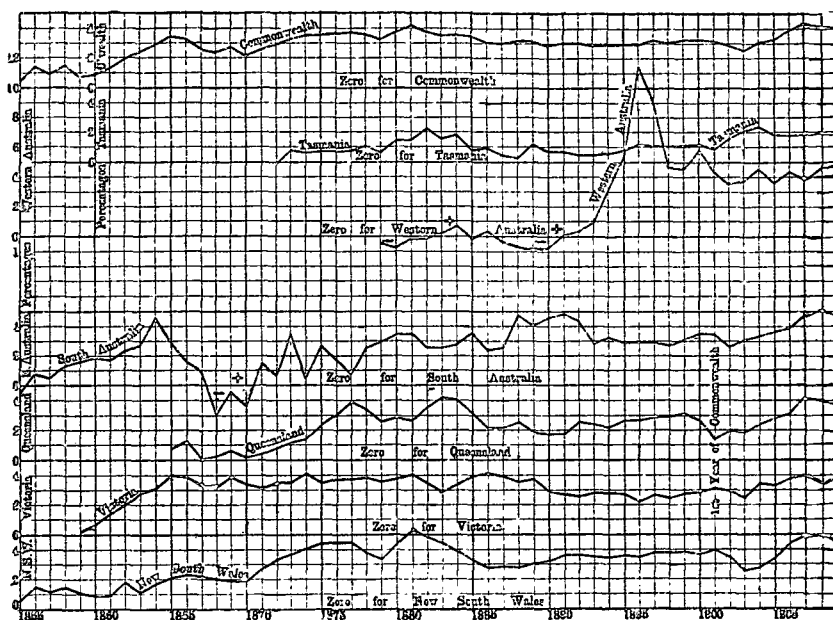


(See page 709.)

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

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

GRAPHS SHEWING PERCENTAGES OF NET REVENUE TO CAPITAL COST OF GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 to 1909.



(See page 711.)

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

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

The curve for Victoria commences only 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.

building stone, chalk, charcoal, clay, coal and coke, drain pipes and tiles, firewood, horns and hoofs, ice, scrap iron, lead, manures, rabbit-proof netting, posts and rails, and shale.

21. Numbers and Description of Rolling Stock, 1909.—The following table shews, so far as possible in a comparable manner, the number of locomotives and of various classes of rolling stock in use on the Government railways in each State. The figures given are subject to certain limitations, inasmuch as the classification adopted, as well as the various types of rolling stock in use, are not identical in the several States. In Victoria and Queensland, for example, the brake-vans classified under the heading of coaching vehicles are used indiscriminately for coaching and goods traffic. Again, it is believed that in New South Wales the number of passenger vehicles is really greater than that shewn, certain of the other classes of vehicles being used for composite purposes:—

CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK, 1908-9.

State ...	N.S.W.	Victoria.			Qld.	South Australia.			N.T.	W.A.	Tasmania.		Cwlth.
Gauge...	ft. in. 4 8½	ft. in. 5 3	ft. in. 2 6	ft. in. 3 6	ft. in. 5 3	ft. in. 3 6	Tram- ways. ft. in. 5 3	ft. in. 3 6	ft. in. 3 6	ft. in. 3 6	ft. in. 3 6	ft. in. 2	—
1. Locomotives.													
Tender ...	655	...	...	389	90	*166	...	5	...	...	66	...	
Tank ...	143	...	8	39	72	7	...	1	...	...	7	5	
Total ...	798	495	8	428	162	173	...	6	315	...	73	5	2,463
2. Coaching Stock.													
Passenger vehicles	925	1,237	17	487	236	111	13	4	330	...	177	6	
„ (Joint stock)	...	11	...	...	7	...	...	...	...	...	...	...
Brake vans	111	307	...	131	31	27	...	3	20	...	15	...	
„ (Joint stock)	...	4	...	...	3	...	...	...	...	...	...	...
Horse boxes	...	...	...	...	18	...	...	...	54	...	38	...	
Carriage trucks	...	...	...	...	...	...	...	...	...	...	...	...
Post office vans	...	...	...	...	2	14	...	...	4	...	...	...
Other chg. vehicles	...	...	...	...	3	3	...	...	6	...	...	...
Total ...	1,325	1,784	17	713	300	185	13	7	414	...	233	6	4,997
3. Goods and Live Stock Waggon.													
Waggon ...	13,276	10,886	106	8,495	2,276	3,834	78	130	6,578	1,514	67		
Brake vans	373				59	89	...	1	131				
Departmental	1,018				103	113	...	6	...				
Total ...	14,667	10,886	106	8,495	2,438	4,036	78	137	6,709	1,514	67		49,133

* Not including 2 passenger motors.

22. Number of Railway Employees, 1901 to 1909.—The following table shews the number of employés in the Railway Departments of each State in the year 1901 and in each year from 1905 to 1909 inclusive, classified according to (a) salaried staff, and (b) wages staff.

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

**GOVERNMENT RAILWAYS.—NUMBER OF EMPLOYEES IN RAILWAY DEPARTMENTS,
1901 to 1909.**

State.	1901.		1905.		1906.		1907.		1908.		1909.	
	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.
New South Wales*	1,372	11,747	1,605	11,685	1,650	11,823	1,770	13,411	1,985	15,939	2,163	17,295
Victoria ...	1,432	10,524	1,499	11,049	1,515	11,432	1,586	12,492	1,651	12,936	1,646	12,861
Queensland ...	994	4,633	890	4,146	906	4,222	949	4,491	1,256	4,766	1,237	6,583
South Australia†	—	3,855	—	3,519	—	3,520	—	5,531	—	6,326	—	6,358
Northern Territory†	—	51	—	54	—	54	—	72	—	75	—	—
Western Australia	876	5,407	930	5,818	923	5,480	921	4,895	802	4,805	769	4,906
Tasmania ...	178	1,252	178	980	—	1,039	177	1,030	182	1,077	190	1,111
Commonwealth ...	4,852	37,469	5,102	37,251	5,177	37,575	5,403	41,922	5,876	45,924	6,005	49,114

* Exclusive of gate-keepers with free house only. † Separate returns for salaried and wages staffs are not available; the number of salaried staff is included with the wages staff.

23. **Accidents.—Numbers of Killed and Injured, 1901 to 1909.**—The subjoined tables give particulars of the number of persons killed and injured through train accidents and the movement of rolling stock on the Government railways in each State for the years 1901 to 1909:—

**GOVERNMENT RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED,
1901 to 1909.**

State.	1900-1.		1904-5.		1905-6.		1906-7.		1907-8.		1908-9.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales	†	†	26	169	36	186	28	287	44	355	43	249
Victoria ...	45	371	25	446	52	630	46	498	78	970	45	451
Queensland ...	13	100	10	83	7	104	11	136	3	143	11	201
South Australia ...	8	50	9	25	9	64	12	112	15	132	12	155
Northern Territory	...	...	...	1	1	2	...	2	1	...	...	...
Western Australia*	5	205	11	405	16	320	11	257	14	271	16	284
Tasmania ...	1	8	1	30	1	11	3	27	2	21	2	28
Commonwealth	...	...	82	1,159	122	1,317	111	1,319	157	1,892	129	1,368

* The returns up to and including the year 1904-5 are for accidents to servants of the Railway Department only. † Not available.

(c) Graphical Representation of Government Railway Development.

1. **General.**—Its railways are so important a factor in the development of Australia that it has been deemed desirable to graphically represent the main facts of their progress from their beginning, viz., from 1855 onwards. To this end the graphs shewn on pages 724 to 726 have been prepared. The distribution of the railways is shewn on the map on page 723.

2. **Capital Cost and Mileage Open** (page 724).—The graph shows that the ratio between these elements was, naturally enough, very variable from 1855 to 1870, consequent upon progressive decrease in cost of construction. It then became subject to a more regular change, implying reduction of average cost.

3. **Cost per Mile Open**.—The fluctuations in cost per mile open are clearly indicated by the graph on page 724. 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 1883—when it reached £10,496 per mile—then slowly till 1887, when it amounted to £10,017 per mile. Again rising, this rate attained to £10,537 in 1892, since which it has, on the whole, been declining, attaining its lowest value, £9512, in 1909.

4. **Gross Revenue**.—This graph (page 724) exhibits considerable irregularities, the most striking of which are the maxima at 1892 and 1902. 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.

