

SECTION XVII.

ROADS AND RAILWAYS.

§ 1. Roads and Bridges.

1. **Introduction.**—At the present time but few of the main roads in Australia have the importance which they at one time possessed, for originally they were the main arteries of traffic between the chief towns and ports and the interior, a function which has been greatly modified by the development of railways. Owing to the very limited opportunity for inland water carriage, and the great extent of the Commonwealth, roads are still the sole means by which traffic can be conducted throughout a large part of the interior. They moreover serve as feeders to the railways.

In the early days of colonisation main roads were constructed by convict labour, connecting the settled districts, such as Penrith, Parramatta, and Windsor, with the metropolis of Sydney, but the interior of the country was not open to access until the year 1815, when a track as far as Bathurst was completed under the direction of Governor Macquarie. The construction of this road greatly increased the area available for agricultural and pastoral pursuits by rendering accessible the rich and fertile plains in the vicinity of Bathurst. In the following years settlement spread to such an extent that it was impossible to keep pace in the matter of road-making with the demands of the settlers. For many years the authorities chiefly confined their attention to the maintenance and improvement of the main roads already constructed, and to extending them to the principal centres of settlement, and it was not until the period subsequent to the discovery of gold, when many new routes were opened and the amount of traffic largely increased, that the matter received serious attention at the hands of the State Governments. Most of the early bridges were constructed of stone, and many of them are still in existence. In later years, during the period immediately following the progress of settlement in the interior, bridges were usually constructed of wood, and these have since been replaced, after a life of about twenty-five years. Nearly all the bridges of recent date are of iron or steel. Some of the larger and more modern bridges are notable, being fine examples of engineering skill.

During the latter half of the nineteenth century very great progress was made in all the States in the construction of roads and bridges, so that at the present time there is a considerable network of roads spreading over the occupied regions of the Commonwealth. There are still, however, in the less settled parts, especially in Queensland and Western Australia, vast areas of territory inaccessible by roads, and even in the more thickly populated parts of the Commonwealth new roads and deviations, many of an important character, are required in order to facilitate settlement on the land. At the present time the general policy adopted in the States is to construct necessary roads and bridges, often to serve as feeders to the railway systems by conveying the traffic from country districts to convenient stations along the line. Throughout the Commonwealth there are a number of stock-routes provided with wells and places for watering stock. Particulars as to these routes in the several States are not generally available, except in the case of Western Australia. It is hoped in a future issue to afford fuller information, together with a map shewing these routes. In all the States the control, construction, and maintenance of roads and bridges have been, to a large extent, decentralised and placed in the hands of suitable local bodies.

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, 1907.

ROADS AND BRIDGES.—TOTAL LOAN EXPENDITURE IN EACH STATE AND IN THE COMMONWEALTH UP TO THE 30TH JUNE, 1907.

State, etc. ... N.S.W. Vic. Qld. S.A. W.A. Tas. C'wealth.
Expenditure ... £1,784,582 £175,983 £987,409 £1,464,736 £158,863 £2,430,840 £7,002,413

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

ROADS AND BRIDGES.—TOTAL EXPENDITURE BY STATE GOVERNMENTS FOR YEARS ENDED 30TH JUNE, 1902 TO 1907.

State.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
	£	£	£	£	£	£
New South Wales ...	150,777	73,471	47,812	59,019	28,666	11,162
Victoria ...	47,104	44,770	17,267	14,945	1,919	444
Queensland ...	...	1,333	...	...	...	...
South Australia ...	185	200	78	...	...	...
Western Australia ...	740	...	...	...	712	15,163
Tasmania ...	77,536 ¹	55,687 ¹	39,037 ¹	55,302 ²	57,536	75,999
Commonwealth ...	276,342	175,461	104,194	129,267	88,833	102,618

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 first Act dealing generally with the subject of roads in New South Wales was passed in 1833, and provided for the construction and improvement of roads and streets throughout the colony. The Governor was authorised to open up new roads, for the purpose of which land could be compulsorily acquired. Main roads were distinguished from parish roads; the former, which were specified in a schedule, were to be maintained and repaired at the public expense, while the latter, which were situated mainly in the County of Cumberland, were to be maintained at the expense of the parishes. The Governor was also authorised to appoint Commissioners to report periodically upon the state of repair of the roads. In 1855 an Act was passed by the New South Wales Government requiring the footways in George and Pitt Streets in Sydney to be paved by the owners of the properties abutting on to those streets. Two years later the Roads Department was created to take over the control, construction, and maintenance of roads and bridges in New South Wales. In the few years immediately following an improved system of road-making was adopted, and great progress is said to have been made in the repair of old roads and in the construction of new ones. The striking reduction in both the time of transit and cost of carriage is apparent in the following statement,¹ which indicates on the whole a saving of about 57 per cent. in time and 54 per cent. in cost.

1. See Official Year Book, New South Wales, 1905-6, p. 156.

NEW SOUTH WALES.—COMPARATIVE STATEMENT OF COST OF CARRIAGE
OF GOODS BY ROAD, AND TIME OF TRANSIT, 1857 AND 1864.

Main Road.	Distance.	1857.			1864.				
		Time of Transit.	Cost per Ton.		Time of Transit.	Cost per Ton.			
	Miles.	Days.	£	s.	d.	Days.	£	s.	d.
Sydney to Goulburn ...	134	17½	12	5	0	7½	3	15	0
Sydney to Bathurst ...	145	23½	15	10	0	11	6	10	0
Newcastle to Murrurundi ...	119	21	9	0	0	8	6	10	0

Since 1864 the cost of carriage by road, however, has not been further reduced, and the control of roads and bridges, with the exception of municipal roads and certain roads in the vicinity of Sydney, constructed by private road trusts, remained in the hands of the central Government until the year 1906.

(i.) *Administration and Control.* The control of all roads, bridges, and ferries is now regulated by the the Local Government Act, 1906. 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. These councils are invested with very wide powers, and have the control of all roads, bridges, culverts, and ferries within their district, with the exception of roads which are less than sixty-six feet in width, and which have been laid out by a private individual upon or through his own land. 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.

(ii.) *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.

(iii.) *Length and Classification of Roads and Bridges.* The following tables give the length of roads, the number of culverts, bridges, and ferries, from 1901 to 1906, inclusive:—

NEW SOUTH WALES.—LENGTH OF ROADS, NUMBER OF CULVERTS,
BRIDGES, AND FERRIES, 1901 TO 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.
1900-1	...	...	...	...	52,472	38,760	2,979	318
1901-2	...	...	...	...	53,908	39,082	3,251	331
1902-3	...	...	...	...	53,796	41,286	3,446	454
1903-4	...	...	...	...	53,892	41,286	3,446	454
1904-5	...	...	...	...	56,316	41,929	3,508	460
1905-6	...	...	...	...	57,139	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 ...	2,597	1,373	1,840	1,934	7,744
Total roads in New South Wales ...	12,546	8,259	19,607	16,727	57,130

(iv.) *Expenditure on Roads and Bridges.* The subjoined table shews the total expenditure up to the year 1900, and the annual expenditure for succeeding years to 1905, by the central Government and by road trusts. Returns from local authorities under the Act of 1906 are not yet available:—

NEW SOUTH WALES.—TOTAL AND ANNUAL EXPENDITURE BY ROADS
DEPARTMENT AND BY ROAD TRUSTS, 1901 TO 1905.

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
Total ...	2,802,389	461,578	22,054,377	1,286,971	23,341,348

4. **Victoria.**—In Victoria a comprehensive system of local government, under which the control of roads and bridges is vested in District Councils, has been in force for many years. In the Imperial Act of Parliament, by which the State of Victoria was constituted a separate colony, there was a provision authorising the Governor to incorporate the inhabitants of each county to form districts for the purpose of local government, and to establish elective District Councils, with power to make by-laws for, *inter alia*, the proper control, construction and maintenance of roads and bridges, which were to be paid for partly out of local tolls and rates. In 1852 a committee was appointed by the Legislative Council to inquire into the state of repair of roads and bridges, and as to how the funds for their construction and repair might be best expended. On the report of this committee was based the first Victorian Act which dealt with local government in country districts. The report contained an interesting account of the state of the country at that time; it pointed out the urgency of providing suitable roads and bridges.

as an aid to settlement and development; it emphasised the importance of setting aside more adequate funds for the purpose, and directed attention to the deplorable state of the lines of internal communication. The committee recommended that main lines of roads should be constructed throughout the colony by means of grants from the public revenue, and that toll-gates should be erected on the roads when completed. The following were the lines which it was advised should be first formed as main roads:—(a) From Wodonga to Melbourne *via* Kilmore. (b) From Melbourne to the Murray River *via* Mount Alexander. (c) From Melbourne to Geelong. (d) From Melbourne to Portland *via* Bacchus Marsh. (e) From Melbourne to Gippsland *via* Brighton and Dandenong. (f) From Geelong to Westward, and (g) from Geelong to Colac. The committee further recommended the appointment of a Central Road Board to have exclusive powers as to making or improving any new or existing main line of road, and that the Governor should be empowered to declare any part of the colony to be a Road District under the control of an elective District Board of from five to nine members, who were to have power to construct and maintain any new parish or existing cross-road, for which purpose they should be empowered to levy rates. With some slight alterations these recommendations were embodied in the Roads Act of 1853, which established a Central Road Board for the whole State, with an inspector-general and staff, and which also provided for the erection of local road districts under the management of local boards. In 1859 municipalities were established in Victoria, and in 1863 the Roads Districts and Shires Act and the Municipal Corporations Act were passed; these Acts were amended from time to time until they were consolidated by the Local Government Act of 1890, which was in turn amended and consolidated by the Local Government Act of 1903.

(i.) *Administration and Control.* Under the provisions of the last-named Act the absolute property in all land proclaimed as a road, street or highway is vested in the Crown. The control, construction, and maintenance of all roads, streets, and bridges are in the hands of District or 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. Power is also given under certain conditions to reduce the width of any existing road or street to a width of not less than one chain. Where land has been alienated from the Crown, and there is no road to any part of such land from the nearest highway, if the owners of such land desire to have a private road communicating with the highway they may apply to that effect in writing to the council, who may then purchase the necessary land and may open a road not less than thirty-three feet wide, which road will thenceforth be a private road for the use of the persons who applied for the same. The councils are further empowered 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.

(ii.) *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 1906, inclusive.

VICTORIA.—AMOUNTS EXPENDED BY GENERAL GOVERNMENT ON ROADS AND BRIDGES, AND AMOUNTS EXPENDED BY LOCAL AUTHORITIES ON THE FORMATION OF PRIVATE STREETS, ROADS, LANES, ETC., TOGETHER WITH AMOUNTS OF MUNICIPAL LOAN EXPENDITURE ON STREETS, ROADS, AND BRIDGES.

Financial Year. ¹	Annual Expenditure by State Government.	Municipal Loan Expenditure.		Formation of Private Roads, Streets, Lanes, etc. ²	
		Towns, Cities, and Boroughs.	Shires.	Towns, Cities, 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

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.

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 City of Brisbane was constituted a municipality about three months prior to the separation of Queensland from New South Wales in 1859, and a general system of local government was inaugurated in the State in 1878. At the present time 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. The following table shews the total receipts and the expenditure on public works by cities and towns, and by shires for each year since the Act of 1902 came into force:—

QUEENSLAND.—TOTAL RECEIPTS AND EXPENDITURE ON PUBLIC WORKS OF CITIES, TOWNS, AND SHIRES, 1903 TO 1906.

Municipality.	Total Receipts.				Expenditure on Public Works.			
	1903.	1904.	1905.	1906.	1903.	1904.	1905.	1906.
	£	£	£	£	£	£	£	£
Cities and towns ...	282,528	293,203	312,510	284,438	184,397	164,099	175,279	161,149
Shires ...	194,728	181,184	190,838	198,350	132,135	109,393	107,934	131,571
Total ...	477,256	474,387	503,348	482,788	316,532	273,492	283,213	292,720

6. South Australia.—In South Australia the construction of an extensive main road system was initiated by Sir Henry Young, who was Governor of the colony from 1848 to 1854, and this system provided the principal means of communication between the outlying country and the capital and port before the introduction of railways. By the District Councils Acts, 1887 to 1904, and the Municipal Corporations Acts, 1890 to 1903, a system of local self-government has been extended to all the settled parts of the State, which parts are divided into districts and municipalities under the control of

councils. Under the provisions of these Acts and of the Roads Act of 1884 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.

(ii.) *Expenditure by Corporations on Main and District Roads.* The following table shows the expenditure by municipal corporations on both main and district roads during each year from 1901 to 1906 inclusive:—

SOUTH AUSTRALIA.—EXPENDITURE BY CORPORATIONS ON STREETS,
ROADS, AND BRIDGES, 1901 TO 1906.

Year. ¹	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

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 1906.

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	60,568	63,723	5,293	54,027

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.) *Stock Routes.* Although the road districts cover a considerable area, amounting in all to about one million square miles, there are still vast tracts of country in Western Australia inaccessible by road. For the purpose of travelling stock in the less settled parts of the State stock-routes have been provided and placed under the control of the Public Works Department. These routes are six in number, and are as follows:—(a) *The Kimberley-De Grey Stock Route*, starting about twenty miles south of Derby, runs as far as Broome, and continues thence in a south-westerly direction to the De Grey River. The route is about 350 miles in length, and follows the sea-coast at a distance of from two to ten miles along that part known as the Ninety-mile Beach. There are forty wells, as a rule from ten to fifteen miles apart. (b) *The De Grey-Peak Hill Route* starts from Pardoo, the junction of the Kimberley-De Grey and De Grey-Mingenew routes, and runs alongside of the De Grey River for about 100 miles, when it turns south for another 100 miles as far as Nullagine. (c) *The De Grey-Mingenew Route* commences at Pardoo and runs in a south-westerly direction for about 250 miles to the Fortescue River, where it turns south and runs irregularly to Mingenew, on the Midland Railway. This route is over 900 miles long. There are about eighty wells, in addition to permanent pools in the river beds, no watering stations being more than about fifteen miles apart. (d) *The Fortescue-Cue Route* runs from the Fortescue River to Cue, and is about 400 miles long. (e) *The Peak Hill-Leonora Route* starts from the Murchison, at the termination of the De Grey-Peak Hill route, and runs in a south-easterly direction to

Leonora; it is about 300 miles long and has about thirty wells. (f) *The Coolgardie-Eucla Route* is about 500 miles in length. In 1903 an artesian bore was put down at Madura by the Public Works Department, 2001 feet deep, with a flow of 70,000 gallons a day.

(iv.) *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 came into force:—

WESTERN AUSTRALIA.—PARTICULARS OF ROADS UNDER CONTROL OF DISTRICT ROAD BOARDS UNDER THE ROADS ACTS 1902 AND 1904.

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.	Mettalled 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	10,518	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	85,280	12,746	126,245	125,616	8,556 ²	3,970 ²	1,952 ²	14,478 ²	443 ³	3,792 ³

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.

The following table gives similar information with reference to roads under the control of municipalities:—

WESTERN AUSTRALIA.—PARTICULARS OF STREETS, ROADS, AND BRIDGES UNDER THE CONTROL OF MUNICIPALITIES UNDER THE MUNICIPAL INSTITUTIONS ACTS, 1900 AND 1904.

Year ended the 31st October.	No. of Municipalities.	Length of Streets, Roads, and Bridges.					Revenue.		Expenditure.		
		Paved, M't'll'd or Gr'v'll'd	Form'd only.	Clear'd only.	Not Clear'd	Total.	From Rates.	From Grants.	Works and Impr'v- ments.	Street Light'g and Wat'r'g	
		Miles.	Miles.	Miles.	Miles.	Miles.	£	£	£	£	
1901'	...	42	195	30	149	137	511	78,021	66,850	111,256	15,969
1902	...	44	265	52	221	249	787	94,894	81,436	125,721	19,434
1903	...	44	291	55	232	227	855	104,760	80,938	142,347	20,745
1904	...	43	325	64	252	260	901	119,110	90,688	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

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

8. *Tasmania.*—In 1869 a Roads Act was passed in Tasmania empowering the Governor-in-Council to declare any portion of the colony to be a Road District under the control of a road trust consisting of from five to seven members elected by the landowners. The trustees were invested with full control of all cross and by roads, but could not construct any road less than sixty-six feet wide without the consent of the proprietors on each side. Under the provisions of the Main Roads Act, 1880, the Minister of Lands and Works for the time being was appointed Commissioner of Main Roads, and was invested with the supervision of all main roads and bridges except those situated in municipalities, which were first constituted by the Rural Municipalities Act of 1858, and also excepting those within road districts under the Act of 1869. The trustees of road districts were appointed to act as Main Road Boards. In 1884 previous enactments were repealed and their provisions were amended and consolidated by the Roads Act of that year; under this Act Main Road Boards were established. In 1906 both Road Trusts and Main Road Boards were abolished

by the Local Government Act, which, however, specially provided that the councils of all municipalities constituted under the Act shall exercise all powers conferred upon, and shall 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.) *Cross Roads.* Under the provisions of the Roads Act of 1884 the Governor-in-Council was empowered to declare from time to time by proclamation any part of the State to be a Road District for the purpose of the Act, and any such district was to be under the control of a Road Trust, the members of which were elected by the landholders in the district. The trustees were empowered to construct, maintain, and regulate all cross-roads within their district, cross-roads being defined to comprise the following roads:—(a) Any road leading from one town to another. (b) Any road leading from a town or public bridge to a main road. (c) Any road leading from a town to a navigable river. (d) Any road which may be proclaimed by the Governor as a cross-road. (e) All streets within a town, excepting those in any town in any rural municipality, which were under the control of municipal councils. The annual expenditure of Road Trusts was provided for partly by rates which they were empowered to levy, and partly by Government grants.

