SECTION XVII.

ROADS AND RAILWAYS.

§ 1. Roads and Bridges.

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

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

2. **Expenditure on Roads and Bridges.**—Figures shewing the total expenditure on roads and bridges in the States are not available. The subjoined statement, however, gives the amounts of total loan expenditures by the State Governments up to the 30th June, 1921 :—

ROADS AND BRIDGES.—TOTAL GOVERNMENT LOAN EXPENDITURE TO THE 30th JUNE, 1921.

State.	N.S.W.*a*	Victoria.	Q'land.*b*	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
Expenditure..	1,854,775	3,531,678	931,775	1,929,966	412,552	3,676,396	12,337,142

(*a*) Including punts. (*b*) Including amounts from surplus revenue on which no interest is payable.

The following table shews the annual expenditure from loans on roads and bridges by the central Governments in each State during the years 1916–17 to 1920–21 :—

ROADS AND BRIDGES.—LOAN EXPENDITURE BY STATE GOVERNMENTS, 1917 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1916–17 ..	5,428	252,836	..	54,939	5,879	..	319,082*a*
1917–18 ..	22,374	241,892	..	43,693	2,600	..	310,559*a*
1918–19 ..	13,089	360,524	..	22,008	4,310	90,101	490,032*b*
1919–20 ..	6,674	623,570	..	66,393	14,538	81,940	793,115*b*
1920–21 ..	13,555	965,646	..	120,223	32,121	100,621	1,232,166*b*

(*a*) Exclusive of Tasmania and Queensland. (*b*) Exclusive of Queensland.

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

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

3. **New South Wales.**—The control of all roads, bridges, and ferries in New South Wales is now regulated by the Local Government Act No. 41, 1919, which came into force on the 1st January, 1920. Under the provisions of this Act, the eastern and central divisions of the State are divided into shires and municipalities for the general purposes of local government, for the endowment of which a sum of not less than £150,000 is payable annually out of the consolidated revenue on the basis of a percentage subsidy on the proceeds of the general rates received by the local governing bodies concerned. The control of all roads, bridges, and ferries (except those proclaimed "National" and those in the unincorporated areas of the Western Division) has been transferred from the Roads Department to the respective shires and municipal councils, who are now responsible for their construction and maintenance. Up to December, 1921, 58 miles of roads, 283 bridges, 55 wharves, 99 jetties, and 23 ferries have been proclaimed as "National" works. Power is given to construct new roads, to widen or close existing roads, to make by-laws for the regulation of traffic, etc.; and in the case of the acquisition of land for the purpose of constructing new roads or of widening existing roads, the provisions of the Roads Act 1902 are incorporated. The Minister for Works is empowered to pay subsidies to the local authorities to maintain the roads. The roads leading to and within areas of lands which are made available for closer settlement will be constructed by the Government prior to transfer to the shires, as also will roads required mainly for tourists in districts not likely to produce revenue in rates to the local authorities.

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

(ii) *Length and Classification of Roads and Bridges.* The length of roads in the State (exclusive of 58 miles proclaimed as "National" works) in 1921 was approximately 101,698 miles, of which 10,187 miles were controlled by municipalities, 85,458 by shires, and 6,053 miles were in the unincorporated areas of the Western Division. The following table gives particulars for the year 1921 of roads classified according to whether metalled, etc., formed only, cleared only, or natural surface :—

NEW SOUTH WALES.—APPROXIMATE LENGTH OF ROADS, 1921.

Classification.	Metalled, Ballasted, Gravelled, etc.	Formed only.	Cleared only.	Natural surface.	Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
Metropolitan	1,742	549	249	206	2,746
Country municipalities	2,732	1,363	1,913	1,433	7,441
Shires	17,216	12,200	26,538	29,504	85,458
Western Division (unincorporated) ..	213	163	3,437	2,240	6,053
Total	21,903	14,275	32,137	33,383	101,698

(iii) *Bridges, Culverts, and Ferries.* The more important bridges have been proclaimed under the provisions of the Local Government Act as "National" works (see above), and these, together with the bridges, etc., in the Western Division, remain under the control of, and are maintained by the Public Works Department. Particulars of bridges, culverts, and ferries in the State in 1921, are given in the following table :—

NEW SOUTH WALES.—BRIDGES, CULVERTS, AND FERRIES, 1921.