5. **Working Expenses and Net Revenue**.—The characteristics of these graphs (page 724), are similar to those of "Gross Revenue," and the same remarks apply. It may be noted, however, that the working expenses are increasing at a much slower rate than gross and net revenue.

6. **Percentage of Working Expenses to Gross Revenue**.—This is shown for each State and for the Commonwealth on page 725, and for the Commonwealth only, on a larger scale, on page 724. The curve 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, and therefore very satisfactory, decline in the percentage of working expenses to gross revenue. The fluctuations of this percentage, for the individual States, call for no special comment.

7. **Percentage of Net Revenue on Capital Cost**.—For the Commonwealth this graph is shown on a large scale on page 724 and on page 726 both for Commonwealth and States. After exhibiting somewhat remarkable oscillations in the earlier years, and less marked ones between 1885 and 1900, and also a rapid fall to 1903, the curve from that year shows a well marked increase until the year 1907, a slight fall occurring in the last year. Maxima were reached in 1865, 1877, 1881, and 1907—viz., 3.44, 3.71, 4.14, and 4.35 per cent.

For the individual States the results are in general very satisfactory, the increases in the percentages recently being greatest for Queensland, New South Wales, and South Australia, less marked for Victoria and Tasmania, and oscillatory for Western Australia.

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

8. **General Indications of Graphs**.—Reviewing the cost of railways, as a whole, it may be noted that for the periods indicated the average cost on the entire total runs as follows:—

Period ...	1855-1872.	1873-1882.	1883-1892.	1893-1897.	1898-1902.	1903-1909.
Cost per mile ...	£ 24,561	£ 13,700	£ 10,286	£ 10,167	£ 9,852	£ 9,566

With the exception of the last year, when bad seasons occurred just at the time when rates had been reduced in some of the States, the percentage of working expenses on the gross revenue has lately been rapidly falling, while the percentage of net revenue on total capital cost has been rising even more rapidly. For the period 1903 to 1907 the fall in percentage of working expenses on gross revenue was from 68.80 to 57.18 per cent., while the rise of the percentage of net revenue on total capital cost was from 2.53 to 4.35 per cent.

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 and 1903, (b) by the fall in the percentage of net revenue on capital cost, and (c) by the increase of working expenses on gross revenue, the rapidity of recovery is even more striking, and goes to indicate the great elasticity of the economic condition of the Commonwealth. Still more remarkable is the fact that a group of 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 £143,375,340 for construction and equipment up to the 30th June, 1909, should, nevertheless, yield so large a revenue, bringing in for the year 1908-9 a return, as pointed out, of no less than 4.13 per cent.

(D.)—Private Railways.

1. **Total Mileage Open, 1909.**—As has been stated in a previous part of this Section (see A. 3) 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, have been laid down for the purpose of hauling timber, coal, or other minerals, and are not generally used for the conveyance of passengers or for public traffic; in many cases they are often practically unballasted and are easily removable, running through bush and forest country in connection with the timber and sugar-milling industries, and for conveying firewood for mining purposes. Many of these lines may perhaps be said to be rather of the nature of tramways than of railways. Private railways referred to herein include (a) lines open to the public for general passenger and goods traffic; and (b) branch lines from Government railways and other lines which are used for special purposes and which are of a permanent description. Other lines are referred to in the part of this Section dealing with Tramways (see § 3, *Tramways*).

The following table gives particulars of private railways in the Commonwealth open for traffic up to the 30th June, 1909:—

MILEAGE OF PRIVATE RAILWAYS OPEN, 1909.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
For general traffic ...	141	14½	346	...	277	165½	943½
For special purposes*	124½	32½	21½	58	361½	38½	637
Total ...	265½	47	367½	58	638½	204½	1,580½

* Particulars as at the 30th June, 1908.

A classification of these lines according to their gauge has already been given (see A. 6). The particulars given in the above table and in the remaining parts of this section regarding private lines used for special purposes are as up to the 30th June, 1908; it is not proposed, for various reasons, to collect each year particulars of such lines.

2. **Classification of Private Railways, 1908-9.**—The subjoined statement gives particulars regarding private railways, so far as returns are available, in each State for the year 1908-9. In this statement the lines inset are sub-branches from the main branches specified.

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1908-9.

Railway Lines.	Gauge.	Length	Nature of Traffic Carried, etc.
NEW SOUTH WALES.			
1. BRANCHES FROM NORTHERN LINE, N.S.W. GOVT. RLYS.—	ft. in.	Miles.	
Aberdare Extended Cessnock	4 8½	16½	Coal and passengers
East Greta to Stanford-Merthyr and branches	4 8½	8	" "
Hexham-Minni	4 8½	6	" "
Brown's line to Richmond Vale	4 8½	11½	Coal
Three other sub-branches	4 8½	5	"
Newcastle-Wallsend Co.'s lines	4 8½	4½	"
Five sub-branches... ..	4 8½	4	"
Waratah Coal Co.'s line	4 8½	4½	"
Old Burwood Pit	4 8½	7½	"
Gunnedah Coal Co.'s line	4 8½	4½	"
Twelve other branches	4 8½	16	Coal, coke, ores & stone
Total	4 8½	88½	
2. BRANCHES FROM NORTH-COAST LINE GOVT. RAILWAYS—			
New Redhead Coal Co.'s lines, Adamstown to Burwood			
Extended, and Dudley lines	4 8½	8	Coal and passengers
Seaham Coal Co.'s lines, Cockle Creek to West Wall-			
send and Seaham collieries	4 8½	6	" "
Nine other branches	4 8½	9	Coal
Total	4 8½	23	
3. BRANCHES FROM SOUTHERN LINE, N.S.W. GOVT. RLYS.—*			
Liverpool-Warwick Farm	4 8½	¾	Racecourse traffic
4. BRANCHES FROM S. COAST LINE, N.S.W. GOVT. RLYS.—†			
Mount Kembla Coal Co.	4 8½	7½	Coal
Corrimal and Balgownie	4 8½	3½	"
Australian Smelting Co., Dapto	4 8½	2½	Ores
Mount Keira Coal Co., Belmore Basin	4 8½	3	Coal
Nine other branches	4 8½	13½	"
Mount Pleasant Coal Co.	3 6	3½	"
Total	4 8½ 3 6	30½ 3½	
5. BRANCHES FROM WESTERN LINE, N.S.W. GOVT. RLYS.—			
Commonwealth Oil Corporation's line from Newnes			
Junction	4 8½	32	General
Eleven other branches	4 8½	6½	Coal, metal, and ores
Total	4 8½	38½	
6. SILVERTON TRAMWAY—			
Broken Hill and Cockburn	3 6	36	General
7. DENILQUIN-MOAMA LINE	5 3	45	"
Total for State	4 8½ 3 6 5 3	180½ 39½ 45	

* Three other branch private lines having a total length of 24 miles have been constructed for the conveyance of minerals, but are now closed. † The Illawarra Harbour and Land Corporation's line, 6½ miles long constructed for general traffic, is not now working.

Railway Lines.	Gauge.	Length	Nature of Traffic Carried, etc.
VICTORIA.*			
1. KERANG TO KONDROOK TRAMWAY	ft. in. 5 3	Miles. 14	General
2. ALTONA BAY RAILWAY— Williamstown racecourse and pit at Altona	5 3	2½	Sand and stone
3. CHARLOTTE PLAINS DEEP LEAD MINES— Maryborough-Castlemaine line to mines	5 3	2	Goods, minerals, and timber
4. McIVOR TIMBER CO.'S LINE— Bendigo-Wallan line into bush	5 3	24	Timber
5. SANDERSON'S TRAMWAY— Forrest railway station to Barwon River	3 6	4	"
Total for State... ..	5 3 3 6	42½ 4	

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

QUEENSLAND.