(ii.) *Main Roads.* Under the Act of 1884 main roads were from time to time determined by Parliament, and the Minister for Lands and Works was *ex officio* Commissioner of Main Roads. The powers and duties of this officer have not been altered by the Local Government Act of 1906. Municipal Councils and Road District Trusts were constituted Main Road Boards for all main roads situate in or passing through their district, with the exception of the main road from Hobart to Launceston, and for all bridges except those specified in the schedule to the Act. The Commissioner or any Main Road Board, subject to the authority of the Governor-in-Council, might, after a main road had been declared by law, take land required for such road, and might open a new road through the same. All powers, duties, and functions conferred by the Act upon any Main Road Board could be exercised by the Commissioner in respect of the main road from Hobart to Launceston, the bridges specified in the schedule to the Act, and all main roads not situated in any main road district. The expenditure on main roads was provided for by funds voted by Parliament by means of Main Roads Maintenance Acts.

(iii.) *Boards under the Land Act, 1903.* It is provided by the Lands Act of 1903, that as soon as 500 acres of first-class agricultural land have been taken up in one locality, and in not less than five lots, the Governor shall, for the purpose of making roads, bridges, or drains in the vicinity of the land so taken up, raise a sum equal to ten shillings an acre for every acre so taken up, by the issue and sale of debenture stock chargeable on the Consolidated Revenue Fund. The Governor is authorised to raise in the same manner a sum of money not exceeding five shillings for every acre of second-class land sold, and not exceeding two shillings and sixpence for every acre of third-class land sold, for similar purposes. With respect to the sale of lands within any town, not being within a mining area, of a value of not less than £250, the Governor may, for the purpose of making streets, roads, or other improvements in the vicinity of the land so sold, raise a sum equal to ten shillings for every pound of the value of such land, by the issue and sale of debenture stock as above. Provision is also made for the Commissioner of Roads, or for such other person as the Governor may appoint, to purchase and take any lands which he may deem necessary for the purpose of constructing roads or other public works.

(iv.) *Mileage of Main and Other Roads and Expenditure of Main Road Boards and Road Trusts, 1901 to 1906.* 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 1906 inclusive. Returns from municipal councils under the Local Government Act of 1906 are not yet available :—

TASMANIA.—LENGTH OF ROADS AND EXPENDITURE OF MAIN ROAD
BOARDS AND ROAD TRUSTS, 1901 TO 1906.

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
1905 ...	678	7,028	104	7,124	30,063	28,566
1906 ...	678½	8,025	105	7,272	31,791	31,633

§ 2. Railways.

1. Introduction.—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.

2. Railway Communication in the Commonwealth.—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 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, runs inland in a northerly direction for a distance of nearly 700 miles, and another line runs in a south-easterly direction to meet 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 40 minutes at Sydney, and another of 3 hours 50 minutes at Melbourne; the distance between the capitals, and the times occupied are as follows:—

Brisbane to Sydney ...	725 miles	28 hours.
Sydney to Melbourne ...	582½ "	17 "
Melbourne to Adelaide ...	482½ "	17 " 15 mins.

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 are a number of lines connecting the main coastal towns, and running inland to the goldfields for nearly 600 miles. 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. The majority 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 paragraph 14, *infra*. *Particulars of Private Lines*.)

(i.) **Mileage of Government and Private Lines, 1855 to 1907.** 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 1907. 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 OF LINES OPEN FOR TRAFFIC, 1855 TO 1907.

State.	1855.	1861.	1871.	1881.	1890-1.	1900-1.	1905-6.	1906-7.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	14	73	358	1,040	2,263	2,926	3,471	3,534
Victoria ...	2½	114	276	1,247	2,764	3,238	3,394	3,396
Queensland ...	*	*	218	800	2,205	2,904	3,240	3,240
South Australia ...	16½	56	133	845	1,666	1,736	1,780	1,866
Northern Territory	*	*	*	*	145½	145½	145½	145½
Western Australia	*	*	*	92	1,657	1,990	2,306	2,458½
Tasmania ...	*	*	45	168	425	618	618	618
Commonwealth ...	23½	243	1,030	4,192	10,135½	13,557½	14,954½	15,258

* 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 78½ 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, 1906, were 342 miles and 276 miles respectively.

(iii.) *Government Lines, 1901 to 1907.* 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 1907, INCLUSIVE.

State.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ...	2,845½	3,026	3,138½	3,281	3,281	3,390	3,453
Victoria ...	3,237	3,302	3,383	3,381	3,394	3,394	3,396
Queensland ...	2,801	2,801	2,711	2,928	3,092	3,137	3,137
South Australia ...	1,736	1,736	1,736	1,736	1,745½	1,745½	1,831½
Northern Territory ...	145½	145½	145½	145½	145½	145½	145½
Western Australia ...	1,355	1,360	1,516	1,541	1,605	1,611½	1,764
Tasmania ...	*457½	*462	*462	462	462½	462½	462½
Commonwealth ...	12,577½	12,832½	13,092	13,474½	13,725½	13,886	14,189½

* To the 31st December.

4. Average Mileage Worked, Train Miles Run, Number of Passenger Journeys, and Tonnage of Goods and Live Stock Carried on Government Railways, 1901 to 1907.—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 1906-7, inclusive. Corresponding returns for private lines are not available;—

GOVERNMENT RAILWAYS.—AVERAGE MILEAGE WORKED, TRAIN MILES RUN, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1901 TO 1907.

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
AVERAGE MILEAGE WORKED.							
New South Wales	2,818	2,958	3,074	3,224	3,281	3,367	3,428
Victoria ...	3,228	3,265	3,335	3,371	3,384	3,394	3,395
Queensland ...	2,801	2,801	2,777	2,827	3,066	3,109	3,137
South Australia	1,736½	1,736½	1,736½	1,736½	1,744½	1,745½	1,814½
North. Territory	145½	145½	145½	145½	145½	145½	145½
West. Australia	1,355	1,356	1,434	1,535	1,568	1,607	1,676
Tasmania ...	*460	*468	*469	469	470	470	470
Commonwealth	12,544	12,725	12,971	13,308	13,659	13,838	14,066
TRAIN MILES RUN.							
New South Wales	10,763,697	11,649,059	11,548,338	10,400,503	10,467,886	11,863,632	12,949,068
Victoria ...	11,066,016	11,284,944	10,286,272	9,172,644	9,023,365	9,392,069	10,035,914
Queensland ...	5,815,282	5,666,058	4,947,242	4,646,887	4,917,781	5,281,611	6,126,136
South Australia	4,393,181	4,196,138	3,770,351	3,739,088	3,773,106	3,875,167	4,334,243
North. Territory	30,277	30,275	30,422	31,545	30,703	30,461	30,901
West. Australia	4,126,202	4,507,919	4,611,315	4,594,234	4,285,235	4,359,633	4,180,798
Tasmania ...	*895,682	*902,918	*931,716	*947,588	945,852	945,918	981,379
Commonwealth	37,090,337	38,237,311	36,125,656	33,531,589	33,443,928	35,748,541	38,638,437

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
NUMBER OF PASSENGER JOURNEYS.							
New South Wales	29,261,324	30,885,214	32,384,138	33,792,689	35,158,150	37,500,531	41,413,084
Victoria	54,704,062	57,465,077	54,798,073	54,282,003	59,702,050	65,088,394	69,920,583
Queensland	18,647,194	18,421,258	17,353,177	17,527,831	7,655,613	8,214,617	9,301,542
South Australia	8,863,632	9,643,058	9,061,488	9,747,412	9,866,621	10,715,343	11,497,802
North. Territory	4,097	3,755	3,631	3,653	4,200	2,852	3,205
West. Australia	6,823,453	8,158,299	9,106,396	10,225,976	11,845,439	12,816,766	13,180,161
Tasmania	*777,445	*761,345	*814,433	†872,937	823,911	860,519	951,823
Commonwealth	109,081,207	115,338,006	113,521,386	116,452,501	125,055,934	135,199,022	146,268,200

TONNAGE OF GOODS AND LIVE STOCK CARRIED.							
New South Wales	6,398,227	6,467,552	6,596,241	6,656,759	6,724,215	7,629,492	8,793,832
Victoria	3,381,860	3,433,627	3,093,997	6,439,203	3,628,237	3,676,017	3,965,792
Queensland§	1,530,440	1,725,520	1,566,960	1,572,226	1,712,243	1,791,675	2,261,299
South Australia	1,628,444	1,392,257	1,349,617	1,515,621	1,681,003	1,732,436	2,042,939
North. Territory	2,981	2,436	2,455	6,209	3,790	4,903	3,243
West. Australia	1,719,720	2,040,092	1,968,331	2,281,764	2,443,711	2,357,573	2,330,303
Tasmania§	*314,628	*407,505	*418,701	†425,102	377,010	399,487	428,387
Commonwealth	14,976,300	15,468,989	14,996,302	15,896,884	16,570,209	17,591,583	19,825,795

* 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.

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

6. Interstate Communication.—Until the railway systems of the eastern States were connected at the common boundaries the inconvenience of non-conformity of gauge was not felt. Since then, however, the necessary transshipments of both passengers and goods have been a source of 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.

7. Classification of Lines according to Gauge.—The subjoined table shews the total mileage of both Government and private railways (exclusive of sidings and cross-overs) constructed to different gauges, in each State and in the Commonwealth, on the 30th June, 1907:—

GOVERNMENT AND PRIVATE RAILWAYS,—CLASSIFICATION ACCORDING TO GAUGE OF ALL RAILWAYS OPEN TO GENERAL TRAFFIC ON THE 30TH JUNE, 1907.

State.	Mileage Constructed to Different Gauges. ¹					Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft.	
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ...	45½	3,453	35½	...	...	3,534
Victoria ...	3,314½	...	...	81½	...	3,396
Queensland ...	...	...	3,240	...	...	3,240
South Australia ...	594	...	1,272½	...	...	1,866½
Northern Territory ...	...	...	145½	...	...	145½
Western Australia ...	...	...	2,458½	...	...	2,458½
Tasmania ...	...	...	594½	...	23½	618
Commonwealth ...	3,954	3,453	7,746½	81½	23½	15,258½

1. The mileages of private lines are as up to the 31st December, 1906.

8. Unification of Gauge.—Probably the most serious error committed in the railway policies of the States of the Commonwealth has been the adoption of a different gauge in each colony; the lack of foresight in anticipating the development of the railway systems of the Commonwealth and the ultimate need for inter-communication, as well as the excessive ill-feeling which arose between the States, as mentioned above, has been the cause of the large extra cost, delay, and inconvenience incurred at the present time by the necessity for transferring both passengers and goods at all places where there are breaks of gauge. From time to time many propositions have been put forward with the object of securing a uniform gauge throughout the Commonwealth, and the great importance of the immediate unification of gauges before further expenditure is incurred by the States in railway construction is now recognised both by the Railway

Commissioners and by the public generally. 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 greatly 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 clearly 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 most seriously impeded, and would result in confusion and loss. Moreover, 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. Various trades and industries would be benefited by the concentration, at times of abnormal or periodic activity, of idle trucks from other States, in other words, the fullest use of all rolling stock, and the meeting of all exigencies would be greatly 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. The New South Wales gauge has a mileage of 3390; Victoria and South Australia have a combined mileage of 3819½ of 5 ft. 3 in. gauge; while Queensland, South Australia, the Northern Territory, and Western Australia have together 6964½ miles of 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. The advantage of reducing the broad gauge to the 4 ft. 8½ in. gauge is that there would be no necessity to touch tunnels, cuttings, bridges, or viaducts. The difficulties of handling the through traffic at the boundary between New South Wales and Victoria, owing to the break of gauge, though not involving a direct outlay of appreciable magnitude, involve indirectly considerable economic loss.

9. Comparative Mileage of State-owned and Private Lines.—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, 1907; those given for private lines are as up to the 31st December, 1906.

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARATIVE MILEAGE OF STATE-OWNED LINES, OF PRIVATE LINES AVAILABLE FOR GENERAL TRAFFIC, AND OF PRIVATE LINES NOT SO AVAILABLE, 1907.

State.	State-owned Lines.	Private Lines available for General Traffic.	Private Lines not available for General Traffic.	Total of Lines open for General Traffic.	Total of all Lines.
	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	3,453	81	...	3,534	3,534
Victoria...	3,396	...	...	3,396	3,396
Queensland ...	3,137	103	...	3,240	3,240
South Australia ...	1,832	...	34½	1,832	1,866½
Northern Territory	145½	...	...	145½	145½
Western Australia	1,764	277	417½	2,041	2,458½
Tasmania ...	462½	155½	...	618	618
Commonwealth	14,190	616½	452	14,806½	15,258½

10. **Comparative Railway Facilities in Different States.**—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, 1907, 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 OF THE COMMONWEALTH, 1907.

State.	Population.	Area.	Per Mile of Line Open.	
			Population.	Area.
	Number.	Sq. miles.	Number.	Sq. miles.
New South Wales	1,550,930	310,372	439	87.8
Victoria	1,236,900	87,884	364	25.9
Queensland	542,348	670,500	167	206.9
South Australia	383,425	380,070	209	207.5
Northern Territory	3,570	523,620	25	3,598.7
Western Australia	264,260	975,920	129	478.2
Tasmania	176,809	26,215	286	42.4
Commonwealth	4,158,242	2,974,581	281	200.9

11. **History of Railway Construction.**—The first movement in the direction of the introduction of railways into Australia took place in 1846, when it was resolved, at a public meeting held in Sydney, that a survey should be made for a proposed line to connect the metropolis with Goulburn, a distance of 136 miles; the cost of construction was estimated at £6000 per mile, and a net profit of 8 per cent. per annum was anticipated. This survey was completed in 1848, and in the same year the Sydney Railroad and Tramway Company was formed, with a capital of £100,000, for the purpose of laying down a line between Liverpool, Parramatta, and Sydney, which it was proposed to extend later to Bathurst and Goulburn.