Particulars.	Bridges.		Culverts.		Ferries.
	No.	Length.	No.	Length.	No.
		Feet.		Feet.	
"National" works	283	108,631	..	..	23
Metropolitan	140	7,521	1,384	109,257	1
Country municipalities	605	33,741	3,283	134,637	25
Shires	3,627	223,126	35,287	341,770	175
Western Division (unincorporated) ..	99	13,602	340	4,573	6
Total	4,754	386,621	40,294	590,237	230

(iv) *Expenditure on Roads and Bridges.* Since the year 1857 the total expenditure by the Roads Department and Road Trusts on roads and bridges is £25,565,748. In this expenditure is included the cost of administering the Department, services for other Departments, and payments on account of punt approaches and similar works incidental to the road traffic of the country. The amount expended from 1857 to the 30th June, 1914, and for each succeeding financial year up to 1920, is given below. Until recent years, the expenditure on these works increased at a much faster rate than the population.

NEW SOUTH WALES.—EXPENDITURE BY ROADS DEPARTMENT AND ROAD TRUSTS, 1857 TO 1920.

Period.	Expenditure by Roads Department.	Expenditure by Trustees.	Total.
	£	£	£
1857 to 30th June, 1915 ..	23,857,921	1,288,691	25,146,612
1915–16	65,928	..	65,928
1916–17	74,124	..	74,124
1917–18	74,459	..	74,459
1918–19	88,591	..	88,591
1919–20	116,034	..	116,034
Total	24,277,057	1,288,691	25,565,748

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

4. **Victoria.**—Under the Local Government Act 1915, the control, construction, and maintenance of all roads, streets, and bridges are in the hands of municipal councils, which are empowered to open new roads, and to close, divert, or increase the width of any existing street or road, provided that no new road less than one chain in width may be opened without the consent of the Minister.

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

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

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

For the construction of developmental or feeder roads to the main road system the Developmental Roads Act (No. 2944) was passed in 1918. Under the authority of this Act the Country Roads Board is empowered to spend a sum of £500,000 over a period of five years on some of the more important roads in the less developed and neglected parts of the State. This sum was subsequently increased to £2,000,000 (Act No. 2985). The amount expended during the year 1919–20 under this Act was £315,701.

For the purpose of making permanent works, power is given to the Governor in Council to issue stock or debentures to the amount of £400,000 a year for five years, and the principal and interest are a charge upon the Consolidated Revenue of the State. The money so raised is to be placed to the credit of an account to be called the "Country Roads Loan Account," which will be debited with all payments made by the Treasurer towards the cost of permanent works. A further sum of £500,000 was made available under Act No. 3057 passed in September, 1920, to be raised in the two financial years 1920–21 and 1921–22, at the rate of £250,000 per annum. A sinking fund of 1 per cent. per annum on half the amount borrowed is authorised to be paid out of the Consolidated Revenue until half of the amount borrowed is redeemed. An annual payment to the Treasurer of 6 per cent. on the amount due by each municipality in respect of permanent works is provided for, and the cost of maintenance allocated to each municipality must be paid before the 1st July in each year. A special rate not to exceed 6d. in the £1 on the net annual value of rateable property, to meet the cost of permanent works, may be levied in any ward or riding of a municipality as the council may direct. In the event of default of payment by a municipality, the board may levy a rate to meet the amount owing. For maintenance works an annual payment of £50,000 to the Country Roads Board Fund from the Consolidated Revenue is provided for by Act No. 2986 and power is given to reduce contributions of the municipalities in respect to the maintenance of main roads where the Board is satisfied that the cost of maintenance is excessive, and that such cost is due to motor traffic not of local origin or to timber traffic. All fees and fines paid under the Motor Car Act, all moneys standing to the credit of the Municipal Fees and Fines Trust Fund, all fees paid on the registration or renewal of the registration of traction engines, and all fees received by the Crown after the 30th June, 1912, under the Unused Roads and Water Frontages Act 1903 (which has been incorporated in the Local Government Act 1915), are to be credited to the Country Roads Board Fund.

Up to the 30th June, 1918, there were 6,500 miles of declared main roads, agreed to by the councils and gazetted. The total amount expended during 1919–20 for permanent works was £335,755, and for maintenance work £192,320, a total of £528,075. The net receipts for the year were £294,498, of which amount the chief items were motor registration and license fees, £85,363, unused roads and water frontages license fees, £22,072, contributions by municipalities for permanent works, £37,573; ditto for maintenance works, £89,730; and appropriation for maintenance under the Main Roads Act No. 2986, £50,000.