	ft. in.	Miles.	
1. BRANCHES FROM GREAT NORTHERN LINE, GOVT. RLYS.— Ayr tramway (Stuart's Creek to Ayr)	3 6	44	General (chiefly sugar)
Three other lines	3 6	2½	Mineral traffic
2. BRANCHES FROM NORTH-COAST LINE, GOVT. RAILWAYS— Bundaberg to Millaquin	3 6	2	Sugar
3. BRANCH FROM WESTERN LINE, GOVT. RAILWAYS— Munro's tramway to Perseverance	3 6	10	Timber & farm produce
Gulland's lines to coal mines	3 6	1½	Coal
Stafford's lines to coal mines	3 6	½	"
4. BRANCHES FROM CAIRNS LINE, GOVT. RAILWAYS— †Cairns-Harvey Creek	3 6	31	General (chiefly sugar)
Greenhill branch	2 0	5	Sugar
Chillagoe railway, Mareeba to Mungana	3 6	103	General (chiefly coal and
Mount Garnet tramways, Lappa Jn'tn to Mt. Garnet	3 6	33	" " (minerals)
Stannary Hills tramway, Boonmoo to Rocky Bluffs	2 0	21	" " "
Mount Molloy tramway	3 6	20	" " "
5. BRANCHES FROM MACKAY LINE, GOVT. RAILWAYS— *Pioneer shire tramway, Benholme to Kirkup	3 6	7½	" (chiefly sugar)
*Pinnacle to Finch Hatton	3 6	5½	" " "
6. BRANCH FROM SOUTH-COAST LINE, GOVT. RAILWAYS— †Beaudesert tramway to Innes Plain and Xmas Creek	3 6	21	" (chiefly timber
7. INGHAM TRAMWAY— Ingham to Stone River	2 0	18	General [and dairy produce
8. GERALDTON TRAMWAY— Geraldton towards Herberton	2 0	20	" (chiefly sugar)
9. MOSSMAN TRAMWAY— Port Douglas to S. Mossman and Mowbray Rivers	2 0	17	"
Total for State... ..	3 6 2 0	281½ 81	

* Worked by Commissioner of Railways on behalf of construction authorities. † Two extensions amounting to 10½ miles are proposed. ‡ An extension 6½ miles long was in course of construction in August, 1909.

WESTERN AUSTRALIA.*

	ft. in.	Miles.	
1. MIDLAND RAILWAY— Joining Govt. lines at Midland Junction and Walkaway	3 6	277	General
2. W.A. GOLDFIELDS FIREWOOD SUPPLY CO.'S LINE— From Kurrawang into bush	3 6	70	Firewood
3. KALGOOLIE AND BOULDER FIREWOOD CO.'S LINE†— From Lake Side railway station into bush	3 6	33	"
4. W.A. JARRAH SAWMILLS LINE— From Kirkup to mills and into bush	3 6	12	Timber
5. TIMBER CORPORATION CO.'S LINE— From Greenbushes to mills and into bush	3 6	12	"
6. S.-WEST TIMBER HEWERS' CO-OP. SOCIETY'S LINE†— From Collie into bush	3 6	9½	"
7. MILLAR'S KARRI AND JARRAH CO.'S LINES†— Upper Darling Range railway, from Pickering Brook to Canning mills and bush	3 6	11½	"
Jarrahdale and Rockingham railway, from Mundigging to Rockingham and bush	3 6	50½	"
Yarloop railway to mills and bush	3 6	59½	"
Mornington mills rly., from Wokalup to mills and bush	3 6	26½	"
Ferguson River railway, from Dardanup to mills and into bush	3 6	25½	"
Karridale railway, to Hamelin and Flinders Ports from Karridale and into bush	3 6	51	"
Total for State... ..	3 6	638½	

* To the 31st December, 1907. † On 31st December, 1907, there were also 45 miles, from Lancefield into the bush, under construction. ‡ In February, 1907. Two miles also under construction. § At end of 1907 there were also 4 miles under construction.

Railway Lines.	Gauge.	Length	Nature of Traffic Carried, etc.
SOUTH AUSTRALIA.			
BROKEN HILL PROPRIETARY CO.'S LINE— Iron Knob to Spencer's Gulf	ft. in. 3 6	Miles. 58	Carriage of ironst ⁿ e flux
TASMANIA.			
1. EMU BAY RAILWAY CO.'S LINES— Burnie to Waratah Guildford Junction to Brewery Junction Zeehan to Maestris	ft. in. 3 6 3 6 3 6	Miles. 103	General
2. MOUNT LYELE MINING AND RAILWAY CO.'S LINES— Regatta Point to Queenstown Linda to Kelly Basin	3 6 3 6	22 30	" "
3. SANDFLY COLLIERY CO.'S LINE— North-west Bay Co.'s jetty to mine	2 0	12	Minerals
4. HUON TIMBER CO.'S LINE*	3 6	13	Timber
5. TASMANIAN GOLD MINING CO.'S LINE— Beaconsfield to Beauty Point†	3 6	3½	Minerals and occasion- ally passengers
6. ZEEHAN TRAM CO.'S LINE— Emu Bay railway to British Queen	2 0	2½	Minerals and occasion- ally passengers
7. DUCK RIVER RAILWAY— 'Leesville to Parish of Williams†	3 6	8	Chiefly timber
8. MAGNET SILVER MINING CO.'S LINES— Magnet Junction to Magnet	2 0	10	Minerals and passengers
Total for State... ..	3 6 2 0	179½ 24½	

* Terminal points not fixed in May, 1908; as extensions still under construction. † Also branch lines as follows:—Electric railway, $1\frac{1}{2}$ miles long, to reduction works, 2 ft. gauge; surface railways, horse, $\frac{1}{2}$ mile long, 2 ft. gauge. ‡ Extensions under construction.

3. **New South Wales.**—In this State the mileage of private railways open to the public for general traffic on the 30th June, 1909, was 141, and of lines used for special purposes (in 1908) was $124\frac{1}{2}$ 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 1908-9 of the operations of lines open for general traffic are given, so far as available, in the table on page 736.

(i.) *Private Railways Open for General Traffic.* The most important of the lines open for general traffic are as follows:—(a) *The Deniliquin-Moama Line.* In 1874 permission was granted by the New South Wales Government to a private company to construct a line forty-five miles long from Deniliquin, in the Riverina district, to Moama, connecting with the Victorian Railway system at the Murray Bridge, near Echuca. The line was opened in 1876, the land required being granted by the Government. (b) *The Cockburn-Broken Hill Line.* This line is owned by the Silverton Tramway Company. It was opened in 1888, and connects Broken Hill with the South Australian railway system, having a total length of 36 miles. (c) *East Greta Line.* This line, belonging to the East Greta Coal Mining Company, runs from East Greta Junction, on the Northern line of the Government railways, to Stanford Merthyr, a distance of 8 miles. (d) *The New Redhead Coal Company's Railway.* The lines owned by this company branch from the North-coast line of the Government railways, and run from Adamstown to Burwood Extended colliery, and from Dudley Junction to Dudley colliery, a total distance of 8 miles. The lines are worked by the Railway Department, coal waggons being supplied in part by the coal companies using the line. The colliery companies using the line pay a way-leave for right to run their coal over the line, and the Railway Commissioners allow the New Redhead Company a proportion of the revenue from the passenger and goods traffic. (e) *The Seaham Coal Company's*

Railways. This line runs from Cockle Creek to West Wallsend and Seaham Collieries, and has a total length of 6 miles. The company leases six passenger coaches from the Government railways, by whom all goods and live stock traffic on the line is handled. (f) *Hexham-Minni Railway.* This line branches from the Northern line of the Government railways and has a length of 6 miles. Further particulars are not available. (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 32 miles. Three of the Shay geared type of locomotives (see p. 703 hereof) are in use on this line. (h) *The Warwick Farm Line* is a short line, three-quarters of a mile in length, connecting the Government line near Liverpool with the Warwick Farm Racecourse. Government rolling-stock is used.

In addition to the lines referred to above, legislative sanction was obtained in 1890 for the construction of a private line from the flux quarries at Tarrawingee to the Broken Hill line, a distance of 40 miles. The line was purchased by the Government in 1901, and was leased to the Silvertown Tramway Company to work for a period of five years at an annual rent of 3 per cent. on the capital outlay.

4. **Victoria.**—In Victoria the only private railway open for general traffic is the Kerang-Kondrook tramway, opened in 1889. The cost of construction of this line to the end of 1907 was £29,013, paid out of a loan advanced by the Victorian Government. The total length is $14\frac{1}{2}$ miles. The line is at present controlled by the Kerang Shire Council, but proposals have recently been made for its transfer to the Railway Department.