(i.) *New South Wales.* When the work of construction of the Sydney to Liverpool line was first commenced there was an abundant supply of labour, and rapid progress was at first made; the scheme was only well under weigh, however, when the discovery of gold caused a general exodus from the city, and the company found it impossible to secure sufficient labour to enable them to carry on their undertaking. In 1853 a movement for the construction of a line from Maitland to Newcastle took place and the Hunter River Railway Company was formed, and the work of construction was proceeded with at once. It was not long before this company shared the fate of its predecessor, and the properties and works of both companies were transferred to the Government under Act 18 Vic., No. 40, which placed the construction of the lines under the control of three Commissioners. It is interesting to note that the Government consented, in the year 1852, to allow 500 railway labourers to be brought out at the expense of the immigration fund. With the assumption of control by the Government the work of construction was vigorously pushed forward, and on the 26th September, 1855, the line from Sydney to Parramatta, 14 miles in length, was opened for traffic. For some years after this, however, railway construction languished, the enthusiasm of its advocates being, doubtless, considerably damped by the reflection that the short line from Sydney to Parramatta cost about £700,000—or £50,000 a mile. On the 27th May, 1869, the extension to Goulburn was completed. This line now forms part of the main interstate line between Sydney and Melbourne. In the meantime—in 1857—Newcastle had been connected with East Maitland by a line 17 miles in length; the line forms the first section of what is now known as the Northern Line. From Parramatta a line was extended in a westerly direction to Blacktown in 1860, and this line has now been further extended to form the main Western Line. For the purpose of convenience of reference and admin-

istration the Government railways in New South Wales are divided into three main lines with their branches, viz.:—the Northern Line, the Western Line, and the Southern Line. (a.) *The Northern Line* forms part of the main interstate route between New South Wales and Queensland. A junction was effected at Wallangarra, on the border between the two States, on the 16th January, 1888, and on the 1st May, 1889, the bridge over the Hawkesbury River was opened for traffic. After passing through Newcastle, 104 miles from Sydney, the line throws off a long branch from Werris Creek, extending in a north-westerly direction to Narrabri, Croyon, Collarendabri, and Inverell, which is 500 miles distant from Sydney. There is another line in the extreme north-east district of the State, known as the Grafton-Tweed line, at present isolated from the other railway lines. It has been suggested that this line should be joined to the main Northern Line, and also to the south-coast line from Brisbane, and thus to form an alternative route between the two States. The total length of the line is 147 miles, and the last section to Grafton was completed in 1905; from Murwillumbah, the northern terminus, a steamer now runs to Tweed Heads which is connected with Brisbane by the Queensland south-coast line. (b) *The Western Line*, running inland in a westerly direction, was completed as far as Bourke, its present terminus, 508 miles from Sydney, in 1885. It has three important branches, the first running from Orange to Condobolin, on the River Lachlan; the second from Dubbo to Coonamble; and the third from Nyngan to Cobar, from which place it is proposed to eventually extend the line to Broken Hill, via Wilcannia. (c) *The Southern Line* forms part of the main route between Sydney and Melbourne, a junction having been effected between the New South Wales and Victorian lines in 1883, as stated above. Numerous branches have been constructed from the main southern line: Goulburn is the junction for two branches; one to Cooma, passing through the pastoral district of Monaro for a distance of 130 miles, was opened in 1889; the other to Crookwell, 36 miles in length, was completed in 1902. From Cootamundra there are also two branch lines, the last extensions of which were opened for traffic in 1903; one runs to Wyalong, a distance of 80 miles, and the other to Tumut, 65 miles in length. From Junee a branch runs parallel to the Murrumbidgee River and was opened as far as Hay in 1884, and to Finley in 1898, thus bringing the Riverina district into direct communication with Sydney. From Culcairn one branch to Corowa was opened in 1892 and another to Germanton in 1902. The southern system also includes the Mlwarra line, which runs from Sydney along the south coast as far as Nowra, a distance of 92 miles.

(i.) *Victoria*. While the Sydney Railroad and Tramway Company was struggling with financial difficulties, and endeavouring to secure a sufficient supply of labour to enable them to carry on their undertaking, the work of railway construction was commenced in the neighbouring State of Victoria, no less than three private companies being promoted for that purpose in the year 1853. The Government provided substantial aid to these companies in the shape of land grants and guarantee of interest, and on the 13th September, 1854, the first complete railway in Australia, from Flinders Street, Melbourne, to Port Melbourne, was opened for traffic. This line was constructed by the Melbourne and Hobson's Bay Railway Company; it had been commenced nearly three years later than the line to connect Parramatta with Sydney, but was only two-and-a-half miles long. On the 13th May, 1857, the same company opened for traffic the line from Flinders Street to St. Kilda, and during the period from 1859 to 1861 also constructed lines to Richmond, Windsor, Hawthorn and Brighton. On the 17th June, 1857, a line from Williamstown to Geelong, thirty-nine miles in length, which had been built by another company was declared open. In the meantime, the Government, in addition to assisting private enterprise, had in 1855 taken over two unfinished lines commenced by the third of the companies referred to, and completed the work of construction on its own account. These lines, running from Williamstown to Footscray, and from Melbourne to Sunbury, were opened for traffic in 1859. By the end of the year 1863, the Government had acquired all the railway lines in the State, with the exception of those owned by the Melbourne and Hobson's Bay Railway Company, which amounted to a total length of sixteen and one-third miles, and which were eventually purchased by the Government in 1878. At the present time all the railways

in Victoria are owned by the State, and are divided into seven systems—the South-Eastern, the Eastern, the North-eastern, the Northern (including the Midland district lines), the North-western, the Western and South-western, and the suburban lines. (a) *The South-eastern system* branches off from the suburban system at Dandenong, and was completed as far as Port Albert, its present terminus, in 1892; a branch line to Outtrim was opened in 1896. (b) *The Eastern system* also leaves the suburban system at Dandenong. The line was opened for traffic as far as Bunyip in 1877, and was extended *via* Moe and Sale, as far as Bairnsdale on the Gippsland lakes, 171 miles from Melbourne, in 1888; branches run to Neerim South, Thorpdale, North Mirboo, and Briagolong. The Eastern system also comprises two extensions to the suburban system, the first running from Croydon to Healesville, thirty-nine miles in length, with a branch from Lilydale to Warburton, the second being a narrow gauge (2 ft. 6 in.) line completed as far as Gembrook in 1900. (c) *The North-eastern system* comprises the Victorian part of the main interstate line between Melbourne and Sydney, which was opened for traffic as far as Wodonga in 1873, though it was not until ten years later that the bridge over the River Murray was completed, and railway communication between New South Wales and Victoria established. Numerous branches from the main line have been constructed; a branch to Bright was opened in 1890; to Tallangatta and to Mansfield in 1891; a narrow-gauge (2 ft. 6 in.) branch to Whitfield in 1899; while a branch to Toolamba was extended to Tocumwal, on the River Murray, in 1905. (d) *The Northern system* joins the suburban system at Digger's Rest, twenty-one miles from Melbourne. The main line was opened for traffic as far as Bendigo in 1862, and was extended to Echuca in 1864. A large number of branch lines belong to this system. From Carlsruhe a branch runs to Ballarat, *via* Daylesford and Creswick, while another line branches off from Creswick to Maryborough. Between Carlsruhe and Daylesford the line attains a height of 2469 feet above sea-level, being the greatest altitude of any line in Victoria. From Maryborough the line was extended to the north as far as Birchip in 1893, and to Mildura in 1903; other branches to Swan Hill, Sea Lake and Ultima were opened in 1890, 1895, and 1900 respectively. Mildura is the most northerly point reached by rail in Victoria, and is situated close to the confluence of the Darling and Murray Rivers. (e) *The North-western line* connects with the suburban system at Rockbank, eighteen and a half miles from Melbourne; it was opened as far as Ballarat in 1862, and was extended in sections *via* Ararat, Stawell, Murtoa, Horsham, and Dimboola as far as Serviceton, on the South Australian border, on the 19th January, 1887, a junction with the main line to Adelaide being thus effected. Branch lines were opened to Hopetoun and to Goroke in 1894; to Rainbow in 1899; and from Stawell to Grampians in 1905. (f) *The Western and South-western system* was opened up to Geelong in 1857, as stated above. The line was extended to Winchelsea in 1876, to Colac in 1877, to Warrnambool and to Port Fairy in 1890, and was connected with the main line to Serviceton, *via* Hamilton and Ararat, in 1890. An extension to Portland was completed in 1877, and branch lines were opened to Casterton and Coleraine in 1884 and 1888 respectively. (g) *The Suburban system* includes a number of short lines referred to above connecting up the suburbs of Melbourne, and also comprises longer sections of lines radiating from the metropolis in various directions, and thus joining the various main systems with the terminal stations in Melbourne.

(iii.) *Queensland.* Legislative sanction for the construction by the Government of the first railway line in Queensland, from Ipswich to Grandchester, was granted in the year 1863, and on the 25th February in the following year the formality of cutting the first sod was carried out with due ceremony at Ipswich. The line was opened on the 31st July, 1865, and was extended to Toowoomba, seventy-seven miles from Ipswich, in 1867. In the same year a line, thirty miles in length, was opened between Rockhampton and Westwood, extended to Emerald in 1879 and to Longreach in 1892. Branches were opened from Emerald to Clermont and from Emerald to Springsure in 1884 and 1887 respectively. In the meantime the line had been extended from Toowoomba—(a) to the south as far as Wallangarra, on the New South Wales border, in 1887; and (b) to the west, *via* Dalby, Roma, and Mitchell, as far as Charleville, in 1888. An extension from

Charleville to Cunnamulla, 503 miles from Toowoomba, was opened in 1898. Communication between Brisbane and Rockhampton was opened up in 1903, and in the same year the south-coast line from Brisbane was extended to Tweed Heads. The first section of the Townsville line as far as Reid River, a distance of thirty-five miles, was opened in 1880, and was extended to Charters Towers in 1882, to Hughenden in 1887, and to Richmond in 1904, while a further extension to Gilliat is now under construction. The first section of the Mackay line was opened in 1885, and extended to Eton in 1886. The Normanton line, as far as Haydon, a distance of thirty-eight miles, was brought into use in 1889, and extended to Croydon in 1891. In 1885 a line from Cooktown to Palmer's Road, thirty miles in length, was opened for traffic, and an extension to Laura was completed in 1888. The line running from Cairns was commenced in 1887, and was completed as far as Atherton in 1903, while the Bowen line was opened to Guthalungra in 1890, and extended to Wangaratta in 1891.

(iv.) *South Australia.* The first railway line constructed in the State of South Australia was the Adelaide City and Port Railway, opened on the 21st April, 1856, the length being seven and a half miles and the gauge 5 ft. 3 in. This line was extended to the Semaphore, a further distance of one and a half miles, in 1878, and is now called the Port line. In 1857 a line from Adelaide, nineteen miles long, reaching as far as Smithfield, was opened for traffic, and was extended to Terowie, via Gawler, Roseworthy, and Hamley Bridge, in 1880. Terowie is the terminus of the broad gauge line, but from the main line a narrow gauge (3 ft. 6 in.) line was run to Petersburg in 1881, connection being thus formed with the narrow gauge lines, which had been previously constructed, running from Port Wakefield, Moonta, Port Pirie, and Port Augusta, from which place it is now proposed to construct a trans-continental line by connecting it with Kalgoorlie, on the Western Australian goldfields. From Petersburg a branch to Cockburn on the New South Wales border was opened in 1887, and an extension through New South Wales territory to Broken Hill, a distance of thirty-six miles, was opened by the Silverton Tramway Company in 1888. Another branch from Quorn was opened to Oodnadatta, 688 miles from Adelaide, in 1891. (a) *The Interstate line.* The first section of the South Australian part of the interstate line was opened from Adelaide to Aldgate, a distance of twenty-one and three-quarter miles, in 1883, and extended until the Victorian boundary was reached on the 1st January, 1885. In the districts lying to the south of Adelaide, a horse-tramway line, constructed in 1854 between Goolwa and Port Elliot, was extended to Victor Harbour in 1864, and to Strathalbyn in 1869; railway communication was opened up between these districts and Adelaide in 1884. (b) *The Northern Territory Railway.* In the Northern Territory a survey was made in 1878 for a line between Palmerston and Pine Creek, a distance of $145\frac{1}{2}$ miles, and this line was opened for traffic in 1889; it is proposed to carry it across the continent in a southerly direction to meet the trunk line from Adelaide to the north, which at present has its terminus at Oodnadatta.

(v.) *Western Australia.* Railway operations commenced in Western Australia with the construction of the line from Geraldton to the copper mining district of Northampton, a length of thirty-four miles, opened for traffic on the 26th July, 1879. In the following year no further lines were opened, but on the 1st March, 1881, the Fremantle-Guildford line, nineteen and a half miles long, was brought into use, to which line extensions were made to Chidlow's Well, opened on the 11th March, 1884, and to York and Beverley in 1885 and 1886 respectively, while branch lines to Northam and to Newcastle followed in October, 1886, and January, 1888. (a) *The South-Western Railway.* On the 12th March, 1891, a third separate system was added by the opening of a line running sixteen miles inland from Bunbury, and this line was connected with the other systems in the State in 1893, by the opening of a line 110 miles in length from East Perth Junction to Picton Junction, near Bunbury. Further extensions and branches were opened in the next two years, and on the 30th June, 1895, 573 miles had been opened for traffic. (b) *The Eastern Goldfields Line.* The Goldfields railway system was commenced by the construction of the line from Northam to Southern Cross, a distance of 170 miles,

opened in 1894. In the meantime the Geraldton line had been connected with Perth by the Midland Railway, constructed by a private company under a land grant concession, and on the 21st November, 1894, a line from Mullewa Junction, near Geraldton, was opened, passing through pastoral country for a distance of about fifty-seven miles in the direction of the Murchison fields. On the 1st January, 1897, communication was established with Kalgoorlie, and the line was extended to Menzies on the 13th February, 1899, and to Laverton, 595½ miles from Perth, on the 1st February, 1905. (c) *The Northern line.* In the Murchison district an extension as far as Nannine was opened for traffic on the 1st June, 1903. On the 1st July, 1889, the West Australian Land Company opened for traffic a line which had been constructed, 243 miles in length, from Albany to Beverley, the southern terminus of the eastern system, under a land grant concession of 12,000 acres per mile of line constructed. The lands and railway belonging to this company were acquired by the Government by purchase on the 1st December, 1896, at a price of £1,100,000. This line is now known as the Great Southern line. (d) *The Water Supply Question.* Reference may here be made to the fact that the main natural difficulty with which railway engineers have had to contend in Western Australia has been found to be the scarcity of water in practically the whole of the country traversed by their system. Excepting only the South-western lines, the water supply for the locomotives is generally obtained from dams or reservoirs which are dependent upon the rainfall. The Railway Department on the Eastern and Eastern Goldfield Railway expended over £180,000 in dams prior to the Coolgardie water scheme water being available, and a large condensing plant, capable of condensing 100,000 gallons of water daily, was erected at Coolgardie in 1899. A sextuple multiple effect condensing plant for sea water was laid down at Geraldton in 1904, and a water-softening plant, capable of softening 2000 gallons of water per hour, was erected at Laverton in 1906.

(vi.) *Tasmania.* In Tasmania an agitation had long existed for the construction of a line of railway from Hobart to Launceston, and, although Parliament granted a vote of £5000 for the survey of this line as far back as the year 1863, it was not formally opened for traffic until November, 1876, from which time the line was continuously worked by the Tasmanian Light Railway Company up to October, 1890, when it was purchased by the Government for the sum of £1,106,500. In the meantime the construction of a line between Launceston and Deloraine, forty-five miles in length, had been commenced, and was opened on the 10th February, 1871. This line was originally projected by a private company—the Launceston and Western Railway Company—but a large part of the capital was raised by the Government, and, the company becoming involved in financial difficulties, the line was taken over by the State in 1872. In 1884 a length of forty-eight miles of line was opened for traffic by the Emu Bay Railway Company, extending from Emu Bay to Mount Bischoff and to Waratah. Branches from the main line between Hobart and Launceston were opened from Parattah to Oatlands, a distance of four and a half miles, in 1885, and from Bridgewater to Glenora, twenty-four and a half miles in length, in 1888. The line from Launceston to Scottsdale, a distance of forty-seven miles, was brought into use on the 9th August, 1889. The lines from Deloraine to Devonport and from Conara to Formby were opened in 1885 and 1886 respectively. Several years elapsed before any further extensions were taken in hand. In 1892 the Government submitted several railway proposals to Parliament, and, having obtained the necessary authority, railway construction was once more resumed. The railway systems of Tasmania are now fairly well developed, and, though their construction has been slow, it must be remembered that they have had to face severe competition with sea-borne traffic, and that, owing to the limited area and population of the State, there are no large inland centres to support the traffic on the railways.

12. 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 herein on page 583. In all the States the Government railways are grouped, for the purpose of convenience of adminis-

tration 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, 1906:—

GOVERNMENT RAILWAYS.

Particulars.					Length.	Gauge.
					Miles.	ft. in.
1. NEW SOUTH WALES.						
(i.) The Northern line and branches—						
(a) Main line. Strathfield-Wallangarra					486	4 8½
(b) Branch lines					390	4 8½
(ii.) The Grafton-Tweed line					147	4 8½
(iii.) The Western line and branches—						
(a) Main line. Granville-Bourke					497	4 8½
(b) Branch lines					655	4 8½
(iv.) The Southern line—						
(a) Main line. Granville-Wodonga					382	4 8½
(b) Branch lines					679	4 8½
(v.) The South-coast (Illawarra) line—						
(a) Main line. Sydney to Nowra... ..					92	4 8½
(b) Branch lines					8	4 8½
(vi.) Suburban lines					17	4 8½
(vii.) Broken Hill line. Broken Hill-Tarrawingee					40	4 8½
Total					3,391	...
2. VICTORIA.						
(i.) The South-eastern system—						
(a) Main lines. Dandenong-Port Albert, Aspendale-Stoney Point					145	5 3
(b) Branch lines					14	5 3
(ii.) The Eastern System—						
(a) Main lines. Dandenong-Bairnsdale, Bayswater-Gembrook, Croydon-Healesville					18 202	2 6 5 3
(b) Branch lines					97 3	5 3 2 6
(iii.) The North-eastern system—						
(a) Main line. Craigieburn-Wodonga					171	5 3
(b) Branch lines					30½ 440½	2 6 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					194	5 3
(vi.) The Western and South-western system—						
(a) Main line. Werribee-Portland					272	5 3
(b) Branch lines					30 263	2 6 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					3,394	...