(ii) *General and Local Government Expenditure.* The gross amount expended directly by the State Government of Victoria on roads and bridges up to the end of June, 1920, was £8,825,239. The annual expenditure from ordinary revenue by municipalities is not returned separately, but is included in Public Works Construction and Maintenance

(see Section XXVI., *Local Government*). The subjoined table shews the cost from general revenue of municipalities of private streets, roads, etc., and the amounts of municipal loan expenditure in 1901 and from 1917 to 1921 :—

VICTORIA.—EXPENDITURE ON ROADS AND BRIDGES, 1901 AND 1917 TO 1921.

Financial Year.(a)	Expenditure by State Government.	Municipal Loan Expenditure.		Formation of Private Roads, Streets, Lanes, etc.(b)	
		Cities, Towns, and Boroughs.	Shires.	Cities, Towns, and Boroughs.	Shires.
	£	£	£	£	£
1901	72,890	16,844	12,928	18,829	4,521
1917	16,514	41,686	7,279	60,277	3,222
1918	19,782	22,037	19,007	72,506	2,968
1919	20,591	31,864	13,194	103,493	7,632
1920	7,832	32,974	11,402	77,858	4,888
1921	10,842	(c)	(c)	(c)	(c)

(a) The financial years of Melbourne and Geelong end on the 31st December and the 31st August respectively; those of all other municipalities on the 30th September.
(b) Including the cost of flagging, asphalting footpaths, etc., but exclusive of loan expenditure.
(c) Not available.

5. **Queensland.**—In Queensland the construction and maintenance of public roads are controlled under a system of local self-government, for the purposes of which the whole State is divided into (a) cities, (b) towns, and (c) shires. The duties, rights, and responsibilities of the local authorities with regard to roads, streets, and bridges are regulated by the Local Authorities Act of 1902 and subsequent amendments. The councils are invested with full powers to open, close, divert, or widen streets, roads, and bridges, and to make by-laws for the regulation of traffic, etc. The rates which the councils are empowered to levy are supplemented by Government grants. Separate returns as to the expenditure by towns and shires on roads and bridges are not available, the amounts being included in the returns of expenditure on public works, particulars as to which expenditure may be found in Section XXVI., *Local Government*, hereinafter. Under the Main Roads Act of 1920, a main roads board is appointed to take over main roads and construct new ones. The cost is defrayed from moneys appropriated by Parliament, taxes on motor vehicles and traction engines, wheel tax, fees for unused roads, etc. Half the amount expended is to be recovered from local authorities within 30 years with interest. The Main Roads Board has just commenced operations, and figures shewing details of its activities are not yet available for publication.

6. **South Australia.**—Information regarding the length of roads and streets in the incorporated area is not available in this State for a later date than 1919; figures shewing the expenditure by Corporations and District Councils on streets, roads and bridges up to 30th June, 1920, however, are contained in the tables hereinafter (p. 529). Of the several Australian States, South Australia has by far the largest unincorporated area, no less than 88 per cent. of the whole area of the State being in this condition. This area is, however, very sparsely populated and much of it is entirely unoccupied. The remainder of the State is for the purposes of local government under the control of Municipal Corporations and District Councils. Under the provisions of the District Councils Acts 1914, 1917, and 1918, the Municipal Corporations Acts 1890 to 1918, and of the Roads Acts 1884 to 1915, the councils are invested with full powers as to the opening and making of new streets and roads, and the diverting, altering, or increasing the width of existing roads: as to raising, lowering, or altering the ground or soil of any street or road; and as to the construction, purchase, and management of bridges, culverts, ferries, and jetties.

(i) *Main Roads and District Roads.* All the roads in each district are classified either as main roads or as district roads. Both classes of roads are under the direct control either of Municipal Corporations or of District Councils, but in the case of main roads the expenditure on construction and maintenance is chiefly provided for by

Government grants, which are paid into a Government grants account, while the expenditure on district roads is paid for out of general rates, and out of subsidies on the amount of such rates granted by the central Government. Under the Roads Amendment Act 1915, a number of roads were declared to be main roads. The Main Roads Fund Act 1920 provides for the raising of £150,000 for the purpose of reconstructing main roads and bridges, and acquiring and working quarries.

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

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

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

(ii) *Expenditure by Corporations on Main and District Roads.* The following table shews the expenditure by municipal corporations on both main and district roads for each year from 1916 to 1920 inclusive :—

SOUTH AUSTRALIA.—EXPENDITURE BY CORPORATIONS ON STREETS, ROADS, AND BRIDGES, 1916 TO 1920.