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

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

(i.) *Mining Railways.* (a) *The Chillagoe Railway.* The most important of these is the Chillagoe railway, constructed under the Mareeba to Chillagoe Railway Act 1897, and opened in 1901. This line runs from Mareeba, on the Cairns railway, to Mungana, a distance of 103 miles. (b) *The Stannary Hills Line.* This line branches from the Chillagoe railway at Boonmoo and runs to Rocky Bluff, via Stannary Hills, a total distance of 21 miles. The gradients on this line, which has a gauge of 2 feet, range as high as 1 in 27, while the radius of some of the curves is as low as $1\frac{1}{2}$ chains. An additional length of 8 miles has been surveyed with a view to extending the line. (c) *The Mount Garnet Railway.* This line also branches from the Chillagoe railway at Lappa Junction, and runs for a distance of 33 miles, as far as Mount Garnet.

(ii.) *Shire Tramways.* Under Part XV. of the Local Authorities Act of 1902 provision is made whereby not less than one-third of the ratepayers in any district may petition the local authority to apply to the Governor for the constitution of a tramway area. The Governor may define the area and may also approve of the plans and specifications of the proposed tramway. The amount which may be advanced by the Government for the construction or purchase of a tramway may not exceed a sum equal to £3000 for every mile of its length. As regards repayment of loans, no sum need be paid during the first three years, but after the expiration of that period the principal and interest must be repaid by half-yearly instalments on the basis provided for by the "Local Works Loans Act 1880 to 1899." For the purpose of raising the money to pay these instalments the local authority may levy a rate upon all ratable property within

the tramway area. The money required for the tramway may be raised by the local authorities by the issue of debentures.

At the end of the year 1908 there were seven shire tramways in operation having a total length of 161 miles. Particulars are given in paragraphs 2 and 9 hereof.

6. South Australia.—In this State there are no private railways open for general traffic. The only private line is that owned by the Broken Hill Proprietary Company, running from Iron Knob to the seaboard near the head of Spencer's Gulf, a distance of 58 miles. The line is used for the carriage of flux for use in connection with the smelting works at Port Pirie.

7. Western Australia.—Owing to the Government's past difficulty in constructing lines, urgently required for the development of the country, private enterprise was encouraged to undertake the work of construction on the land-grant principle, and two trunk lines were thus constructed. The greater part of the private lines now open, however, have been constructed in connection with the timber industry. (i.) *The Midland Railway.* This line is 277 miles in length, and runs from the Midland Junction, ten miles from Perth, to Walkaway, where it joins the Government line running to Geraldton. It was constructed under a concession of 12,000 acres of land per mile of line constructed, to be selected along the entire route of the railway. (ii.) *The Great Southern Railway.* This line, which was built by private enterprise under the land-grant system, is 243 miles in length, and was acquired by the Government by purchase on the 1st January, 1897. The total price paid, with all the interests of the private company and of the original concessionaire, was £1,100,000, which was divided by the Government for book-keeping purposes into £300,000 for the land and £800,000 for the railway. (iii.) *Millar's Karri and Jarrah Company's Lines.* These lines have mostly been built under special timber concessions and leases. There were, at the end of the year 1907, in all eight lines situated in various parts of the State extending into the bush, whence logs are brought to the mills. At the end of 1907 the total length of these lines was 294 miles, and the total capital expended was £330,945. The company owned 21 locomotives, 6 passenger coaches, and 718 goods and timber trucks. Two of these lines have recently been taken over by the Government.

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

(i.) *The Emu Bay Railway Company.* The lines owned by this company run from Burnie to Waratah, from Guildford to Zeehan, and from Rayna to Dundas, and have a total length of 103 miles.

(ii.) *The Mount Lyell Mining and Railway Company.* The Mount Lyell railway runs from Regatta Point, Strahan, to Queenstown, and the North Mount Lyell line from Kelly Basin to Linda. The former line, 22 miles in length, was constructed in 1895-6, while the latter line, 30 miles long, was taken over from the North Mount Lyell Copper Company on the amalgamation of the two companies in 1903. The line from Kelly Basin to Linda is now run only intermittently.

(iii.) *The Magnet Silver Mining Company's Railway.* This line runs from Magnet Junction, near Waratah, on the Emu Bay Company's line to Magnet, a distance of 10 miles.

9. Operations of Private Railways, 1909.—The tabular statement given below shews particulars, so far as returns are available, for the year 1908-9 of all private railways open to the public for general traffic in the Commonwealth :—

PARTICULARS OF PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC, 1908-9.

Line.	Miles Open.	Capital Cost.	Gross Revenue.	Expenses.		Train Miles.	Passenger Journeys.	Tons of Goods, etc.	No. of Employes.	Rolling Stock.				
				Working.	Interest.					Locos.	Coaches.	Waggons.		
NEW SOUTH WALES.														
Deniliquin-Moama	No. 45	£ 162,672	£ 17,888	£ 9,497	£ 880	No. 37,360	No. 14	Tons. 34	No. 52	No. 4	No. 9	No. 60		
Silverton Tramway	36	405,365	148,018	56,981	...	154,915	49	883	234	16	17	600		
East Greta Railway	8	103,399	16,290	9,774	11,718	262,462	519	31	195	13	27	24		
Seaham Colliery Co. ...	6	16,000	3,000	*	6,780	25	7	7	7	2	†	†		
New Redhead Co. ...	8	90,000	5,643	1,522	3,258	*	*	*	9	†	†	†		
Hexham-Minmi	6	*	1,520	874	...	9,048	19	2	12	3	4	1		
¶ Cwllth. Oil Corp'r'n	32	150,000	...	...	...	...	...	...	...	...	...	...
Total\$...	141	927,436	192,359	78,648	15,856	470,565	626	957	509	38	57	685		

VICTORIA.

Kerang-Kondrook ...	14	29,213	3,252	1,658	1,160	19,000	8	*	8	2	1	6
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QUEENSLAND.

Chillagoe Railway	103	409,783	109,360	39,791	...	154,364	49	171	138	6	2	150
Stannary Hills ...	21	63,890	9,736	6,676	*	35,614	6	41	12	4	3	76
Mount Garnet ...	33	100,000	3,741	3,683	...	15,170	5	3	14	†	†	†
Ayr Tramway ...	44	79,907	14,492	3,739	3,942	21,148	20	30	14	†	†	†
Beaudesert ...	21	58,367	6,327	2,947	2,905	17,724	10	12	17	1	3	†
Cairns-Mulgrave ...	36	103,537	16,525	10,638	8,333	50,871	55	98	40	5	6	190
Douglas-Mossman ...	17	33,590	5,080	3,120	1,808	6,525	10	14	14	2	3	21
Ingham Tramway ...	18	28,696	1,505	88	1,407	*	1	*	*	*	1	*
Cattle Ck. and Mc-												
Gregor's Ck. T'way	13	21,590	2,504	1,101	865	5,166	12	25	6	1	3	22
Geraldton Tramway	20	49,938	4,582	3,255	1,362	21,983	4	25	13	2	2	21
† Mt. Molloy ..	20	46,624	2,136	1,152	...	2,600	1	3	9	1	1	10
Total ...	346	995,922	175,938	76,190	20,622	331,165	173	422	277	22	24	420

WESTERN AUSTRALIA.

Midland Railway ...	277	*	96,706	54,924	*	361,061	49	£57	265	10	10	178
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TASMANIA.

Emu Bay Railway...	103	599,796	57,056	32,797	22,962	144,052	32	61	105	9	6	140
Mt. Lyell Railway...	22	216,086	31,890	21,650	...	48,487	32	123	75	7	7	127
Nth. Mt. Lyell Rly.	30	316,638	2,250	4,000	...	6,553	4	7	17	4	3	57
Magnet Railway ...	10	20,101	1,456	1,766	...	9,000	*	*	7	2	1	4
Total ...	165	1,152,621	92,652	60,213	22,962	208,092	68	191	204	22	17	328
Total for Cwllth.\$	943	3,105,192	560,907	271,633	60,600	1,389,883	924	1,627	1,263	94	109	1,617

* Not available. † Government rolling-stock used. ‡ Exclusive of 192,000 head of live stock.
 § Incomplete. ¶ Open for general traffic from June, 1909. ¶ Open for traffic in August, 1908;
 particulars are from August to December, 1908.

3. Tramways.

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

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

(i.) *Total Mileage Open and Classification of Lines.* The following table shews the total mileage of tramway lines open for general passenger traffic in each State and in the Commonwealth at the end of the year 1909, classified (a) according to the motive power utilised and (b) according to the nature of the authority by which the lines are controlled:—

TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC, 1909.