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.-coast line.	Northgate Junction-235 mls. 14 chs.	...	235	3 6
(d)	The South-coast line.	Yeerongpilly-Tweed Heads	...	65	3 6
(e)	Suburban lines	...	...	76	3 6
(f)	Branch lines	...	...	493	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	...	...	162	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	...	465	3 6
(d)	Cairns line	...	...	69	3 6
(e)	Cooktown line	...	...	68	3 6
(f)	Normanton line	...	...	96	3 6
Total				3,137	...
4. SOUTH AUSTRALIA.					
(i.) The Midland system—					
(a)	Main line.	Adelaide-Terowie	...	140	5 3
(b)	Branch lines	...	...	97	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	...	196	5 3
(b)	Branch lines	...	...	69½	5 3
(iv.) The South-eastern system—					
(a)	Kingston-Wolseley	...	...	101	3 6
(b)	Branch lines	...	...	124	3 6
(v.) Port Broughton line				10	3 6
Total				1,745½	...
5. NORTHERN TERRITORY.					
Palmerston-Pine Creek				145½	3 6
6. WESTERN AUSTRALIA.					
(i.) Western railway—					
(a)	Main line.	Fremantle-Northam	...	78	3 6
(b)	Branch lines	...	...	108	3 6
(ii.) Eastern Goldfields railway—					
(a)	Main line.	Northam-Laverton	...	520	3 6
(b)	Branch lines	...	...	69½	3 6
(iii.) South-western railway—					
(a)	Main line.	Perth-Bunbury	...	115	3 6
(b)	Branch lines	...	...	125	3 6
(iv.) Great Southern railway—					
	Beverley-Albany Jetty	...	...	243	3 6
(v.) Northern railway—					
(a)	Main line.	Geraldton-Nannine	...	310	3 6
(b)	Branch lines	...	...	43	3 6
Total				1,611½	...

Particulars.					Length.	Gauge.
7. TASMANIA.						
(i.)	Main line.	Hobart-Evandale Junction	...	...	122 $\frac{3}{4}$	3 6
(ii.)	Derwent Valley line.	Bridgewater-Glenora	...	...	24 $\frac{1}{4}$	3 6
(iii.)	Apsley line.	Brighton Junction-Apsley	...	...	26	3 6
(iv.)	Parattah-Oatlands line	...	...	...	4 $\frac{1}{2}$	3 6
(v.)	Fingal line.	St. Marys-Conara	...	...	46 $\frac{3}{4}$	3 6
(vi.)	Western line.	Launceston-Burnie	...	...	111 $\frac{1}{2}$	3 6
(vii.)	Chudleigh line...	...	...	...	12 $\frac{1}{2}$	3 6
(viii.)	Scottsdale line.	Launceston-Scottsdale	...	...	47	3 6
(ix.)	Sorell-Bellerive line	...	...	...	14 $\frac{1}{2}$	3 6
(x.)	Zeehan line.	Regatta Point-Zeehan...	...	...	29 $\frac{1}{2}$	3 6
(xi.)	North-east Dundas tramway.	Zeehan-Williamsford	...	...	19	2 0
(xii.)	Comstock tramway	...	...	...	4 $\frac{1}{2}$	2 0
Total					462 $\frac{1}{2}$	...
Grand total of Government railways in the Commonwealth					13,886	...

13. Administration and Control of Government Railways.—In each State of the Commonwealth the policy has now been established that the railways 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 Commissioners are required to present an annual report to Parliament, through the Minister for Railways, setting forth an account of their proceedings, and of the revenue and expenditure during the previous year.

(ii.) *Victoria.* In consequence of the agitation which arose after the serious accidents which occurred at Windsor, Jolimont, and Hawthorn, a new Railway Act was passed and came into force on the 1st February, 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 the direct management. 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; under this Act both the management and construction of railways were placed in the hands of three Commissioners, and the actual working was to a great extent freed from political control.

(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 separation from each other by long distances of some of the railway lines in Queensland put 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 Public Railways 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 1888 was, however, amended by the Railway Commissioners Act of 1895, which provides for one Commissioner only, assisted by a Board of Advice.

(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.

(vi.) *Tasmania.* The control, construction, and maintenance of Government railways is vested in the Department of Lands and Works, the active management being in the hands of an officer styled the General Manager, who is responsible to Parliament.

14. **Lines under Construction and Proposed New Lines.**—The following statement shows the length of Government railway lines in course of construction on the 30th June, 1907 :—

GOVERNMENT RAILWAYS.—MILEAGE OF LINES IN COURSE OF
CONSTRUCTION ON THE 30TH JUNE, 1907.

State, etc.	... N.S.Wales.	Queensland.	S. Aust.	W. Aust.	Commonwealth.
Miles ...	... 145½	309	87½	190½	732½

(i.) *Extension of Existing Lines.* In spite of the great extension of State railways which has taken place since the year 1875 throughout the Commonwealth, there are still vast tracts of country into which lines have not yet penetrated. (a) In *New South Wales* the lines under construction are of the "pioneer" class, and are made with a view to affording railway communication over level country to districts in which the traffic would not warrant the expenditure necessary to provide thoroughly equipped lines. As the traffic increases the permanent way is strengthened in order to allow the heavy types of engines to run over it. It is probable that railway extension in New South Wales, in the near future, will be mainly confined to lines of the "pioneer" class. The Grafton-Tweed line, in the extreme north-east of the State, is being extended year by year, and will in all probability soon form part of an alternative main route between Newcastle and Brisbane. (b) In *Victoria* and *Tasmania*, where the railway systems are now well developed, there are no new lines or extensions of importance in view, but the question as to the electrification of the suburban system of Melbourne, with a view to obtaining a more rapid and frequent train service, is receiving attention. Since the year 1899 four narrow gauge (2ft. 6in.) lines, with a total mileage of 81½ miles, have been opened for traffic in Victoria; these lines have been built for the purpose of providing a light and cheap means of communication to districts but sparsely populated, and have, in some cases, been constructed on the principle which has been adopted by the Minister of Railways of "loading" the lands increased in value by the building of the lines. The Standing Committee on Railways for Victoria recommended, in February, 1907, the construction of six short spur lines and extensions, having a total length of 78 miles, at a total cost of £240,512, the total maximum amount of loading for the six lines to be £4588. A junction between Victorian and New South Wales lines at Tocumwal has lately been agreed upon. (c) In *Queensland*, *South Australia*, and *Western Australia* there are still 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 these 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.

(ii.) *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, provides for the expenditure of a sum of £20,000 for the survey of the proposed line, the estimated cost of construction of which amounts to £4,559,000. The greater part of the country which it is proposed to traverse is practically unoccupied owing to the scarcity of permanent surface water, but there are otherwise no engineering difficulties in connection with the construction of this line, which it is claimed 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 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.

15. Particulars of Private Railways.—As has been stated above (see paragraph 3), a number of private railway lines have been constructed from time to time 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 industries, and for conveying firewood for mining purposes. The following table gives particulars, as far as they are available, for all private lines in the Commonwealth during the year 1905, exclusive of short branch lines connecting collieries, factories, and other places, with the main systems:—

PRIVATE RAILWAYS.—PARTICULARS OF WORKING DURING THE YEAR 1905.

State.	Miles Open.	Train Miles Run.	Cost of Construction & Equipment.	No. of Passengers Carried.	Tons of Goods Carried.	Gross Receipts.	Working Expenses.
	Miles.	No.	£	No.	Tons.	£	£
New South Wales	81	156,457	553,389	58,877	712,268	132,562	48,794
Queensland	103	*	329,450†	*	*	63,572	23,453
South Australia‡	34½	27,400	80,000	*	*	*	*
Western Australia	694½	602,687§	2,430,369	55,591§	772,218§	71,254	72,829§
Tasmania	155½	158,122	1,119,849	62,681	129,270	79,287	39,459
Commonwealth	1,067½	944,666	4,578,090	177,146	1,613,756	346,675	184,535

* Information not supplied. † To the 31st December, 1906. ‡ To the 30th June, 1906. § Incomplete.

It will be seen that there are no private lines in the State of Victoria, nor in the Northern Territory, and that the greatest mileage is in Western Australia. In the latter State, however, none of the private lines are trunk lines, with the exception of that owned by the Midland Railway Company, but are primarily intended for the purpose of opening up forest lands or mining districts.

(i.) *Private Lines in New South Wales.* In this State there are at present three private lines. (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, on the Victorian boundary opposite Echuca, which is connected by rail with Melbourne. The line was opened in 1876, the land required being granted by the Government. The cost of construction and equipment up to the end of the year 1905 was £162,672. The company owns four locomotives, six passenger carriages, and sixty-three goods trucks and vans. (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.

The capital expenditure was £385,017, including the cost of fifteen locomotives, sixteen passenger carriages, and 520 goods vehicles. (c) *The Warwick Farm line* is a short line, three-quarters of a mile in length, connecting Liverpool with the Warwick Farm Race-course. Government rolling-stock is used. In addition to the three lines just referred to, 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 forty miles. The line was purchased by the Government in 1901, and was leased to the Silverton Tramway Company to work for a period of five years at an annual rent of 3 per cent. on the capital outlay.

(ii.) *Private Lines in Queensland.* In 1897 the Queensland Government passed an Act to permit the construction by a private company of a line 103 miles in length from Mareeba to Chillagoe. The line is worked by the company, but, with the exception of the locomotives, Government rolling-stock is used. In addition to this line there are in Queensland a number of tramways which are owned and managed by local bodies, and which are more particularly referred to below in the section dealing with tramways.

(iii.) *Private Lines in 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. (a) *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. The total capital expenditure up to the year 1901 was £1,999,006, the revenue for the year 1905 being £69,332, and the expenditure £40,634. (b) *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. (c) *Millar's Karri and Jarrah Company's lines.* These lines have mostly been built under special timber concessions and leases. There are in all nine lines situated in various parts of the State extending out into the bush, whence logs are brought to the mills. At the end of the year 1905 the total mileage of these lines was 284 miles, and the total capital expended was £328,685. The company has in all twenty-two locomotives, eight passenger carriages, and 726 goods and timber trucks.

(iv.) *Private lines in Tasmania.* The private lines in this State are owned by two companies, and are situated in the western districts of the island. (a) *The Emu Bay Railway Company.* The lines owned by this company run from Burnie to Zeehan, and from Guildford Junction to Waratah, and have a total mileage of 103½ miles. The line from Zeehan to Dundas, five and a half miles in length, is worked by the Government Railway Department. (b) *The Mount Lyell Mining and Railway Company.* These lines were primarily intended for the development of mining districts; they run from Regatta Point to Queenstown, and from Linda to Kelly Basin, and have a total length of fifty-two miles.

16. Guaranteed Railways.—A new departure has been recently made in Queensland in the policy of railway construction under the Railways Guarantee Act of 1895, which provides for the construction by the Government of a railway through any district conditional on the ratepayers of the district agreeing to pay up to half the amount of any deficiency in working expenses, together with interest at 4 per cent. on the capital cost of the line during the first fourteen years after its completion. In case of a net revenue accruing during any year half is retained by the Government, while the other half is paid to the local authority to be distributed among the ratepayers, and as soon as the working of the line has provided a surplus for three consecutive years the Government may cancel the agreement. Up to the 30th June, 1906, four lines had been constructed and opened

for traffic under this Act, and though the results, with the exception of the line from Kabra to Mount Morgan, have not in past years been financially successful, their position is generally improving as the traffic increases. The following table gives particulars of the four lines referred to for the year ended the 30th June, 1906:—

QUEENSLAND.—PARTICULARS OF WORKING OF GUARANTEED
RAILWAYS, 1905 TO 1906.

Lines.	Miles Open.	Train Mileage.	Capital Expenditure (including Rolling-stock).	Gross Revenue.	Expenditure.	Profit or Loss after Paying Working Expenses.		Percentage Expenses to Earnings.	Net Profit or Loss after Payment of Working Expenses and Interest at 4 per cent.	
						Profit.	Loss.		Profit.	Loss.
	Miles.	No.	£	£	£	£	£	%	£	£
Hendon to Allora ...	3.6	6,601	12,889	1,927	907	1,020	...	47.07	504	...
Mayne to Enoggera...	*3.7	31,398	48,484	2,348	3,070	...	722	130.75	...	2,662
Colton to Pialba ...	16.6	23,991	46,494	3,651	2,702	949	...	74.01	...	911
Kabra to Mt. Morgan	12.9	65,265	86,092	17,289	9,232	8,057	...	53.40	4,613	...
Total ...	36.8	127,255	193,959	25,215	15,911	9,304	...	63.1	1,544	...

The proportion of deficiencies paid by guarantors during the financial years 1903-4 and 1904-5 was in the case of the line from Mayne to Enoggera £870, and in respect of the Colton-Pialba line £777.

17. **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, 1907, amounted to £135,448,923, or to an average of £9754 per mile open for traffic. Particulars as to the capital expenditure incurred in each State are given in the following table:—

GOVERNMENT RAILWAYS.—TOTAL COST OF CONSTRUCTION AND EQUIPMENT IN EACH STATE AND IN THE COMMONWEALTH UP TO THE 30TH JUNE, 1907.

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	3,453	44,700,230	12,945	28.82
Victoria	3,396	41,533,136	12,235	33.58
Queensland	3,137	21,839,081	6,962	40.27
South Australia	1,832	13,699,029	7,491	35.73
Northern Territory	145½	1,180,395	8,117	330.64
Western Australia	1,764	10,300,938	5,840	39.01
Tasmania	462½	3,943,359	8,517	22.30
Commonwealth	14,190	137,196,168	9,669	32.99

It will be seen that the lowest average cost per mile open is in Western Australia, and is only £5840, which is less than one-half of the highest average cost, namely, £12,945 in New South Wales, compared with an average of £9669 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 £1986 to £7458 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 was £3725. In Victoria also the cost of construction has been greatly reduced in recent years. The total cost of the narrow gauge (2 ft. 6 in.) lines, having a length of eighty-one and a half miles, was only £167,316, which gives an average cost per mile of only £2053. 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 following table gives examples of some of the more expensive lines, most of which were built in the early days, while the next succeeding table gives instances of lines which have been constructed in more recent years at a comparatively small cost per mile:—

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	111½	2,706,247	24,186	1876
Sydney to Kiama ...	4 8½	72½	2,000,405	27,615	1887
Homebush to Waratah ...	4 8½	95½	2,809,217	29,420	1887
VICTORIA—					
Melbourne to Bendigo ...	5 3	101	4,821,514	47,790	1862
Geelong to Ballarat ...	5 3	45½	1,898,922	35,802	1862

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 Condonbolin ...	4 8½	62½	124,737	1,986	1898
Dubbo to Coonamble ...	4 8½	95½	228,558	2,384	1903
VICTORIA—					
Wangaratta to Whitfield ...	2 6	30½	38,687	1,269	1899
Boort to Quambatook ...	5 3	22	43,020	1,959	1894
SOUTH AUSTRALIA—					
Wandilo to Glencoe ...	3 6	9½	15,187	1,664	1904
Mount Gambier to Narracoorte ...	3 6	63½	211,610	3,330	1887
QUEENSLAND—					
Dalby to Bell ...	3 6	23½	28,677	1,220	1906
Hughenden to Richmond ...	3 6	70½	110,779	1,574	1904

(ii.) *Proposed Adoption of Special Locomotives for Cheap Pioneer Lines.* 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 recently 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.

(iii.) *Capital Cost of Construction and Equipment, Total and per Mile Open, 1901-7.* 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 1907, inclusive, is shewn in the following table:—

GOVERNMENT RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT IN STATES AND IN COMMONWEALTH UP TO THE 30TH JUNE IN EACH YEAR, 1901 TO 1907.

State.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
TOTAL COST.							
New South Wales	£ 38,932,781	£ 40,565,073	£ 41,654,977	£ 42,238,517	£ 43,062,550	£ 43,626,063	£ 44,700,230
Victoria...	46,145,404	40,613,784	40,974,493	41,216,703	41,279,045	41,398,037	41,533,136
Queensland	19,739,495	20,119,143	20,302,177	20,887,585	21,610,980	21,741,226	21,839,081
South Australia	13,156,291	13,275,037	13,400,796	13,517,727	13,587,406	13,610,520	13,699,029
N. Territory	1,170,484	1,160,757	1,175,056	1,180,584	1,179,059	1,180,424	1,180,395
Western Australia	7,098,239	7,410,426	8,141,782	8,955,929	9,808,458	9,965,940	10,300,938
Tasmania	3,799,098	3,840,747	3,883,729	3,901,414	3,920,508	3,926,713	3,943,359
Commonwealth	124,041,792	126,984,967	129,533,010	131,948,459	134,448,006	135,448,923	137,196,168

COST PER MILE OPEN.