Year ended 30th November—	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Construction.	Maintenance.	From Main Road Grants.	Total.	Construction.	Maintenance.
	£	£	£	£	£	£
1916	25,483	73,118	9,669	12,098	88	13,679
1917	15,952	80,106	14,299	15,787	619	13,073
1918	13,983	89,657	10,490	13,033	1,990	12,524
1919	14,535	99,567	12,466	14,734	...	15,263
1920	10,818	104,205	13,634	16,703	3,083	13,130

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

SOUTH AUSTRALIA.—EXPENDITURE BY DISTRICT COUNCILS ON STREETS, ROADS, AND BRIDGES, 1916 TO 1920.

Year ended 30th June—	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Construction.	Maintenance.	From Main Road Grants.	Total.	Construction.	Maintenance.
	£	£	£	£	£	£
1916	41,283	79,515	83,264	84,738	12,493	61,172
1917	47,337	79,377	109,044	111,567	18,809	72,644
1918	62,280	103,219	126,682	126,865	41,319	103,312
1919	67,194	108,862	120,635	120,790	28,481	97,991
1920	71,145	108,657	122,435	128,345	27,404	83,717

7. **Western Australia.**—In Western Australia the construction, maintenance, and management of roads and bridges throughout the State are under the control of municipalities constituted by the Municipal Corporations Acts 1906–1919, and district road boards constituted by the Road Districts Act 1919.

(i) *District Roads and Bridges.* Under the provisions of the Road Districts Act any part of the State, not within a municipality, may be constituted by the Governor in Council into a road district, under the control of a board of not less than five nor more than thirteen members elected by the ratepayers. The board is invested with full powers for controlling and managing all roads and bridges within the district. A district road board may not, however, construct any road or street less than sixty-six feet wide without the consent of the Minister. The construction of the more important bridges and culverts is generally carried out by the Government, the work, after completion, being handed over to the road board for maintenance. In case of land being required for the purpose of constructing a new street or road, or for widening an existing street or road, the provisions of the Public Works Act of 1902 are incorporated in the Road Districts Act.

(ii) *Municipal Streets, Roads, and Bridges.* As regards roads, streets, and bridges within municipalities, these are under the control of local authorities elected under the provisions of the Municipal Corporations Acts 1906–19. The municipal councils are invested with full powers for making, maintaining, and managing all streets, roads, and bridges within the municipal area, and may request the Governor to declare any such land reserved, used, or by purchase or exchange acquired for a street or way, to be a public highway, and on such request the Governor may, by notice in the *Gazette*, proclaim such highway absolutely dedicated to the public.

(iii) *Length of Roads, Number of Bridges, and Expenditure on Roads and Bridges.* The following table gives particulars of the operations of the Road Boards for the years 1917 to 1921 :—

WESTERN AUSTRALIA.—PARTICULARS OF ROADS UNDER CONTROL OF DISTRICT ROAD BOARDS, 1917 TO 1921.

Year ended 30th June.	Road Districts.	Revenue.				Expenditure.	Length of Cleared Roads.(*d*)				No. of Bridges and Culverts.	
		From Rates.	From Grants and Subsidies.	From other Sources.	Total.		Cleared only.	Cleared and Formed.	Metalled or otherwise Constructed.	Total.	Bridges.	Culverts.
	No.	£	£	£	£	£	Miles.	Miles.	Miles.	Miles.	No.	No.
1917	117	113,686	30,226	55,383	199,295	189,177	19,903	5,680	4,359	29,942*b*	839*b*	7,433*b*
1918	116	116,245	32,594	46,187	195,026	206,165	20,691	5,937	4,390	31,018*a*	906*a*	7,817*a*
1919	118	118,144	27,692	53,748	199,584	204,112	22,455	6,645	4,569	33,669*b*	937*b*	8,062*b*
1920	118	135,644	53,234	68,902	257,780	243,365	22,936	6,926	4,770	34,632*c*	960*c*	8,355
1921	119	149,904	39,172	85,659	274,735	285,216	24,853	6,876	4,777	36,506	965	8,730

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

The following table gives similar information with reference to roads controlled by municipalities under the Municipal Corporations Acts 1906–19 :—

WESTERN AUSTRALIA.—PARTICULARS OF STREETS, ROADS, AND BRIDGES UNDER THE CONTROL OF MUNICIPALITIES, 1917 TO 1921.