Nature of Motive Power or Controlling Authority.		N.S. Wales.	Victoria.	Q'land.	*South Australia.	Western Australia.	Tas.	C'wealth.
ACCORDING TO MOTIVE POWER.								
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric	...	105	34½	30½	24½	47½	9	251½
Steam	...	53½	1	—	—	2½	—	56½
Cable	...	—	45½	—	—	—	—	45½
Horse	...	—	13	—	—	23	—	36
Total	...	158½	94½	30½	24½	73	9	389½
ACCORDING TO CONTROLLING AUTHORITY.								
Government	...	151½	5½	—	—	23	—	179½
Municipal	...	—	—	—	24½	6½	—	31
Private	...	7	89½	30½	—	43½	9	179½
Total	...	158½	94½	30½	24½	73	9	389½

* Exclusive of horse tramways in metropolitan district, now in course of electrification.

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, 1909, five such systems in operation within the metropolitan area, the most important being the city and suburban lines—88½ miles in length (150 miles single track)—and the North Shore line—15 miles in length (19½ miles single track). Both of these systems are now operated by electricity. There are three systems on which the motive power used is steam, namely—(a) the line

from Ashfield to Mortlake and Cabarita, $8\frac{1}{2}$ miles long, (b) the line from Kogarah to Sans Souci, $5\frac{1}{2}$ miles in length, and (c) the steam tramway at Manly, $1\frac{1}{4}$ miles long. There are also Government steam tramways in operation at Newcastle, Broken Hill, Parramatta, and from East to West Maitland.

(a) *Sydney Tramways.* The first tramway constructed in Sydney ran from Bridge-street to Hay-street via Hunter-street. It was opened in September, 1879, and the motive power was steam. In the following few years these steam tramways were considerably extended. The electric system was not introduced into the city until the close of the year 1899, though it had at that time been in operation for some years in North Sydney. The tramways in the heart of the city, running along King-street to the suburb of Woollahra, as well as those in North Sydney, were originally worked by underground cables, and have since been converted into electric lines on the overhead trolley system. In December, 1899, the electric tramway, extending from the Circular Quay along George-street to the Redfern Station, and thence to the densely-populated district of Pyrmont, was opened for traffic. This tramway is a double track, and is $3\frac{1}{4}$ miles in length. Single lines have been constructed along Castlereagh and Pitt streets, with the object of relieving the traffic along George-street. The whole of the steam tramways in Sydney and suburbs, with the exception of the Ashfield-Mortlake, the Kogarah-Sans Souci, and the Manly lines, have now been converted into electric lines, and provision for the extra power required for the electrification of the first two of these lines has been made at the central station.

(b) *Other Tramway Systems.* In Newcastle the first section of the tramways, from Perkins-street to Plattsburg, was opened in 1887; the total length open on the 30th June, 1909, was 17 miles. At Broken Hill and Parramatta the first sections of the tramways were opened in 1902. On the 30th June, 1909, the mileage open at Broken Hill amounted to $6\frac{3}{4}$, and at Parramatta to $4\frac{1}{2}$ miles. The line from East to West Maitland, 34 miles long, was opened in February, 1909. There are also three short lengths of tramways in New South Wales run by private companies. Further particulars are given below.

(c) *Particulars of all Government Tramways, 1901 to 1909.* The following table shews the total length, the capital cost, the gross revenue, working expenses, and net earnings, and the percentages of working expenses on gross revenue, and of net earnings on capital cost, for each financial year from 1900-1 to 1908-9 inclusive.

**NEW SOUTH WALES.—PARTICULARS OF WORKING OF GOVERNMENT TRAMWAYS,
1901 to 1909.**

Year ended the 30th June.	Total Length of Lines Open.	Capital Expended on Lines Open.	Gross Revenue.	Working Expenses.	Net Earnings.	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost.
	Miles.	£	£	£	£	per cent.	per cent.
1901 ...	79 $\frac{1}{4}$	2,194,493	551,674	462,471	89,203	83.83	4.07
1902 ...	104	2,829,363	631,757	541,984	89,773	85.79	3.19
1903 ...	124 $\frac{1}{2}$	3,371,587	752,034	654,165	97,869	86.98	2.90
1904 ...	125 $\frac{3}{4}$	3,471,759	802,985	673,625	129,360	83.89	3.73
1905 ...	125 $\frac{3}{4}$	3,637,922	813,569	685,682	127,887	84.28	3.51
1906 ...	126	3,669,096	851,483	665,083	186,400	78.11	5.08
1907 ...	128 $\frac{3}{4}$	3,669,524	908,701	727,947	180,754	80.11	4.92
1908 ...	132 $\frac{3}{4}$	3,732,991	1,011,994	809,065	202,929	79.95	5.44
1909 ...	151 $\frac{1}{4}$	*4,252,731	1,097,565	875,560	222,005	79.77	5.61

* £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 £142,831 for interest on the capital invested, was a surplus of £79,174 in 1908-9, as compared with £68,425 in the preceding year. During the last year 186,319,000 passengers were carried without any accident resulting in loss of life to any of the passengers.

(d) *Particulars of Different Systems of Government Tramways, 1908-9.* In the subjoined statement particulars are given of the working of the electric, steam, and horse tramways in Sydney, and of the other Government tramways at Newcastle, Broken Hill, and Parramatta :—

**NEW SOUTH WALES.—PARTICULARS OF THE WORKING OF THE VARIOUS
GOVERNMENT TRAMWAYS, 1908-9.**

Particulars.	Sydney.			New-castle. (Steam.)	Broken Hill. (Steam.)	Parramatta. (Steam.)	East to West Maitland (Steam.)	Total.
	Electric.	Steam.	Total.					
Length ...miles	103½	15½	119	17	6½	4½	4	151½
Total cost ... £	3,756,198	98,098	3,854,296	254,148	80,378	30,060	33,829	4,252,731
Gross revenue £	1,009,498	13,249	1,022,747	54,881	14,956	3,132	1,849	1,097,565
Working expenses £	785,404	15,491	800,895	51,618	17,428	3,901	1,628	875,560
Interest ... £	125,603	3,525	129,129	9,231	2,889	1,068	484	142,831
Profit/loss*... £	+98,491	-5,768	+92,723	-5,968	-5,361	-1,957	-263	+79,174

* The positive sign indicates a profit, the negative a loss.

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

Permanent Way.	Rolling Stock.	Power-house, Sub-stations, and Plant.	Machinery.	Workshops.	Furniture.	Total.
£2,414,588	£859,079	£842,303	£43,651	£90,718	£2,392	£4,252,731

The average cost per mile open was £15,958 for permanent way and £12,148 for all other charges, making a total of £28,106 per mile.

During the year 1908-9, seventeen new extensions, amounting in all to a length of 18½ miles, were opened for traffic. On the 30th June, 1909, nine extensions having a total length of 19 miles were under construction, and up to the same date seven additional extensions, amounting to about 16 miles, had been authorised for construction.

(e) *Sydney Electric Tramways.* The total length of the city and suburban lines is 88½ miles, and of the North Shore line 15 miles, making the total length of the electric tramways in Sydney 103½ miles. The current for the operation of these tramways is generated at the power-house at Ultimo, which has been erected at a total cost of £758,714, including the cost of the sub-stations and plant. The current generated at the power-house is partly continuous and partly alternating, and is used both for lighting and traction purposes. The standard voltage of the continuous current is 600; the alternating current is transmitted by means of high-tension cables to sub-stations, where it is converted to continuous current at the standard voltage. The total output of the power-house, for both lighting and traction purposes, during the year 1908-9, was 47,196,000 kilowatt-hours, of which the direct-current supply was 16,610,000, and the alternating current 30,586,000 kilowatt-hours. The output for traction purposes only was 42,298,779 kilowatt-hours. The following table gives particulars of the working of the electric tramways for each financial year from 1901 to 1909, inclusive :—

**NEW SOUTH WALES.—PARTICULARS OF SYDNEY ELECTRIC TRAMWAYS,
1901 to 1909.**

Year ended 30th June.	Mileage Open for Traffic (Single Track).	Total Cost of Construction and Equipment.	Gross Revenue.	Working Expenses.	Net Revenue.
	Miles.	£	£	£	£
1901	44½	1,017,321	258,161	201,149	57,012
1902	52	1,285,014	340,742	257,557	83,185
1903	113	2,610,287	560,693	420,718	139,975
1904	118½	2,715,748	670,608	515,043	155,560
1905	133½	3,124,140	705,132	559,565	145,567
1906	139	3,259,936	780,986	569,566	211,420
1907	141½	3,247,817	830,497	629,108	201,389
1908	146½*	3,288,480	925,224	735,442	189,782
1909	169½	3,756,198	1,009,498	785,404†	224,094

Year ended 30th June.	Output of Power-house for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Number of Cars in Use.	Number of Persons Employed.
	Kilowatt-hours '000	No. '000.	No. '000.	No. '000.	No. '000.
1901	10,043	3,993	49,069	337	2,173
1902	15,472	6,175	63,517	436	2,855
1903	25,542	11,184	100,341	629	3,745
1904	30,866	14,383	116,312	626	3,873
1905	30,197	14,783	122,626	682	4,069
1906	32,316	15,352	135,300	735	3,863
1907	33,941	15,631	144,038	727	4,044
1908	37,422	16,517	159,723	775	4,714
1909	42,299	17,813	173,733	906	5,514

* 103½ route miles. † Including £50,500 written off for depreciation, etc.