New South Wales	£ 13,690	£ 13,405	£ 13,270	£ 12,889	£ 13,125	£ 12,869	£ 12,945
Victoria...	12,402	12,300	12,112	12,191	12,162	12,197	12,235
Queensland	7,047	7,183	7,489	7,134	6,989	6,931	6,962
South Australia	7,577	7,646	7,718	7,785	7,783	7,797	7,491
N. Territory	8,049	7,982	8,080	8,118	8,104	8,117	8,117
Western Australia	5,239	5,449	5,371	5,812	6,111	6,182	5,840
Tasmania	8,295	8,313	8,406	8,445	8,468	8,481	8,517
Commonwealth	9,861	9,895	9,893	9,792	9,795	9,754	9,669

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

(iv.) *Loan Expenditure on Railways and Tramways, 1901 to 1906.* The subjoined table shews the total loan expenditure in railways and tramways in each State during each financial year from 1901 to 1906. Figures shewing loan expenditures on railways only are not available:—

GOVERNMENT RAILWAYS AND TRAMWAYS.—EXPENDITURE FROM LOANS
IN EACH STATE AND IN THE COMMONWEALTH, 1901 TO 1906.

State.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
	£	£	£	£	£	£
New South Wales	2,243,672	1,683,755	805,520	501,709	529,251	421,741
Victoria ...	483,325	371,330	258,090	171,837	77,968	73,843
Queensland ...	751,451	695,632	388,255	119,651	157,537	554,783
South Australia ...	121,907	143,970	120,152	101,195	70,451	47,121
Western Australia	578,985	1,059,418	443,339	348,327	219,937	329,527
Tasmania ...	*80,948	*56,731	*37,450	†19,655	6,168	15,153
Commonwealth ...	4,260,288	4,010,836	2,052,806	1,262,374	1,061,312	1,442,168

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

The following statement shews the total loan expenditure to the 30th June, 1907 :—

GOVERNMENT RAILWAYS AND TRAMWAYS.—TOTAL LOAN EXPENDITURE
IN EACH STATE AND IN THE COMMONWEALTH TO THE 30TH JUNE,
1907.

State, etc. ...	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
Expenditure ...	49,996,323	38,895,190	24,176,015	13,940,927	9,948,498	4,143,911	141,100,864

18. Revenue and Working Expenses.—The following table shews the amounts of gross revenue, working expenses, and excess of revenue over expenditure per mile of line worked and per train mile run in each State for the year ended 30th June, 1907 :—

GOVERNMENT RAILWAYS.—REVENUE, WORKING EXPENSES, AND EXCESS
OF REVENUE OVER WORKING EXPENSES, PER MILE WORKED AND
PER TRAIN MILE, IN EACH STATE AND IN COMMONWEALTH FOR
YEAR ENDED 30TH JUNE, 1907.

State.	Average Mile- age work'd.	Number of Train Miles Run.	Revenue.			Working Expenses.			Excess of Revenue over W'rg. Expenses.		
			Gross.	Per Mile w'rk'd.	Per Train Mile.	Gross.	Per Mile w'rk'd.	Per Train Mile.	Net.	Per Mile w'rk'd.	Per Train Mile.
	Miles.	No.	£	£	d.	£	£	d.	£	£	d.
N.S.W. ...	3,428	12,949,068	4,709,406	1,374	87.28	2,490,741	729	46.33	2,209,365	645	40.95
Victoria ...	3,395	10,035,914	4,012,641	1,182	95.96	2,353,303	693	56.28	1,659,338	489	39.68
Queensland	3,137	6,126,136	1,829,673	583	71.68	912,638	291	35.75	917,035	292	35.93
South Aust.	1,815	4,334,243	1,575,368	863	87.23	868,005	478	48.06	707,363	390	39.17
N. Territory	145½	30,901	14,018	96	108.87	13,280	91	103.14	738	5	5.73
West. Aust.	1,676	4,180,796	1,537,333	917	88.25	1,135,907	678	65.21	401,426	240	23.54
Tasmania ...	470	981,379	258,223	549	63.15	185,500	395	45.36	72,723	155	17.78
C'wealth ...	14,066½	38,638,437	13,936,662	991	86.57	7,968,374	566	49.50	5,968,288	424	37.07

(i.) *Traffic Receipts and Revenue from Other Sources.* The gross revenue is composed of (a) receipts from coaching traffic, including the carriage of mails, horses, parcels, etc., by passenger trains; (b) receipts from the carriage of goods and live stock, and (c) rents and miscellaneous items. The following table shews the amount derived from each of these sources for the year ended the 30th June, 1907, and the respective percentages of the whole revenue :—

GOVERNMENT RAILWAYS. — AMOUNT AND PERCENTAGE OF GROSS REVENUE FROM DIFFERENT SOURCES IN EACH STATE AND IN COMMONWEALTH FOR THE YEAR ENDED 30TH JUNE, 1907.

State.	Total Revenue.	Coaching Traffic Revenue.	Coaching Traffic Percentage of Total.	Goods and Live Stock.	Goods, etc., Percentage of Total.	Rents and Miscellaneous Items.	Rents, etc., Percentage of Total.
	£	£		£		£	
N.S.W. ...	4,709,406	1,736,206	36.86	2,922,843	62.07	50,357	1.07
Victoria ...	4,012,641	1,862,660	46.42	2,081,515	51.87	68,466	1.71
Queensland ...	1,829,673	613,601	33.54	1,180,862	64.54	35,210	1.92
South Australia ...	1,575,368	452,278	28.71	1,083,504	68.77	39,586	2.52
N. Territory ...	14,018	3,176	22.66	8,412	60.00	2,430	17.33
West. Australia ...	1,537,333	497,414	32.35	992,111	64.53	47,808	3.12
Tasmania ...	258,223	117,928 ¹	45.66	119,701	46.36	20,594 ²	7.98
C'wealth ...	13,936,662	5,283,263	37.91	8,388,948	60.20	264,451	1.89

1. Exclusive of revenue from carriage of mails. 2. Including revenue from carriage of mails.

19. Gross Revenue, Total, per Average Mile Worked, and per Train-mile Run, 1901 to 1907.—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 1907, inclusive:—

GOVERNMENT RAILWAYS.— GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED, AND PER TRAIN-MILE, 1901 TO 1907.

State.	1900-1.	1901-2.	1902-3	1903-4.	1904-5.	1905-6.	1906-7.
TOTAL GROSS REVENUE.							
	£	£	£	£	£	£	£
New South Wales ...	3,573,779	3,668,686	3,314,893	3,436,413	3,684,016	4,234,791	4,709,406
Victoria ...	3,337,797	3,367,843	3,046,858	3,438,141	3,582,266	3,787,619	4,012,641
Queensland ...	1,316,936	1,382,179	1,234,230	1,305,552	1,413,439	1,546,083	1,829,673
South Australia ...	1,236,616	1,085,175	1,076,612	1,160,639	1,273,321	1,349,765	1,575,368
Northern Territory ...	13,845	12,522	11,298	17,906	15,429	14,897	14,018
Western Australia ...	1,353,704	1,521,429	1,553,485	1,588,084	1,610,129	1,634,444	1,537,333
Tasmania ...	*205,791	*233,211	*247,683	*256,694	243,556	241,138	258,223
Commonwealth ...	11,038,468	11,271,045	10,485,059	11,202,529	11,822,156	12,808,787	13,936,662
GROSS REVENUE PER AVERAGE MILE WORKED.							
	£	£	£	£	£	£	£
New South Wales ...	1,263	1,242	1,078	1,066	1,123	1,258	1,374
Victoria ...	1,034	1,031	914	1,020	1,059	1,116	1,182
Queensland ...	470	493	444	462	461	497	583
South Australia ...	712	625	620	668	730	773	868
Northern Territory ...	95	86	78	117	106	102	96
Western Australia ...	999	1,122	1,083	1,035	1,027	1,017	917
Tasmania ...	*447	*498	*528	547	518	513	549
Commonwealth ...	880	886	808	842	886	926	991
GROSS REVENUE PER TRAIN-MILE RUN.							
	d.	d.	d.	d.	d.	d.	d.
New South Wales ...	79.69	75.58	68.89	79.30	84.46	85.67	87.28
Victoria ...	72.39	71.62	71.09	89.96	95.28	96.79	95.96
Queensland ...	54.35	58.55	59.87	67.43	68.98	70.26	71.63
South Australia ...	67.56	62.07	68.53	74.50	80.99	83.59	87.23
Northern Territory ...	109.75	99.27	89.13	129.38	120.61	117.37	108.87
Western Australia ...	78.74	81.00	80.85	82.96	90.18	89.98	88.25
Tasmania ...	*55.14	*61.99	*63.80	*65.01	61.80	61.19	63.15
Commonwealth ...	71.43	70.74	69.66	80.18	84.84	85.99	86.57

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

† Estimated for a period of twelve months, ended the 30th June, 1904.

20. 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, 1907:—

GOVERNMENT RAILWAYS.—COACHING TRAFFIC RECEIPTS PER MILE OPEN, PER PASSENGER JOURNEY, AND PER PASSENGER-TRAIN MILE, 1907.

State.	Number of Passenger Journeys.	Number of Passenger-Train Miles.	Coaching Traffic Receipts.			
			Gross.	Per Average Mile Worked.	Per Passenger Journey.	Per Passenger Train Mile.
	No.	No.	£	£	d.	d.
New South Wales ...	41,413,084	5,654,903	1,736,206	506	10.06	73.69
Victoria ...	69,920,583	*5,703,014	1,862,660	548	6.39	78.38
Queensland ...	9,301,542	2,024,933	613,601	195	15.83	72.72
South Australia ...	11,497,802	1,667,324	452,278	249	9.44	65.10
Northern Territory...	3,205	10,719	3,176	22	237.82	71.11
Western Australia ...	13,180,161	†2,240,837	497,414	296	9.06	53.27
Tasmania ...	951,823	‡357,076	117,928	250	29.73	79.26
Commonwealth ...	146,268,200	17,658,806	5,283,263	375	8.67	71.80

* The returns include 2,352,484 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 76,899 mixed-train mileage, which has been divided as just stated. ‡ The returns include 684,228 mixed-train mileage, which has been divided as just stated.

21. Number of Passenger Journeys and Coaching Traffic Receipts, 1901 to 1907.—

The following tables give particulars of the number of passenger journeys and of the coaching traffic receipts in each State and in the Commonwealth during each year from 1901 to 1907, inclusive. The coaching traffic receipts include revenue from the carriage by passenger trains of parcels, excess-luggage, mails, etc.:—

GOVERNMENT RAILWAYS.—COACHING TRAFFIC RECEIPTS, TOTAL, AND PER PASSENGER JOURNEY, 1900-1 TO 1906-7.

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
GROSS RECEIPTS FROM COACHING TRAFFIC, 1900-1 TO 1906-7.							
	£	£	£	£	£	£	£
New South Wales ...	1,370,530	1,403,744	1,405,888	1,442,733	1,423,190	1,563,261	1,736,206
Victoria ...	1,625,903	1,648,381	1,525,349	1,561,973	1,598,354	1,719,713	1,862,660
Queensland ...	536,462	513,257	467,504	495,375	477,859	529,139	613,601
South Australia ...	359,172	369,677	342,037	367,067	379,034	402,329	452,278
Northern Territory ...	3,415	3,032	2,913	2,803	3,469	2,929	3,176
Western Australia ...	407,819	442,719	449,677	484,486	502,671	506,598	497,414
Tasmania* ...	†88,313	†99,116	†105,388	†111,724	106,922	110,293	117,928
Commonwealth ...	4,391,114	4,479,926	4,298,846	4,466,161	4,496,499	4,834,262	5,283,263
AVERAGE RECEIPTS PER PASSENGER JOURNEY, 1900-1 TO 1906-7.							
	d.	d.	d.	d.	d.	d.	d.
New South Wales ...	11.23	10.91	10.42	10.27	9.75	10.00	10.06
Victoria ...	7.13	6.89	6.96	7.27	6.42	6.34	6.39
Queensland ...	27.05	26.59	27.72	28.68	28.53	15.46	15.83
South Australia ...	9.74	9.34	9.05	9.05	9.22	9.01	9.44
Northern Territory ...	200.05	193.80	192.53	184.15	198.26	246.48	237.82
Western Australia ...	14.33	13.02	11.85	11.37	10.19	9.48	9.06
Tasmania* ...	†27.26	†31.24	†31.04	†30.71	31.26	30.76	29.73
Commonwealth ...	10.02	9.64	9.36	9.40	8.88	8.57	8.67

* Exclusive of revenue derived from the carriage of mails. † For the calendar years of 1901, 1902 and 1903 respectively. ‡ Estimated for a period of twelve months ended the 30th June, 1904.

22. 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, 1907:—

GOVERNMENT RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS PER MILE WORKED, PER GOODS-TRAIN MILE, AND PER TON CARRIED, 1907.

State.	Goods and Live-Stock Tonnage.	Number of Goods-Train Miles.	Goods and Live-Stock Traffic Receipts.			
			Gross.	Average per Mile Worked.	Per Goods-Train Mile.	Per Ton Carried.
	Tons.	No.	£	£	d.	d.
New South Wales ...	8,793,832	7,294,165	2,922,843	852	96.17	79.77
Victoria ...	3,965,792	4,332,900†	2,081,515	613	135.29	125.96
Queensland ...	2,261,299*	4,101,203	1,180,862	376	69.10	126.15
South Australia ...	2,042,939	2,666,919	1,083,504	597	97.51	127.28
Northern Territory ...	3,243	20,182	8,412	58	100.03	622.53
Western Australia ...	2,330,303	1,939,959‡	992,111	592	122.74	102.18
Tasmania ...	428,387*	624,303§	119,701	254	46.01	67.06
Commonwealth ...	19,825,795	20,979,631	8,388,948	596	95.97	101.55

* Exclusive of live-stock tonnage. † The returns include 2,352,484 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 761,899 mixed-train mileage, which has been divided as just stated. § The returns include 684,228 mixed-train mileage, which has been divided as just stated.

The following table shews the gross receipts derived from goods and live-stock traffic in each State during each financial year from 1901 to 1907:—

GOVERNMENT RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS, 1900-1 TO 1906-7.

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
	£	£	£	£	£	£	£
N.S.W. ...	2,203,249	2,264,942	1,909,005	1,993,680	2,213,105	2,628,076	2,922,843
Victoria ...	1,711,894	1,719,462	1,454,770	1,792,978	1,918,793	2,001,437	2,081,515
Queensland ...	780,474	868,922	766,636	810,177	899,984	982,820	1,180,862
South Australia ...	843,019	681,045	703,522	761,298	860,037	910,106	1,083,504
N. Territory ...	8,892	7,996	7,000	11,868	9,524	9,443	8,412
West. Australia ...	946,385	1,037,099	1,046,540	1,066,949	1,061,364	1,081,472	992,111
Tasmania ...	*98,713	*116,061	*121,129	†124,472	116,938	111,042	119,701
Commonwealth	6,592,626	6,695,527	6,008,602	6,561,422	7,079,745	7,724,396	8,388,948

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

† Estimated for a period of twelve months ended the 30th June, 1904.

23. Working Expenses.—The following table shews the total annual expenditure, comprising expenses on (a) maintenance of way, works, and buildings; (b) locomotive power; (c) carriages and waggons—renewals and repairs; (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 1907:—

GOVERNMENT RAILWAYS.—TOTAL WORKING EXPENSES AND PERCENTAGES OF WORKING EXPENSES UPON GROSS REVENUES, 1901 TO 1907.

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
TOTAL WORKING EXPENSES.							
	£	£	£	£	£	£	£
New South Wales ...	2,043,201	2,267,369	2,266,299	2,258,940	2,192,147	2,308,384	2,499,741
Victoria* ...	2,075,239	2,166,119	2,032,087	2,022,403	2,222,279	2,216,202	2,353,303
Queensland ...	1,057,981	992,751	863,382	811,951	814,744	863,356	912,638
South Australia ...	729,039	689,517	624,511	675,395	736,791	764,385	868,005
Northern Territory ...	25,280	34,649	12,812	13,219	13,069	13,854	13,280
Western Australia ...	1,044,920	1,256,370	1,247,873	1,179,624	1,256,003	1,201,753	1,135,907
Tasmania ...	†173,400	†173,292	†166,355	†166,029	171,630	172,601	185,500
Commonwealth ...	7,149,060	7,580,067	7,213,319	7,127,561	7,406,663	7,540,535	7,968,374
PERCENTAGE OF WORKING EXPENSES TO GROSS EARNINGS.							
	%	%	%	%	%	%	%
New South Wales ...	57.17	61.80	63.37	65.74	59.50	64.51	63.08
Victoria* ...	62.17	64.32	66.69	58.82	62.04	68.51	68.65
Queensland ...	80.84	71.83	69.95	62.19	57.64	55.84	49.88
South Australia ...	58.85	63.54	58.01	58.19	57.86	56.63	55.10
Northern Territory ...	182.59	276.70	118.40	77.73	84.70	93.00	94.74
Western Australia ...	77.19	82.58	80.53	74.28	78.01	73.52	73.89
Tasmania ...	154.26	174.31	167.16	104.08	70.47	71.56	71.84
Commonwealth ...	64.76	67.25	68.80	63.62	62.65	63.87	67.18

* 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. † For the calendar years 1901, 1902, and 1903 respectively. ‡ Estimated for a period of twelve months ended the 30th June, 1904.