Year ended 31st October.	No. of Municipalities.	Length of Streets and Roads.(a)					Revenue.		Expenditure.	
		Paved, Metalled, or Gravelled.	Formed only.	Cleared only.	Not Cleared.	Total.	From Rates.	From Grants.	Works and Improvements.	Street Lighting and Watering.
		Miles.	Miles.	Miles.	Miles.	Miles.	£	£	£	£
1917 ..	28	562	94	244	238	1,138	167,997	7,813	73,991	23,481
1918 ..	25	562	103	231	224	1,120	171,315	1,870	75,086	25,580
1919 ..	23	570	109	220	219	1,118	177,408	3,595	71,907	24,036
1920 ..	23	560	93	254	227	1,134	190,171	1,142	95,194	25,283
1921 ..	22	569	101	258	212	1,140	250,356	710	132,011	26,481

(a) Approximate only.

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

Up to the 30th June, 1921, the loan expenditure on these works has been £3,676,396. In addition, half the proceeds of the sale of land has formed a Crown Lands Fund for the construction of roads to new holdings. Under this provision £650,418 has been expended. This fund has in recent years more than met the demands on it, and expenditure therefrom since 1918 has been limited to £10,000 annually, the balance being used for redemption of debt.

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

Period.	Expenditure.		New-road Mileage.		New Bridges.
	Loans.	Crown Lands Fund.	Cleared.	Metalled.	
	£	£	Miles.	Miles.	No.
Total up to 31st December, 1902 ..	1,932,919	332,845	..	..	..
Yearly average—					
1903–7	30,611	26,845	103	26	11
1907–11	92,416	21,946	205	105	13
1911–15	160,730	18,233	234	208	50
1915–19	105,097	6,186	94	113	49
Year 1919–20	81,940	6,563	67	68	17
Year 1920–21	100,621	4,744	62	80	8
Total to 30th June, 1921	3,676,396	650,418	..	..	..

The total length of roads at the end of 1921 may be taken as approximately 12,000 miles, of which about half is metalled or gravelled.

(ii) *Maintenance.* The maintenance of roads and bridges is undertaken by the municipalities with some assistance from the central Government, chiefly by way of subsidy. Under the Aid to Road Rates Act, £11,000 are distributed annually among the municipalities, in proportion as the cost of maintenance falls on their resources. Under the Main Roads Maintenance Act 1918 a further sum of £5,000 was provided out of Consolidated Revenue, which, with the addition of the Motor Tax, less 5 per cent., and a contribution from municipalities, is expended on the upkeep of main roads. In 1921 the amount available for 1,040 miles of main road was £22,898. The work is carried out in most cases by municipalities, under the general direction of an Advisory Board, on which the Government, the municipalities, and the motorists are all represented. Further, the Repairs to Roads Act 1920 provides for loans for 15 years to municipalities for the purpose of re-making roads—half the loan is repaid in instalments by the local body and the remainder by the State Government. The Government also provides for the repair of the more important bridges and for emergency work.

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

EXPENDITURE ON MAINTENANCE OF ROADS AND BRIDGES IN MUNICIPALITIES (EXCLUDING HOBART AND LAUNCESTON), 1908 TO 1921.

Year.	From Municipal Road Rate.	From State Revenue.
	£	£
1908	42,240	17,339
Average 1909–12	48,759	19,259
Average 1913–17	55,722	20,123
1919	61,316	29,986
1920	65,241	30,006
1921	(a)	31,489

(a) Not available.

§ 2. Railways.

(A) General.

1. Introduction.—In the issues of the Commonwealth Year Book, Nos. 1 to 7, the statistics of all Government railway systems were treated under the head of *Government Railways*. In the following issues, Nos. 8 to 14, the greater part of those statistics relating to State-owned lines was dealt with separately from those under the control of the Commonwealth Government. This arrangement is continued in the present issue. The State railways are referred to throughout as "State" and the Commonwealth railways as "Federal" railways. There is, however, a summary of the working of the Federal and States' railways in part (E) of the present section.