The net return on capital invested was 6.52 per cent. in 1908 as against 5.78 per cent. in the preceding year.

(ii.) *Private Tramways.* There are three private tramway lines in New South Wales open for general traffic. (a) There is an electric tramway running from Rockdale to Brighton-le-Sands, a distance of one and a-quarter miles. This line was originally opened as a steam tramway in 1885, but was subsequently converted into electric. The total cost to the end of 1908 was £13,000. During that year the number of tram-miles run was 23,226. (b) 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 three miles, where it connects with the Parramatta River steamers, conveying passengers and goods to and from Sydney. This line was opened for traffic in 1883. In 1908 the number of tram miles run was about 19,000, and the number of passengers conveyed about 64,500. (c) Another steam tramway runs between Fassifern and Toronto, on Lake Macquarie, a distance of two and three-quarter miles, and was first opened in 1891. The number of tram-miles run during the year 1908 was about 14,000.

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

(iii.) *Sydney Harbour Ferries.* As the ferry services on the waters of Port Jackson are mainly subsidiary to the suburban railway and tramway systems, it has been thought advisable to include them here rather than under shipping. Returns for the year 1908 were received from four companies, and shew that these companies had 61 boats in commission which were licensed to carry a total of 32,593 passengers, or an average of 534 per boat and per trip. The total number of passengers carried during the year

is stated as 23,737,353, an average of over 60,000 per day. In addition to the ordinary passenger traffic there are two lines providing for vehicular traffic, and thus affording the only rapid means of transit between the city and the northern suburbs. The four companies employed during the year a total of 719 persons. Their capital expenditure to the end of 1908 amounted to £210,000, the gross revenue during 1908 to £225,900, and the expenditure to £149,077, thus giving a net revenue of £76,823. 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 a number of tramway systems carried on under the control of various authorities, the most important being the cable system worked by the Melbourne Tramway and Omnibus Company. There are also two lines of electric tramways, one running from St. Kilda to Brighton, a distance of five and one-eighth miles, belonging to the Government, and under the control of the Railway Commissioners; the other, from Flemington Bridge to the Saltwater River and Keilor Road, a distance of seven and a-quarter miles, is run by a private company. Another electric tramway from Prahran to Malvern is in course of construction. There is also a private cable tramway, two and a-quarter miles in length, between Clifton Hill and Preston; and there are two private tramways worked by horses—one, seven miles in length, runs from Sandringham to Cheltenham via Beaumaris, the other, one and a-half miles long, from Brunswick to Coburg. There is a short steam tramway, about one mile long, at Sorrento. There are also systems of electric tramways at Ballarat and Bendigo, constructed and run by a private company. A number of tramways have been constructed for special purposes in various parts of the State under the provisions of the Tramways Act 1890.

(i.) *Melbourne Cable Tramways*. The Melbourne Omnibus Company began its services by the initiation of omnibus services in 1869, and in 1878 the company changed its name to the Melbourne Tramway and Omnibus Company, with a view to the introduction of a tramway system in the city and suburbs of Melbourne. It was not, however, until the year 1883, when the Melbourne Tramway and Omnibus Company's Act was passed, that the necessary authority was given by Parliament for that purpose. Under this Act the company was empowered to construct tramways in the streets of Melbourne and suburbs, with the consent of the municipalities interested, who had the option of electing to construct the tramways themselves. All the municipalities decided to exercise the option conferred upon them, and, according to the provisions of the Act, a Tramways Trust was formed. This body, which is composed of seven members from the Melbourne City Council and one member each from the councils of eleven of the surrounding municipalities, received full power to construct tramways, and to borrow money for that purpose, secured on the municipal properties and revenues and on the tramways themselves. The Trust raised sufficient funds to pay for the construction of the tramway tracks and the engine-houses from which the cables are worked. It was required by the original Act, as amended in 1897 and 1892, to complete the tramways by the end of the year 1893, and to grant a thirty-two years' lease of the tramways to the company, dating from the 1st July, 1884—when the liability for interest on the loans commenced—and expiring on the 1st July, 1916. The company is required to find sufficient capital to build the rolling-stock and to equip the lines and engine-houses with all necessary working requisites. The company pays to the Trust annually the interest due upon the loans raised, and also a sufficient sum as a sinking or redemption fund, to repay by its accumulation the principal of the loans raised by the Trust, and at the expiration of the lease must hand back the lines in good working order to the Trust. The expenses of the Trust were paid out of the loan up to the end of the year 1903, but since that date have been paid by the company to an amount not exceeding £1000 per annum, the municipalities being liable for the remainder. The total amount the Trust was empowered to borrow was £1,650,000, which has been raised in London by means of debentures bearing interest at $4\frac{1}{2}$ per cent. The premiums received amounted to £55,794,

making a total of £1,705,794. This amount had been expended by the end of the year 1893, when further loan expenditure ceased. The first line—that to Richmond—was opened to traffic in November, 1885, and the work being rapidly pushed on, the others were opened at short intervals, and the whole system was completed in 1891. The complete system consists of forty-three and a-half miles of double-track cable lines, using constantly over ninety miles of wire rope, and four and a-half miles of double-track horse lines.

(a) *Particulars of Working, 1901 to 1909.* The subjoined statement shows the tram mileage, the number of passengers carried, and the revenue and expenditure for each year ended the 30th June, from 1901 to 1909, inclusive:—

MELBOURNE CABLE TRAMWAYS.—PARTICULARS OF WORKING, 1901 to 1909.

Year ended the 30th June.	Tram Mileage.	Number of Passengers Carried.	Revenue.			Working Expenses.			
			Traffic Rec'pts.	Other.*	Total.*	Wages.	Repairs & Main- tenance.	Other.*	Total.*
	No.	No.	£	£	£	£	£	£	£
1901 ...	8,964,734	47,195,647	465,427	18,025	483,452	122,014	80,006	60,480	262,500
1902 ...	9,226,883	47,261,572	454,683	20,152	474,835	125,596	68,689	75,269	269,554
1903 ...	9,044,282	46,532,910	432,505	30,040	462,545	127,746	60,611	56,569	244,926
1904 ...	8,968,928	49,183,742	444,495	28,781	473,276	124,050	71,612	45,928	241,590
1905 ...	8,932,073	50,297,357	448,740	31,066	479,806	123,803	62,177	48,395	234,375
1906 ...	9,032,523	52,925,654	469,079	59,861	528,940	125,390	59,361	47,395	232,146
1907 ...	9,536,397	59,069,280	507,206	39,274	546,480	140,487	69,736	54,445	264,668
1908 ...	9,810,808	63,954,512	545,269	40,561	585,830	153,040	64,993	60,606	278,639
1909 ...	9,856,345	66,522,463	565,601	43,059	608,660	162,093	69,681	64,516	296,290

* Including amounts on account of omnibus lines.

It may be noted that the "Wages" item in the above table does not represent all that is paid in wages by the company, as a considerable portion is merged in the item "Repairs and maintenance;" the wages sheets of the company totalled, in 1908-9, the sum of £198,740. The figures under working expenses classed as "Other" comprise feed, fuel, licenses, rates, insurance, law costs, stationery and office expenses, salaries of staff, and directors' and auditors' fees.