24. Working Expenses per Average Mile Worked and per Train Mile Run, 1901 to 1907.—The following table shews the working expenses per average mile worked and per train mile run in each State for the years 1901 to 1907, inclusive:—

GOVERNMENT RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED AND PER TRAIN MILE RUN, 1901 TO 1907.

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
WORKING EXPENSES PER AVERAGE MILE WORKED.							
	£	£	£	£	£	£	£
New South Wales ...	725	768	737	701	668	686	729
Victoria ...	643	663	609	560	657	653	693
Queensland ...	378	354	311	287	266	278	291
South Australia ...	420	397	360	389	422	438	478
Northern Territory ...	174	238	88	91	90	95	91
Western Australia ...	771	927	870	768	801	748	678
Tasmania ...	*377	*370	*355	†354	365	367	395
Commonwealth ...	570	596	556	536	542	545	566
WORKING EXPENSES PER TRAIN MILE RUN.							
	d.	d.	d.	d.	d.	d.	d.
New South Wales ...	45.56	46.71	47.10	52.13	50.26	46.70	46.33
Victoria ...	45.01	46.07	47.41	52.92	59.11	56.63	56.28
Queensland ...	43.66	42.05	41.88	41.93	39.76	39.23	35.75
South Australia ...	39.83	39.44	39.75	43.35	46.87	47.34	48.06
Northern Territory ...	200.39	274.67	101.07	100.57	102.16	109.15	103.14
Western Australia ...	60.78	66.89	64.95	61.62	70.34	66.16	65.21
Tasmania ...	*46.46	*46.06	*42.85	†42.05	43.55	43.79	45.36
Commonwealth ...	46.26	47.58	47.92	51.01	53.15	50.62	49.50

* For the financial years 1901, 1902, and 1903 respectively. † Estimated for a period of twelve months ended the 30th June, 1904.

25. **Distribution of Working Expenses, 1901 to 1907.**—The subjoined table shews the distribution of working expenses, among four chief heads of expenditure, for each year from 1901 to 1907, inclusive:—

GOVERNMENT RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES,
1901 TO 1907.

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
MAINTENANCE.							
	£	£	£	£	£	£	£
New South Wales ...	484,750	521,933	486,596	519,389	491,164	539,700	593,290
Victoria ...	518,488	501,933	437,840	448,959	502,022	572,297	589,452
Queensland ...	408,551	355,615	292,951	277,913	277,672	238,100	295,160
South Australia ...	185,291	166,691	130,297	164,066	206,894	203,487	273,686
Northern Territory ...	18,206	29,001	6,981	7,037	7,392	7,966	7,334
Western Australia ...	193,573	246,931	265,548	264,430	344,177	293,250	265,771
Tasmania ...	*59,897	*58,612	*51,957	149,236	54,517	53,418	57,390
Commonwealth ...	1,868,756	1,880,771	1,631,170	1,731,080	1,883,838	1,953,216	2,082,093

LOCOMOTIVES AND ROLLING STOCK.

New South Wales ...	936,103	1,059,814	1,089,829	1,054,168	1,023,551	1,056,936	1,132,263
Victoria ...	793,345	855,464	762,715	719,530	763,171	788,325	844,941
Queensland ...	395,876	389,766	343,675	317,759	313,804	337,316	358,010
South Australia ...	362,567	343,572	317,217	348,487	360,150	386,028	404,664
Northern Territory ...	4,454	3,210	3,451	3,520	2,963	3,310	3,120
Western Australia ...	497,188	670,485	642,808	581,655	577,002	566,420	534,826
Tasmania ...	*53,579	*63,792	*62,376	164,473	63,542	63,831	72,985
Commonwealth ...	3,053,112	3,386,103	3,222,071	3,084,593	3,104,183	3,204,166	3,350,814

TRAFFIC EXPENSES.

New South Wales ...	537,227	588,938	605,210	601,634	596,313	631,388	682,927
Victoria ...	609,000	640,442	592,897	586,015	562,370	588,123	593,248
Queensland ...	232,557	226,237	207,803	196,806	204,858	218,314	237,994
South Australia ...	164,589	162,626	151,738	151,697	152,627	157,485	171,721
Northern Territory ...	2,309	2,108	1,935	2,300	2,362	171,721	2,460
Western Australia ...	296,045	306,409	312,364	306,998	302,234	305,138	300,742
Tasmania ...	*41,138	*42,416	*42,820	143,318	43,808	44,585	45,795
Commonwealth ...	1,882,865	1,969,176	1,914,267	1,888,768	1,864,572	1,947,269	2,034,887

OTHER CHARGES.

New South Wales ...	85,121	96,634	84,664	83,749	81,119	80,360	91,256
Victoria ...	154,406	168,275	238,635	267,899	394,716	267,457	325,662
Queensland ...	20,997	21,133	19,453	19,473	18,410	19,626	21,474
South Australia ...	16,592	16,628	16,259	16,144	17,120	17,385	17,934
Northern Territory ...	311	330	445	362	352	342	356
Western Australia ...	58,114	32,545	27,153	26,541	32,590	36,945	34,568
Tasmania ...	*8,786	*8,472	*9,202	18,952	9,763	8,769	9,330
Commonwealth ...	344,327	344,017	395,811	423,120	554,070	430,884	500,580

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

† Estimated for a period of twelve months ended the 30th June, 1904.

‡ See Footnote * to the table given on page 576 shewing total amounts of working expenses.

26. **Analysis of Working Expenses, 1907.**—A comparative analysis is given on page 578 of the working expenses of the Government railways in each State and in the Commonwealth; in this statement the total expenses are given, as well as the expenses per train mile and per mile worked, and also the percentage of expenses to gross revenue:—

GOVERNMENT RAILWAYS.—ANALYSIS OF WORKING EXPENSES, 1907.

Expenditure on:—	N.S.W.	Victoria.	Q'land.	S. A.	N. T.	W. Aust.	Tas.	C'wealth.
MAINTENANCE OF WAYS AND WORKS—								
Total £	593,290	589,452	295,160	273,686	7,334	265,771	57,390	2,082,093
Per train mile ... d.	11.00	14.10	11.56	15.15	56.96	15.26	14.03	12.93
Per mile worked... £	173	174	94	151	51	159	122	148
Per cent. of gross revenue	12.60	14.69	16.13	17.36	52.34	17.89	22.23	14.94
LOCOMOTIVE POWER—								
Total £	939,260	455,593	289,253	321,746	2,227	393,558	72,985	2,474,622
Per train mile ... d.	17.41	10.90	11.34	17.81	17.29	22.59	17.85	15.37
Per mile worked... £	274	134	92	177	15	235	156	176
Per cent. of gross revenue	19.94	11.35	15.81	20.42	15.83	25.61	23.26	17.76
ROLLING STOCK REPAIRS AND RENEWALS—								
Total £	193,008	389,348	68,757	82,918	893	141,268	Included in Loco. Power.	876,192
Per train mile ... d.	3.58	9.31	2.69	4.59	6.93	8.12		5.44
Per mile worked... £	56	114	22	45	6	84		62
Per cent. of gross revenue	4.10	9.70	3.76	5.26	6.39	9.18		6.29
TRAFFIC EXPENSES—								
Total £	682,927	593,248	237,994	171,721	2,460	300,742	45,795	2,034,887
Per train mile ... d.	12.66	14.19	9.32	9.52	19.20	17.26	11.19	12.64
Per mile worked... £	199	174	56	95	17	179	97	145
Per cent. of gross revenue	14.50	14.78	13.01	10.91	17.57	19.56	17.73	14.60
OTHER CHARGES—								
Total £	*91,256	†325,662	21,474	†17,934	356	‡34,568	9,330	500,580
Per train mile ... d.	1.68	7.78	0.84	0.99	2.76	1.98	2.29	3.12
Per mile worked... £	27	95	7	10	2	21	20	35
Per cent. of gross revenue	1.94	8.13	1.17	1.15	2.56	2.25	3.62	3.59
TOTAL EXPENSES £								
Total £	2,499,741	2,353,303	912,638	868,005	13,280	1,135,907	185,500	7,968,374
Per train mile ... d.	46.33	56.28	35.75	48.08	103.14	65.21	45.36	49.50
Per average mile worked £	729	693	291	478	91	678	395	566
Per cent. of gross revenue	53.08	58.65	49.88	55.10	94.74	73.89	71.84	57.18

* Including £9979 compensation for injuries to persons and damage to property; £9002 for gratuities to widows and children of employes, and payments to staff retired; and £1690 for fire insurance. † Includes £165,749 for special expenditure and charges, and £110,881 for pensions and gratuities. ‡ Includes £2190 for compensation. § Includes £7503 for compensation.

27. **Net Revenue, Total and per Cent. of Capital Cost, 1901 to 1907.**—The table given hereunder shows 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 1907, inclusive:—

GOVERNMENT RAILWAYS.—NET REVENUE AND PERCENTAGE OF NET REVENUE UPON CAPITAL COST, 1901 TO 1907.

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
NET REVENUE.							
New South Wales ...	£ 1,530,578	£ 1,401,317	£ 1,048,594	£ 1,177,473	£ 1,491,869	£ 1,926,407	£ 2,209,665
Victoria* ...	1,262,558	1,201,724	1,014,771	1,415,738	1,359,987	1,571,417	1,659,338
Queensland ...	258,955	389,428	370,848	493,601	598,695	682,727	917,035
South Australia ...	507,577	395,658	452,101	485,244	536,530	585,380	707,362
Northern Territory ...	— 11,435	— 22,127	— 1,514	3,787	2,360	1,043	738
Western Australia ...	308,784	265,059	305,612	408,460	354,126	432,691	401,426
Tasmania ...	132,391	159,919	181,328	190,665	71,926	68,587	72,723
Commonwealth ...	3,889,408	3,690,973	3,271,740	4,074,968	4,415,493	5,268,252	5,968,288

PERCENTAGE OF NET REVENUE AFTER PAYMENT OF WORKING EXPENSES TO CAPITAL EXPENDITURE, FROM 1900-1 TO 1906-7.

	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
New South Wales ...	3.93	3.45	2.52	2.78	3.46	4.42	4.94
Victoria* ...	3.14	2.96	2.48	3.43	3.29	3.80	4.00
Queensland ...	1.31	1.94	1.83	2.36	2.77	3.14	4.20
South Australia ...	3.86	2.98	3.37	3.59	3.95	4.30	5.16
Northern Territory ...	— 0.98	— 1.91	— 0.13	0.32	0.20	0.09	0.06
Western Australia ...	4.35	3.58	3.75	4.56	3.61	4.34	3.90
Tasmania ...	10.85	11.56	12.09	12.32	1.83	1.75	1.84
Commonwealth ...	3.14	2.91	2.53	3.09	3.28	3.89	4.35

* In addition to ordinary working expenses, special expenditures and charges paid out of each year's gross revenue have been deducted; see Footnote * to table given above showing total working expenses. † For the calendar years 1901, 1902, and 1903 respectively. ‡ Estimated for a period of twelve months ended the 30th June, 1904.

28. **Net Revenue, per Average Mile Worked and per Train Mile Run, 1901 to 1907.**—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 1907.**

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
NET REVENUE PER AVERAGE MILE WORKED.							
	£	£	£	£	£	£	£
New South Wales ...	543	475	341	365	455	572	645
Victoria* ...	391	368	304	420	402	463	489
Queensland... ..	92	139	134	175	195	220	292
South Australia ...	292	228	260	279	308	335	390
Northern Territory ...	79	152	10	26	16	7	5
Western Australia ...	228	195	213	266	226	269	240
Tasmania ...	†70	†128	†173	†193	153	146	155
Commonwealth ...	310	290	252	306	323	381	424
NET REVENUE PER TRAIN MILE RUN.							
	d.	d.	d.	d.	d.	d.	d.
New South Wales ...	34.13	28.87	21.79	27.17	34.20	38.97	40.95
Victoria* ...	27.38	25.56	23.68	37.04	36.17	40.16	39.68
Queensland... ..	10.69	16.50	17.99	25.49	29.22	31.02	35.93
South Australia ...	27.73	22.53	28.78	31.15	34.11	36.25	39.17
Northern Territory ...	90.64	175.40	11.94	28.81	18.45	8.22	5.73
Western Australia ...	17.96	14.11	15.91	21.34	19.83	23.82	23.04
Tasmania ...	†8.68	†15.93	†20.95	†22.96	18.25	17.40	17.78
Commonwealth ...	25.17	23.16	21.74	29.17	31.69	35.37	37.07

* See footnote to preceding table.

† See footnote to preceding table.

‡ See footnote to preceding table.

29. **Interest Returned on Capital Expenditure.**—It will be seen from the figures given in the preceding table 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, 1906, was about 3½ 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 1907.*

The net revenue of the Government railways in each State after payment of working expenses is shewn above, on page 578. 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:—

GOVERNMENT RAILWAYS.—INTEREST ON EXPENDITURE FROM LOANS,
PROFIT OR LOSS AFTER DEDUCTING WORKING EXPENSES AND
INTEREST, AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST
OF CONSTRUCTION AND EQUIPMENT.

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
AMOUNT OF INTEREST ON RAILWAY LOAN EXPENDITURE.							
	£	£	£	£	£	£	£
New South Wales ...	1,424,940	1,434,638	1,474,473	1,494,149	1,526,948	1,541,427	1,598,710
Victoria ...	1,464,809	1,492,895	1,473,532	1,515,755	1,461,994	1,472,397	1,483,284
Queensland ...	519,084	837,205	859,986	873,006	876,568	881,414	*385,881
South Australia ...	454,141	469,787	466,655	470,882	468,730	474,955	479,720
Northern Territory ...	45,757	47,012	46,761	46,838	46,746	46,770	46,746
Western Australia ...	225,713	234,932	257,195	277,181	308,916	323,564	333,237
Tasmania ...	141,725	140,550	142,550	143,190	143,890	144,100	148,263
Commonwealth ...	4,576,169	4,656,819	4,721,152	4,811,001	4,833,792	4,884,627	4,975,341

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

	£	£	£	£	£	£	£
New South Wales ...	+105,638	— 33,321	—425,879	—306,676	— 35,079	+384,980	+610,955
Victoria ...	—202,251	—290,971	—453,761	—100,017	—102,007	+ 99,020	+176,054
Queensland ...	—560,029	—447,777	—489,138	—379,465	—277,873	—198,687	+*31,654
South Australia ...	+ 53,436	— 74,129	— 14,554	+ 14,392	+ 67,900	+110,425	+227,643
Northern Territory ...	— 57,192	— 60,139	— 43,275	— 43,051	— 44,366	— 45,727	— 46,008
Western Australia ...	+ 83,071	+ 80,127	+ 48,417	+131,279	+ 45,210	+109,127	+ 68,189
Tasmania ...	—109,834	— 80,631	— 61,222	— 52,525	— 71,964	— 75,513	— 75,540
Commonwealth ...	—686,761	—965,841	—1,449,412	—736,033	—418,299	+383,625	+992,947

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

State.	1900-1.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
PERCENTAGE OF PROFIT OR LOSS TO CAPITAL COST OF CONSTRUCTION AND EQUIPMENT.†							
	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
New South Wales ...	+0.27	-0.08	-1.02	-0.73	-0.08	-0.88	+1.36
Victoria ...	-0.50	-0.71	-1.12	-0.24	-0.25	+0.24	+0.42
Queensland ...	-2.84	-2.22	-2.41	-1.81	-1.23	-0.91	+*0.15
South Australia ...	+0.41	-0.56	-0.11	+0.11	+0.50	+0.81	+1.66
Northern Territory ...	-4.88	-5.96	-4.10	-3.65	-3.76	-3.87	-0.39
Western Australia ...	+1.17	+0.41	+0.59	+1.46	+0.47	+1.09	+0.66
Tasmania ...	-2.87	-2.10	-1.57	-1.34	-1.83	-1.92	-1.92
Commonwealth ...	-0.55	-0.76	-1.12	-0.56	-0.31	+0.23	+0.72

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

30. **Numbers and Descriptions of Rolling-Stock, 1906.**—The following tables give returns of rolling-stock (i.) on Government railways and (ii.) on private railways:—

GOVERNMENT RAILWAYS.—PARTICULARS OF ROLLING-STOCK IN USE ON THE 30TH JUNE, 1907.

State.	Gauge.	Locomotives.		Coaching Stock.		Goods Stock, etc.	
		Engines.	Tenders.	Cars.	Brake-Vans, etc.	Trucks.	Brake-Vans, etc.
	ft. in.						
New South Wales ...	4 8½	656	541	764	423	11,379	302
Victoria ...	5 3	*490	...	†1,217	‡494	10,519	...
Queensland ...	2 6	7	...	\$16	...	106	...
South Australia ...	3 6	350	...	462	118	7,617	¶
Northern Territory ...	5 3	157	99	215	30	2,198	59
Western Australia ...	3 6	172	177	107	44	3,846	87
Tasmania ...	3 6	6	...	7	...	||137	...
	3 6	321	...	300	24	6,190	132
	3 6	71	...	140	40	1,312	54
	2 0	5	...	3	3	67	...
Commonwealth ...	...	2,235	817	3,231	1,176	43,371	634

* Including combined shunting engine and travelling crane. † Including eighteen South Australian joint stock. ‡ Including nine South Australian joint stock. § Includes six cars and brake-vans combined. ¶ Including six departmental vehicles. ¶¶ Included in coaching stock.

PRIVATE RAILWAYS.—PARTICULARS OF ROLLING-STOCK IN USE ON THE 30TH JUNE, 1906.

State.	Locomotives.	Coaching Stock.	Goods and Live-Stock Vehicles.
New South Wales ...	19	22	583
Queensland* ...	...	...	...
South Australia ...	2	1	71
Western Australia ...	46	18	1,010
Tasmania† ...	21	16	323
Commonwealth ...	88	57	1,987

* Returns not available.

† To the 31st December, 1905.

31. **Number of Railway Employees, 1901 to 1907.**—The following table shews the number of employees in the Railway Departments of each State from 1901 to 1907:—

GOVERNMENT RAILWAYS.—NO. OF EMPLOYEES IN RAILWAY DEPTS., 1901-7.

State.	1901.		1902.		1903.		1904.		1905.		1906.		1907.	
	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.
N.S. Wales*	1,372	11,747	1,503	13,055	1,525	11,518	1,569	11,526	1,605	11,685	1,650	11,828	1,770	13,411
Victoria	1,432	10,524	1,541	9,941	1,496	10,358	1,415	9,868	1,499	11,049	1,515	11,432	1,586	12,492
Queensland	994	4,633	912	4,288	942	4,023	892	4,051	890	4,146	906	4,223	949	4,401
South Aust.†	—	3,855	—	3,866	—	3,666	—	3,567	—	3,519	—	3,520	—	5,531
N. Territory†	—	51	—	68	—	63	—	52	—	54	—	54	—	172
West. Aust.†	876	5,407	857	5,196	912	5,329	910	5,837	930	5,818	928	5,480	921	4,895
Tasmania	178	1,252	178	1,169	179	1,061	181	1,153	178	980	178	1,039	177	1,030
C'wealth	4,852	37,469	4,901	38,183	5,054	36,018	4,967	36,054	5,102	37,251	5,177	37,575	5,403	41,922

* Exclusive of gate-keepers with free house only. † Separate returns for salaried and wages staff are not available; the number of salaried staff is included with the wages staff. ‡ Europeans, sixty-six; Chinese and coolies, six.

32. Accidents.—Numbers of Killed and Injured, 1901 to 1907.—The subjoined tables give particulars of accidents in the Government railways in each State for the years 1901 to 1907. A classification is given for the year ending the 30th June, 1907.

GOVERNMENT RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED, 1901 TO 1907.

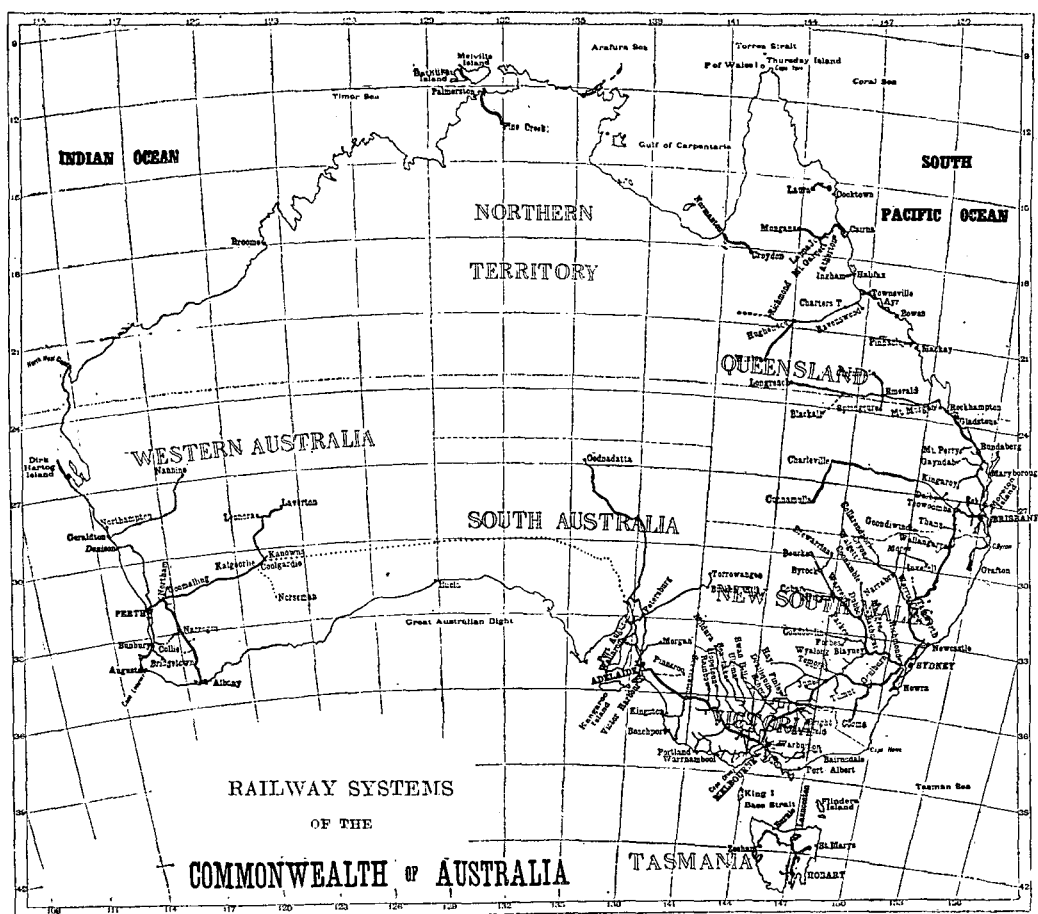
State.	1900-1.		1901-2.		1902-3.		1903-4.		1904-5.		1905-6.		1906-7.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
N.S. Wales	46	441	34	822	42	808	44	752	27	667	38	775	30	1,104
Victoria	50	615	40	838	40	574	28	682	25	430	60	739	55	527
Queensland	20	201	12	180	7	138	14	159	11	157	9	190	12	216
S. Australia	8	50	12	36	8	35	6	26	9	25	9	64	12	112
N. Territory	—	—	1	—	—	—	1	—	—	1	1	2	—	2
W. Australia*	5	205	5	218	4	228	2	238	11	405	16	320	11	257
Tasmania	1	17	1	24	1	24	3	38	1	51	1	37	1	50
C'wealth	180	1,529	105	2,118	102	1,807	98	1,895	84	1,736	134	2,127	121	2,268

* The returns up to and including the year 1904-5 are for accidents to servants of the Railway Department only.

GOVERNMENT RAILWAYS.—PARTICULARS OF PERSONS KILLED AND INJURED DURING YEAR ENDED THE 30TH JUNE, 1907.

State.	Passengers.				Servants of Department.				Trespassers and Others.		Total.	
	Causes beyond their own Control.		Misconduct or want of Caution.		Causes beyond their own Control.		Misconduct or want of Caution.		Killed.	Injured.	Killed.	Injured.
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.				
New South Wales	...	32	3	68	1	28	8	963	18	108	30	1,104
Victoria	...	31	6	200	1	123	12	97	36	76	55	527
Queensland	...	2	1	21	1	134	3	46	7	13	12	216
South Australia	...	1	4	22	...	31	1	34	7	24	12	112
Northern Territory	1	...	1	...	2
Western Australia	...	22	3	2	2	213	...	2	6	12	11	257
Tasmania	8	...	3	1	39	...	...	1	50
Commonwealth	...	88	17	327	5	532	25	1,087	74	234	121	2,268

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.

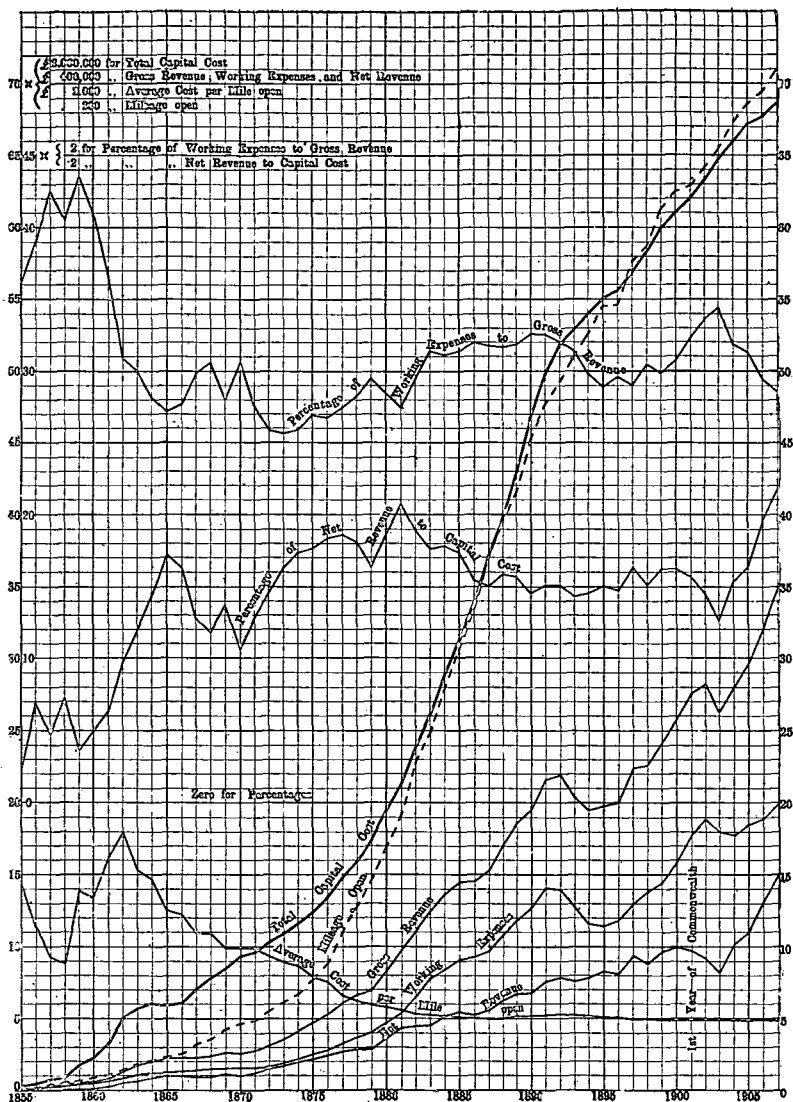
Lines in course of construction are shewn by dotted lines, thus - - - - -

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

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'rue. (17 hrs.) 582	Perth to Leonora ... 536
Toowoomba to Newcastle 520	Melb'rue to Adelaide. (17 hrs.) 482	.. 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 1907.



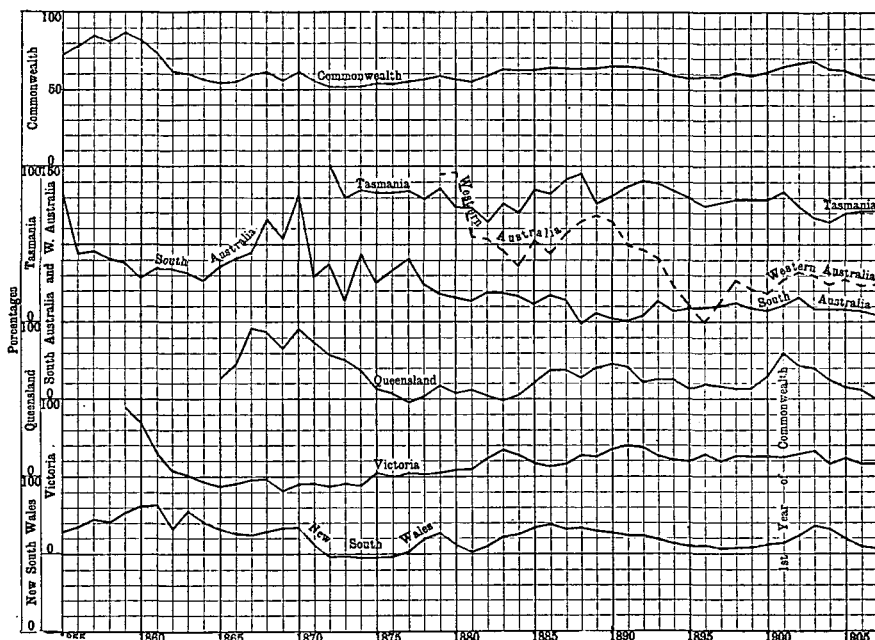
EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The significance of the vertical height of each square varies, however, according to the nature of the several curves.

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 £2000. The mileage open is shewn 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 per cent. 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.

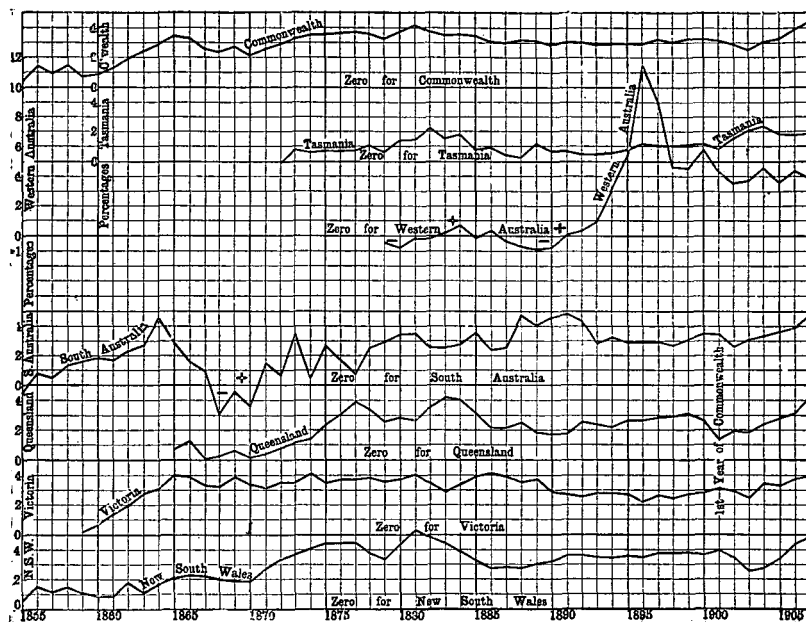
GRAPHS SHEWING PERCENTAGES OF WORKING EXPENSES TO GROSS REVENUE FOR STATES AND COMMONWEALTH, 1855 TO 1907.



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 1907.



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.

§ 3. Graphical Representation of Railway Developments.

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 583 to 586 have been prepared. The distribution of the railways is shewn on the map on page 583.

2. **Capital Cost and Mileage Open** (page 584).—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 584. 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, £9669, in 1907.

4. **Gross Revenue.**—This graph (page 584) 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 584), 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. **Percentages of Working Expenses to Gross Revenue.**—This is shewn for each State and for the Commonwealth on page 585, and for the Commonwealth only, on a larger scale, on page 584. The curve shews considerable fluctuations, but points also to the fact that from 1903 to 1907 there has been 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 shewn on a large scale on page 584 and on page 586 both for Commonwealth and States. After exhibiting somewhat remarkable oscillations in the earlier years, and less marked ones between 1885 and 1900, and also a rapid fall to 1903, the curve from that year shews a well marked increase which seems to have become established, and has lasted from that year up to the present time. Maxima were reached in 1865, 1877 and 1881—viz., 3.44, 3.71 and 4.14 per cent.—but these have been exceeded by the percentage for 1907, that is, 4.35.