(ii.) *Electric Tramways.* There are in Melbourne two electric tramway systems, namely (a) the St. Kilda-Brighton line and (b) the North Melbourne tramways.

(a) *The St. Kilda-Brighton Line.* Under the St. Kilda and Brighton Electric Street Railways Act 1904 the Board of Land and Works was authorised to construct a tramway from St. Kilda to Brighton. The amount of interest payable on the cost of the land acquired for the tramway was guaranteed by the municipalities of St. Kilda and Brighton for a period of twenty years, and authority was given by the Act to the municipalities to levy either a general or special rate not exceeding one shilling in the pound for the purpose of paying the guarantee. The profit, if any, during the first twenty years is to be set off in reduction of the guarantee. The line was opened for traffic in May, 1906, and the extension to Brighton Beach was opened in the following year. A proposal has been made to extend the line along the foreshore as far as Mordialloc. The total capital cost to the 30th June, 1909, exclusive of rolling-stock, was £42,586, and of rolling-stock was £15,468, making a total of £58,054. The subjoined statement gives particulars of the working of this line for the financial year ended the 30th June, 1909:—

ST. KILDA-BRIGHTON ELECTRIC STREET TRAMWAY, 1909.

Mileage Open.	Car Mileage.	Passengers Carried.	Gross Revenue.	Working Expenses.	Interest.	Net Loss.
5.13	338,214	1,265,492	10,941	9,075	2,038	172

The average fare paid per passenger was 2.06 pence in 1908-9 as against 2.16 pence in 1907-8. The gross revenue in 1908-9 was 7.76 pence per passenger car mile and £2132.75 per mile of track open. In the same year the percentage of working expenses on gross revenue was 82.94 as against 105.92 in the preceding year.

(b) *The North Melbourne Tramways*, extending through the northern suburbs to the Saltwater River and to Keilor Road, were constructed by a private company, and were opened for traffic towards the end of the year 1906.

(c) *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 towns.

(d) *Particulars of Working of all Electric Tramways, 1904 to 1909.* The following table gives particulars of the working of all electric tramways in Victoria for each year from 1904 to 1909 inclusive:—

VICTORIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1904 to 1909,

Year.	Current Generated for Traction Purposes at Central Stations.	Mileage Open for Traffic.	Total Cost of Construction and Equipment.	Gross Revenue.	Working Expenses.	Tram Miles Run.	Number of Passengers Carried.	Number of Cars in Use.	Number of Employees.
	Kilowatt-hrs. (000 omitted.)	Miles.	£	£	£	No. (000 omitted.)	No. (000 omitted.)	No.	No.
1904	331	10½	106,553	†	†	325	1,214	12	55
1905	463	10½	115,309	†	†	433	1,749	12	86
1906	703	23½	191,882	†	†	699	2,759	53	210
1907	1,790	34	222,486*	48,554*	34,522*	1,793	7,037	78	379
1908	1,562*	34½	272,180*	69,296	55,740	1,963	7,519	95	338
1909	2,185	34½	290,815	66,148	50,820	1,904	7,497	95	312

* Incomplete; the figures given are for 27½ miles only. † Not available.

(iii.) *The Prahran-Malvern Tramway.* This line is being constructed under the control of a trust, which consists of five members appointed by the city of Prahran and the town of Malvern. The total track mileage (including double track 2½ miles) is 6½ miles, exclusive of an extension half a mile long, which is being carried out independently by the town of Malvern. The estimated total capital cost of the joint line is £83,000, and of the Malvern extension £3500. The current will be 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 municipalities of Prahran and Malvern in proportion to the car mileage run in their respective districts.

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

4. **Queensland.**—In this State there is a system of electric tramways running through the streets of the city and suburbs of Brisbane and controlled by a private company which has its head office in London. The total length of the Brisbane system was thirty and three-quarter miles at the end of the year 1909. There are also a number of tramways, having a total length of 640 miles, run in connection with sugar mills. Particulars of Shire tramways have been given in the part of this section dealing with private railways (see pp. 734-5).

(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 1909 was approximately £1,250,000. It is understood that certain extensions of the system at an early date are contemplated. The following table gives particulars of these tramways for each calendar year from 1901 to 1909, inclusive:—

**QUEENSLAND.—BRISBANE ELECTRIC TRAMWAYS. PARTICULARS OF WORKING,
1901 to 1909.**

Year.	Current Generated.	Mileage Open for Traffic.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	Number of Persons Employed
	Kilowatt-hrs.	Miles.	No.	No.	£	£	No.	No.
1901...	3,192,955	21	2,756,443	16,183,801	111,483	64,710	79	375
1902...	3,852,308	24½	3,015,548	18,125,302	125,451	73,473	88	390
1903...	3,975,355	27	3,157,574	18,376,000	126,526	77,539	100	400
1904...	4,154,797	29	3,243,686	18,452,704	126,647	76,586	104	430
1905...	4,561,780	30¾	3,323,823	20,049,978	128,436	78,918	106	485
1906...	4,370,004	30¾	3,323,657	22,052,424	141,414	78,493	107	550
1907...	*	30¾	3,330,011	24,251,329	158,298	*	107	*
1908...	4,915,202	30¾	3,367,972	27,221,466	177,567	*	107†	619
1909...	5,099,663	30¾	3,321,803	29,732,338	192,371	*	*	614

* Not available. † Including 99 motors and 8 trailers.

(ii.) *Sugar-Mill Tramways.* There are a number of tramways in various parts of Queensland used in connection with the sugar-milling industry, chiefly for the purpose of hauling cane to the mills. Some of these lines are of a permanent nature, running through sugar-cane plantations, while others are portable lines running to various farms. At the end of the year 1908, there were 28 sugar-mills running tramways. The total mileage was 640, of which 460 miles were steam and 180 miles horse tramways.

5. **South Australia.**—Up to the year 1906 there were a number of horse tramways in the principal streets of Adelaide and suburbs run by various private companies. Power to acquire part of these lines, with a view to their electrification, was given to the Adelaide Corporation by the Municipal Tramways Trust Act 1906. In accordance with the provisions of the Act, a Trust consisting of eight members, of whom two were nominated by the Governor, two elected by the City Corporation, and two each by the Suburban Corporations and the District Councils, was formed in 1907, and a length of forty-nine route miles of horse traction tramways was purchased from the private companies at a cost of £283,357. On the 9th March, 1909, the electric car system was inaugurated on the Kensington route. At the end of January, 1910, a length of 24½ route miles had been electrified and opened for traffic; the corresponding length of track opened was 44½ miles. The result of the first six months' working shewed a total revenue of £72,670, including £71,645 traffic receipts, of which £33,863 was earned in respect of the electric car system and £37,782 in respect of the horse car system. As regards electric traction, during the same period the traffic expenses amounted to £10,904, maintenance to £3108 and general expenses to £1270, while £4252 was paid for purchase of power. The power-house will be located at Port Adelaide, nine miles from the city. It will be equipped with three 1500-kilowatt turbo-alternators generating current at 11,000 volts, which will be stepped down and passed through rotary converters to direct current at 600 volts. The cost of construction of the whole undertaking when complete will be approximately £750,000. There are also in South Australia nineteen and three-quarter miles of Government horse tramways in country districts, worked in connection with the railway system, and six miles of private tramways used for passenger service. The subjoined statement gives various particulars of these lines:—

SOUTH AUSTRALIA.—PARTICULARS OF HORSE TRAMWAYS, 1909.

Particulars.	Length.	Gauge.	Nature of Traffic.
GOVERNMENT TRAMWAYS.			
Moonta, Moonta Bay, and Hamley Flat	Miles. $5\frac{1}{2}$	ft. in. 5 3	Passengers and goods.
Gawler	$1\frac{1}{8}$	5 3	„ „
Victor Harbour and Breakwater	1	5 3	„ „
Dry Creek and Magazine ...	1	2 0	Explosives.
Magazine and Broad Creek ...	$1\frac{1}{2}$	2 0	„
Port Broughton and Mundoora	10	3 6	Passengers and goods.
PRIVATE TRAMWAYS.			
Port Adelaide and Alberton ...	$2\frac{1}{4}$	5 3	Passengers.
Glenelg and Brighton ...	$3\frac{3}{4}$	4 $3\frac{1}{2}$	„

The total length of the Government tramways referred to above is nineteen and three-quarter miles, and of the private tramways six miles. On the two private tramways mentioned 220,000 passengers were carried during the year 1908, the gross receipts amounting to £1540.