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.	1903-1907.
Cost per mile ...	£ 24,561	£ 13,700	£ 10,286	£ 10,167	£ 9,852	£ 9,781

The percentage of working expenses on the gross revenue is at the present time rapidly falling, while the percentage of net revenue on total capital cost is 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 £137,196,168 for construction and equipment up to the 30th June, 1907, should, nevertheless, yield so large a revenue, bringing in for the year 1906-7 a return, as pointed out, of no less than 4.35 per cent.

§ 4. 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.

(i.) *Total Mileage Open and Classification of Lines.* The following table shews the total mileage of tramway lines open for traffic in each State and in the Commonwealth at the end of the year 1907, classified (a) according to the motive power utilised and (b) according to the nature of the authority by which the lines are controlled:—

TRAMWAY MILEAGE OPEN—CLASSIFICATION OF LINES, 1907.

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 ...	88½	33	30½	—	54½	9	215½
Steam ...	46½	—	166	—	—	2½	214½
Cable ...	—	45½	—	—	—	—	45½
Horse ...	1½	13	—	72½	23	—	109½
Total ...	135½	91½	196½	72½	77½	11½	585½
ACCORDING TO CONTROLLING AUTHORITY.							
Government ...	128½	5½	—	17½	23	—	174½
Municipal ...	—	—	166	49	7½	—	222½
Private ...	6½	86½	30½	6½	47½	11½	188½
Total ...	135½	91½	196½	72½	77½	11½	585½

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.) *Tramway Systems.* In Sydney and suburbs the Government tramways are divided into distinct systems. There were in June, 1907, five such systems in operation within the metropolitan area, the most important being the city and suburban lines—75½ miles in length—and the North Shore line—11½ miles in length. Both of these systems are now operated by electricity. There are two systems on which the motive power used is steam; namely—(a) the line from Ashfield to Enfield and Mortlake, seven and a half miles long, and (b) the line from Kogarah to Sans Souci, nearly five miles in length, and there is a horse tramway at Manly one and a quarter miles long. There are also Government steam tramways in operation at Newcastle, Broken Hill, and Parramatta.

(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 three and a quarter 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 and the Kogarah-Sans Souci lines, have now been converted into electric lines, and provision for the extra power required for the electrification of the two last-named 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, 1907, was 17½ miles. At Broken Hill and Parramatta the first sections of the tramways were opened in 1902. On the 30th June, 1907, the mileage open at Broken Hill amounted to six and a quarter, and at Parramatta to four and a half miles. On the same date the total length of all Government tramways open for traffic was 128¾ miles, the capital cost of construction and equipment of these lines being £3,669,524. There were also five and one-eighth miles of line under construction, of which four and three-quarter miles were at Sydney and the remainder at Broken Hill, while further extensions amounting in all to 11½ miles had been authorised. There are also three short lengths of tramways in New South Wales run by private companies. Further particulars are given below.

(ii.) *Particulars of all Government Tramways, 1901-7.* 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 1906-7, inclusive.

The net result for the year 1906-7, after providing for all working expenses and £181,793 interest on the capital invested, was a surplus of £48,961, as compared with £55,960 for the previous year :—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF GOVERNMENT TRAMWAYS, 1901 TO 1907.

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 ...	79½	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 ...	124½	3,371,587	752,034	654,165	97,869	86.98	2.90
1904 ...	125½	3,471,759	802,985	673,625	129,360	83.89	3.73
1905 ...	125½	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 ...	128½	3,669,524	908,701	727,947	180,754	80.11	4.92

(iii.) *Particulars of Different Systems of Government Tramways, 1906-7.* 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, 1906 TO 1907.

Particulars.	Sydney.				New-castle. (Steam.)	Broken Hill. (Steam.)	Parramatta (Steam.)	Total.
	Electric.	Steam.	Horse.	Total.				
Length ... miles	87½	12½	1½	100½	17½	6½	4½	138½
Total cost ...	£ 3,247,817	72,334	12,451	3,332,602	245,410	61,408	30,104	3,669,524
Gross revenue	£ 832,202	9,756	656	842,614	47,476	15,689	2,922	908,701
Working expenses	£ 662,187	11,387	716	674,290	37,420	13,335	2,902	727,947
Interest ...	£ 116,578	2,624	452	119,654	8,819	2,228	1,092	131,793
Profit or loss*	£ +53,437	—4,255	—512	+ 48,670	+ 1,237	+ 126	—1,072	+ 48,661

* 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.
£2,062,072	£747,283	£728,943	£40,179	£88,655	£2,392	£3,669,524

The average cost per mile open was £16,026 for permanent way and £28,518 for all charges.

(iv.) *Sydney Electric Tramways.* The total length of the city and suburban lines is 75½ miles, and of the North Shore line 11½ miles, making the total length of the electric tramways in Sydney 87½ miles. The current for the operation of these tramways is generated at the power-house at Ultimo, which was erected at a cost of £728,943, 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 1906-7, was 38,343,573 kilowatt-hours, of

which the direct current supply was 14,587,289, and the alternating current 23,756,289 kilowatt-hours. The following table gives particulars of the working of the electric tramways for each financial year from 1901 to 1907, inclusive :—

NEW SOUTH WALES.—PARTICULARS OF SYDNEY ELECTRIC TRAMWAYS,
1901 TO 1907.

Year ended 30th June.	Mileage Open for Traffic (Single).	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	670,603	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

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	No.	No.	No.	No.
1901	10,043,544	3,993,407	49,068,661	337	2,173
1902	15,471,747	6,174,646	63,517,020	436	2,855
1903	25,541,560	11,183,851	100,341,281	629	3,745
1904	30,866,308	14,382,761	116,312,375	626	3,873
1905	30,196,806	14,783,256	122,626,315	682	4,069
1906	32,315,754	15,351,781	135,300,401	735	3,863
1907	33,941,485	15,630,887	144,038,105	727	4,044

(v.) *Private Tramways.* There are three private tramway lines in New South Wales, and they are all within the Sydney metropolitan area. (a) There is an electric tramway running from Rockdale to Lady Robinson's Beach, a distance of one mile. This line was originally opened as a steam tramway in 1885, but was subsequently converted into electric. (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. (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. Further particulars as to the working of these private tramways are not available.

(vi.) *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 1906 were received from five companies, and shew that these companies had sixty boats in commission which were licensed to carry a total of 29,991 passengers, or an average of 500 per boat and per trip. The total number of passengers carried during the year is stated as 18,535,276, an average of more than 50,000 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 five companies employed during the year a total of 673 persons. Their capital expenditure to the end of 1906 amounted to £240,660, the gross revenue during 1906 to £191,936, and the expenditure to £135,429, thus giving a net revenue of £56,507. 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. 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 Beaumaris, the other, one and a half miles long, from Brunswick to Coburg. There are also systems of electric tramways at Ballarat and Bendigo, constructed and run by a private company.

(i.) *Melbourne Cable Tramways.* The Melbourne Omnibus Company began its services by the initiation of the omnibus lines 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. Up to the 1st July, 1907, the sums paid by the company to the Trust, with interest accumulations, amounted to £987,000. 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 1907.* The subjoined statement shews the tram mileage, the number of passengers carried, and the revenue and expenditure for each year ended the 30th June, from 1901 to 1907, inclusive:—

MELBOURNE CABLE TRAMWAYS.—PARTICULARS OF WORKING,
1901 TO 1907.

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	132,014	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	46,832,910	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

* Including amounts on account of omnibus lines.

(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. The sub-joined statement gives particulars of the working of this line for the financial year ended the 30th June, 1907.—

Mileage Open.	Car Mileage.	Passengers Carried.	Gross Revenue.	Working Expenses.	*Special Expenditure.	Interest.	Net Loss.
			£	£	£	£	£
5.13	303,777	1,030,242	9,590	7,451	9,941	1,980	9,782

* Replacement of rolling-stock, car-shed, and equipment, destroyed by fire.

(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, 1901 to 1906.* The following table gives particulars of the working of all electric tramways in Victoria for each year from 1901 to 1906, inclusive:—

VICTORIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS,
1903 TO 1906.

Year.	Current Generated for Traction Purposes at Central Station.	Mileage Open for Traffic.	Total Cost of Construc- tion and Equipment.	Tram Miles Run.	Number of Passengers Carried.	Number of Cars in Use.	Number of Employees.
	Kilowatt-hours	Miles.	£	No.	No.	No.	No.
1903	331,712	10½	106,553	326,878	1,214,323	12	55
1904	463,633	10½	115,309	483,027	1,749,225	12	86
1905	703,226	23½	191,882	699,729	2,759,868	53	210
1906	1,790,353	33	222,486*	1,793,647	7,037,312	78	379

* Incomplete; the figure given shows the cost of construction and equipment of 25½ miles only.

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 1906. There are also a number of tramways run by local authorities in various parts of the State, and constructed out of loans granted by the central Government. At the end of the year 1906 there were nine of these tramways in operation, the total mileage open for traffic amounting to 166.

(i.) *Brisbane Electric Tramways.* These tramways are run on the overhead trolley system, the voltage of the line current being 550. The following table gives particulars of these tramways for each calendar year from 1901 to 1906, inclusive:—

QUEENSLAND.—BRISBANE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING, 1901 TO 1906.

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	57	375
1902...	3,852,308	24½	3,015,548	18,125,302	125,451	73,473	62	390
1903...	3,975,355	27	3,157,574	18,376,000	126,526	77,539	65	400
1904...	4,154,797	29	3,243,686	18,452,704	126,647	76,586	66	430
1905...	4,561,780	30¾	3,323,823	20,049,978	128,436	78,918	66	485
1906...	4,370,004	30¾	3,323,657	22,052,424	141,414	78,493	66	550

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

(a) *Particulars of Shire Tramways, 1903-6.* The subjoined table gives particulars of shire tramways for each year from 1903 to 1906, inclusive:—

QUEENSLAND.—PARTICULARS OF SHIRE TRAMWAYS, 1903 TO 1906.

Year.	Miles. Open.	Total Cost.	*Receipts.	Expenditure.				
				Works, Repairs, and Maintenances.	Loan Redemptions.	Office, Expenses, and Salaries.	Other.	Total.
	Miles.	£	£	£	£	£	£	£
1903...	163	349,691	25,636	...	...	...	...	†32,101
1904...	165	377,131	49,683	34,328	13,295	3,315	8,394	59,332
1905...	165	369,545	38,092	15,361	14,819	3,121	2,050	35,351
1906...	165	369,166	39,267	15,847	19,312	3,532	3,042	41,733

* Exclusive of sums received by way of endowment, loan, or grant. † Incomplete.

(b) *Particulars of each Tramway for the Year 1906.* The subjoined statement shews the length, capital cost, receipts, and the various items of expenditure for each tramway for the year 1906 :—

QUEENSLAND SHIRE TRAMWAYS.—LENGTH, CAPITAL COST, RECEIPTS AND EXPENDITURE OF EACH TRAMWAY FOR THE YEAR 1906.

Tramway.	Length.	Cost of Construction.	Receipts.	Expenditure.					Assets.	Liabilities.
				On Public Works, Repairs, & Maintenance.	Redemption of Loans.	Office Expenses and Salaries.	Other Expenses.	Total.		
	Mls.	£	£	£	£	£	£	£	£	£
Ayr	44	74,501	7,638	2,268	6,492	336	55	9,151	80,976	76,568
Beaudesert ...	21	57,977	5,052	961	2,861	957	934	5,713	59,727	56,846
Cairns-Mulgrave*	31	95,288	13,645	6,997	4,640	1,463	917	14,017	111,103	94,850
Green Hill* ...	4	5,800	—	—	—	—	—	—	—	—
Ingham	18	28,693	3,064	41	1,407	—	—	1,448	27,430	25,897
Geraldton ...	19†	50,009	2,792	1,799	700	155	232	2,876	52,308	58,146
McGregor's Creek†	7†	11,953	1,636	1,010	600	89	36	1,735	22,243	21,737
Cattle Creek†	5†	9,223	—	—	—	—	—	—	—	—
Mossman ...	14†	35,719	5,440	2,771	2,612	532	878	6,793	29,367	35,584
Total ...	165	369,166	39,267	15,847	19,312	3,532	3,042	41,733	383,154	369,628

* The Cairns-Mulgrave and Green Hill branch tramways are both controlled by the Cairns Shire Council. † McGregor's Creek and Cattle Creek tramways are both controlled by the Douglas Shire Council.

The gauge of the Green Hill, Ingham, Geraldton, and Mossman tramways is 2 ft. ; that of the other lines is 3 ft. 6 in.

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 were purchased from the private companies at a cost of £283,357. Within three years from the 31st December, 1906, the Trust is to electrify the main lines at a cost not exceeding on the average £12,000 per mile. At the commencement of the year 1908 there were fifty-four miles of single track in process of electrification. There are also in South Australia seventeen and three-eighths miles of Government horse tramways in country districts, worked in connection with the railway system and under the control of the Railway Commissioner. Further particulars as to these lines are not available.

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 twelve short lengths varying from eleven chains to four miles sixteen chains, 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, 1907 :—

WESTERN AUSTRALIAN GOVERNMENT TRAMWAYS.—PARTICULARS OF
THE ROEBURNE-COSSACK LINE, FINANCIAL YEAR 1906-7.

Mileage Open.	Cost of Construction and Equipment.	Gross Earnings.	Working Expenses.	Interest.	Loss.
8½	£24,733	£1,951	£2,049	£982	£1,080

The total loss on the working of this line since its inception to 30th June, 1907, amounted to £20,910.

(ii.) *Electric Tramways.* There are now four towns in Western Australia which enjoy the benefits of electric tramway systems, namely, Perth, Fremantle, Kalgoorlie, and Boulder 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, 1906, there were 26½ miles of line open, the total cost of construction and equipment to that date being £447,418, exclusive of amounts paid out of revenue to a sinking fund for the redemption of debenture stock.

(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 1906 the total mileage of the whole system—in Kalgoorlie and Boulder City—amounted to 20½ miles, the total cost of construction and equipment being then £171,461.

(c) *The Fremantle Tramways* were opened in November, 1905, under the control of the municipality. On the 30th August, 1906, there were 7½ miles of line open for traffic, the cost of construction and equipment at that date being £67,000.

(d) *Particulars of Working of all Electric Tramways, 1901 to 1906.* 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 1906, inclusive:—

WESTERN AUSTRALIA.—PARTICULARS OF ELECTRIC TRAMWAYS.
1901 TO 1906.

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	†411,154	1,396,888	8,226,926	99,794	68,567	59	†70
1904	*1,831,385	42	§588,129	1,590,925	9,833,212	118,269	69,586	62	266
||1905	*2,695,277	54	§683,280	2,190,988	12,861,664	147,455	91,006	89	373
1906	*3,076,810	54½	§685,879	2,325,378	13,595,098	152,678	92,379	89	436

* Exclusive of Kalgoorlie tramways, for which returns are not available. † Exclusive of Kalgoorlie tramways and also of amounts paid out of revenue to sinking fund for redemption of debenture stock of the Perth Tramways Company. ‡ Exclusive of Perth tramways. § Exclusive of amounts paid out of revenue to sinking fund for the redemption of debenture stock of the Perth Tramways Company. || 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.

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. There is also a steam tramway at Zeehan, two and a quarter miles in length, owned by a private company and used for the purpose of conveying both goods and passengers. 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. At the time of going to press the work of construction had not been commenced.

(i.) *Hobart Electric Tramways*. These tramways were opened for traffic in 1893, the total cost of construction and equipment to the 31st December, 1906, being £88,500. The following table gives particulars of the working of this system for each year from 1901 to 1906, inclusive:—

TASMANIA.—PARTICULARS OF WORKING OF HOBART ELECTRIC TRAMWAYS, 1901 TO 1906.

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

(ii.) *Zeehan Steam Tramways*. This line, two and a quarter miles in length, was opened in 1898:—

TASMANIA.—PARTICULARS OF WORKING OF ZEEHAN STEAM TRAMWAYS, 1901 TO 1906.

Year.	Miles Open.	Cost of Construction and Equipment.	Gross Receipts.	Working Expenses.	Number of Miles Run.	Number of Passengers Carried.	Number of Employés.	Number of Passenger Cars.
	Miles.	£	£	£	No.	No.	No.	No.
1901 ...	2½	5,388	*	1,848	7,488	9,970	7	2
1902 ...	2½	5,388	*	*	8,451	7,302	6	2
1903 ...	2½	5,015	*	*	8,372	6,714	7	4
1904 ...	2½	5,000	-	*	8,990	10,270	7	4
1905 ...	2½	5,515	*	*	9,654	†	7	4
1906 ...	2½	5,515	*	*	10,000	†	7	4

* Returns not available. † There was no regular passenger service in 1905 or 1906, holiday excursions alone being provided for.