6. *Western Australia.*—In this State there are a number of horse tramways, amounting in all to a length of twenty-three miles, which are the property of the Government. Of these the most important is the line between Roeburne and Cossack, constructed on a 2 ft. gauge and under the control of the Railway Department. The length of this line is eight and a-half miles. The remaining fourteen and a-half miles belonging to the Government are made up of eleven short lengths varying from eight chains to four and a-half miles, worked in connection with the jetties at various ports for the purpose of providing the necessary communication between such jetties and the goods sheds or warehouses. Most of these short lines are leased at annual rentals, and they are under the supervision of the Harbour Master. Their maintenance and improvement is in the hands of the Public Works Department. In addition to these Government lines there are electric tramway systems at Perth and Kalgoorlie carried on by private companies, and at Fremantle, under municipal control.

(i.) *Government Tramways.* Particulars as to the working of the Government horse-tramways or as to the rents received therefrom are not generally available. The following statement, however, shews particulars of the working of the Roeburne-Cossack line for the financial year ended the 30th June, 1909 :—

WESTERN AUSTRALIAN GOVERNMENT TRAMWAYS.—PARTICULARS OF THE ROEBURNE-COSSACK LINE, 1908-9.

Mileage Open.	Cost of Construction and Equipment.	Gross Earnings.	Working Expenses.	Interest.	Loss.
$8\frac{1}{2}$	£24,827	£1,595	1,728	£864	£997

The total loss on the working of this line since its inception to 30th June, 1909, amounted to £22,468.

(ii.) *Steam Tramways.* During the year 1908 there were four private steam tramways, having a total length of $60\frac{1}{2}$ miles, working in Western Australia; only one of these was run for passenger traffic, the other three being used in connection with the timber industry. The following statement gives particulars of these lines :—

WESTERN AUSTRALIA.—PRIVATE STEAM TRAMWAYS, 1908.

Particulars.	Length	Gauge.	Terminal Points.	Nature of Traffic.
	Miles.	Ft. in.		
Leonora-Gwalia ...	2½	3 6	Leonora and Gwalia ...	Passenger
Nallan Tram Wood Line	10	3 3	From Nallan into bush	Firewood
Sons of Gwalia Firewood Tramway	24	1 8	From Leonora into bush	"
Kurramia Timber Line ...	24	3 6	From Kurramia into bush	"

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

(a) *The Perth Electric Tramways* were opened for traffic by a private company in 1899, and the system has since been extended to many of the outlying suburbs. On the 31st December, 1908, there were 22 miles of line open, the total cost of construction and equipment to that date being £441,445, exclusive of amounts paid out of revenue to a sinking fund for the redemption of debenture stock. It is proposed to construct two small extensions in North Perth amounting to one mile in length.

(b) *The Kalgoorlie and Boulder City Tramways* are also run by a private company, the first line being opened in 1902. In the commencement of 1904 legislative authority was given for the construction of lines in Boulder City and suburbs, and in November, 1904, the last section of the Boulder system was completed. At the end of the year 1908 the total mileage of the whole system—in Kalgoorlie and Boulder City—amounted to 19 miles, the total cost of construction and equipment being approximately £448,593.

(c) *The Fremantle Tramways* were opened in November, 1905, under the control of the municipality. On the 1st August, 1909, there were 6½ miles of line open for traffic, the cost of construction and equipment at that date being £78,525. It is proposed to construct an extension amounting to 1½ miles, and to duplicate the existing track for a distance of 2½ miles.

(d) *Particulars of Working of all Electric Tramways, 1901 to 1908.* The subjoined table shews, so far as returns are available, particulars of the working of all electric tramway systems in the State for each year from 1901 to 1908, inclusive:—

WESTERN AUSTRALIA.—PARTICULARS OF ELECTRIC TRAMWAYS, 1901 to 1908.

Year.	Current Generated.	Mileage Open for Traffic.	Total Cost of Construction and Equipment.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	No. of Persons Employed.
	Kilowatt-hrs.	Miles.	£	No.	No.	£	£	No.	No.
1901	...	16½	367,037	721,056	...	46,270	26,673	30	...
1902	...	17	380,861	788,120	...	56,157	32,464	30	...
1903	*1,561,804	36½	§	1,396,888	8,226,926	99,794	68,567	59	†70
1904	*1,831,385	42		1,590,925	9,833,212	118,269	69,586	62	266
1905	*2,695,277	54		2,190,988	12,861,664	147,455	91,006	89	373
1906	*3,076,810	54½		2,325,378	13,595,098	152,678	92,379	89	336
1907	4,049,980	45½		2,247,889	14,050,086	143,403	89,266	89	330
1908	4,065,616	47½	968,567	2,316,325	13,136,065	142,182	91,770	89	354

* Exclusive of Kalgoorlie tramways, for which returns are not available. † Exclusive of Perth tramways. § Not available. || Including returns for the Fremantle tramways for a period of ten months ended the 31st August, 1906, at which date the municipal financial year ends. ¶ For the years 1907 and 1908, miles of route are given; for previous years the figures represent miles of single track; in 1908 the mileage of single track was 47½.

7. **Tasmania.**—In Hobart there is a system of electric tramways, amounting in all to a length of nine miles, owned by a private company. 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 provides that the company is to run the tramways for a period of twenty-five years, when the Council may purchase the lines and stock at cost price; the electric power required is to be supplied by the Council.

(i.) *Hobart Electric Tramways.* These tramways were opened for traffic in 1893, the total cost of construction and equipment to the 31st December, 1908, being £88,500. The following table gives particulars of the working of this system for each year from 1901 to 1908, inclusive:—

TASMANIA.—PARTICULARS OF WORKING OF HOBART ELECTRIC TRAMWAY, 1901-8.

Year.	Current Generated.	Mileage Open for Traffic.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	Number of Cars in Use.	Number of Persons Employed.
	Kilowatt-hours	Miles.	No.	No.	£	£	No.	No.
1901 ...	...	9	321,633	1,734,120	16,097	11,735	20	90
1902 ...	...	9	321,533	1,848,104	17,319	11,820	20	90
1903 ...	...	9	332,986	1,962,617	18,326	11,106	21	91
1904 ...	378,857	9	330,451	2,045,629	19,855	10,906	21	94
1905 ...	455,833	9	332,135	2,327,448	20,560	11,260	22	111
1906 ...	460,315	9	341,638	2,199,759	20,261	10,968	23	110
1907 ...	607,324	9	445,505	2,504,773	24,421	13,635	22	102
1908 ...	622,207	9	453,773	2,677,018	26,789	14,446	23	105

8. **Electrical Traction in Commonwealth, 1908-9.**—The subjoined table gives particulars of electric tramways for each State and the Commonwealth. The returns for Tasmania, for the Ballarat and Bendigo tramways in Victoria, and for the Perth and Kalgoorlie tramways in Western Australia, are for the calendar year 1908; for the Brisbane tramways the returns are for the calendar year 1909; and for other tramways the returns are for the financial year 1908-9. Electric tramways in Adelaide have only been running since March, 1909:—

ELECTRIC TRAMWAYS IN COMMONWEALTH, 1908-9.

State.	Current Generated.	Mileage (Route) open for Traffic.	Tram Miles Run.	No. of Passengers Carried.	Capital Cost.	Gross Revenue.	Working Expenses.	No. of Cars, Motors, and Trail'rs	No. of Employés.
	Kilowatt-hours (,000 omitted).	Miles.	No. (,000 omitted).	,000 omitted.	£	£	£	No.	No.
N.S.W. ...	42,399	105	17,836	173,733	3,756,211	1,011,819	788,010	914	5,523
Victoria ...	2,185	34½	1,904	7,497	290,815	66,148	50,820	95	312
Queensland ...	5,100	30½	3,322	29,732	*	192,271	*	*	614
West. Australia ...	4,066	47½	2,316	13,136	968,567	142,182	91,770	89	354
Tasmania ...	622	9	454	2,677	88,500	26,789	14,446	23	105
Commonwealth	54,372	226½	25,832	226,775	5,104,093†	1,439,209	945,046†	1,121†	6,906

* Not available. † Incomplete.