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

3. Railway Communication in the Commonwealth.—An account of the progress of railway construction in Australia since the opening of the first line in 1854 will be found in Year Book No. 6, p. 681. In the eastern, south-eastern, and southern parts of Australia there now exists a considerable network of railway lines converging from the various agricultural, pastoral, and mining districts towards the principal ports, which are themselves connected by systems of lines running approximately parallel to the coast. In the east, lines radiating from Cairns, Townsville, Rockhampton, Brisbane, and Sydney extend inland in various directions for distances ranging up to over 600 miles; in the south-east there are numerous lines, those in Victoria converging towards Melbourne, while others in New South Wales have their terminus in Sydney; in the south there are four main lines, with numerous branches, running from Melbourne, while from Adelaide one main line, with several branches to the coastal towns, runs inland in a northerly direction for a distance of nearly 700 miles, and another line runs in a south-easterly direction to various ports, meeting the main line from Melbourne on the border of South Australia and Victoria near Serviceton. The South Australian and Victorian railway systems also meet on the border at two other points, one near Pinnaroo, and the other at Rennick near Mount Gambier. By the opening, in 1917, of the Trans-Australian railway from Port Augusta to Kalgoorlie, through communication by rail was established between the eastern States and the Western Australian railway system. The main interstate line, which permits of direct communication between the five capital cities—Brisbane, Sydney, Melbourne, Adelaide, and Perth—covers a distance from end to end of 3,474.80 miles or 3,479.82 miles via Newcastle. The scheduled time for the journey from Brisbane to Perth is six days one hour forty-two minutes, and from Perth to Brisbane five days twenty-one hours forty minutes, the time in each case being taken over all.

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

BRISBANE TO PERTH.

Gauge of Line.	Terminal or Changing Stations.	Times. Arr.	Times. Dep.	Day on Journey. (a)	Actual Time.	Duration of Stops at Changing Stations.	Intermediate Distance.	Total Distance from Brisbane.	Average Speed. (b)
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
	Brisbane ..	..	8.5 a.m.	Monday ..	—	—	—	—	—
3 6	Wallangarra	5.55 p.m.	6.17 p.m.	,, ..	9 50	0 22	223.46	223.46	22.72
4 8½	Sydney ..	11.25 a.m.	7.25 p.m.	Tuesday	17 8	8 00	c497.38	720.84	29.03
4 8½	Albury ..	7.23 a.m.	7.47 a.m.	Wednesday	11 58	0 24	401.62	1,122.46	33.56
5 3	Melbourne ..	12.51 p.m.	4.30 p.m.	,,	5 4	3 39	190.50	1,312.96	37.60
5 3	Adelaide ..	9.55 a.m.	10.45 a.m.	Thursday	17 25	0 50	483.05	1,796.01	27.73
5 3	Terowie ..	3.40 p.m.	4.10 p.m.	,,	4 55	0 30	139.81	1,935.82	28.44
3 6	Port Augusta	10.5 p.m.	10.40 p.m.	,,	5 55	0 35	119.33	2,055.15	20.17
4 8½	Kalgoorlie ..	d11.53 a.m.	5.15 p.m.	Saturday	37 13	5 22	1,051.45	3,106.60	28.25
3 6	Perth ..	9.47 a.m.	—	Sunday ..	16 32	—	373.22	3,479.82	22.57
				Total ..	126 00	19 42	3,479.82	—	27.62

PERTH TO BRISBANE.

Gauge of Line.	Terminal or Changing Stations.	Times. Arr.	Times. Dep.	Day on Journey. (a)	Actual Time.	Duration of Stops at Changing Stations.	Intermediate Distance.	Total Distance from Perth.	Average Speed. (b)
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
	Perth ..	—	9.0 p.m.	Monday ..	—	—	—	—	—
3 6	Kalgoorlie ..	1.49 p.m.	2.15 p.m.	Tuesday	16 49	0 26	373.22	373.22	22.33
4 8½	Port Augusta	5.0 a.m.	8.30 a.m.	Thursday	38 45	3 30	1,051.45	1,424.67	27.13
3 6	Terowie ..	2.46 p.m.	3.16 p.m.	,,	6 16	0 30	119.33	1,544.00	19.04
5 3	Adelaide ..	7.50 p.m.	8.30 p.m.	,,	4 34	0 40	139.81	1,683.81	30.62
5 3	Melbourne ..	1.3 p.m.	5.0 p.m.	Friday ..	16 33	3 57	483.05	2,166.86	29.19
5 3	Albury ..	10.21 p.m.	10.40 p.m.	,, ..	5 21	0 19	190.50	2,357.36	35.61
4 8½	Sydney ..	10.45 a.m.	3.30 p.m.	(e) ..	12 5	28 45	401.62	2,758.98	33.24
4 8½	Wallangarra	9.5 a.m.	9.30 a.m.	Monday ..	17 35	0 25	c497.38	3,256.36	28.29
3 6	Brisbane ..	6.40 p.m.	—	,, ..	9 10	—	223.46	3,479.82	24.38
				Total ..	127 08	38 32	3,479.82	—	27.39

(a) The days here given are for the purposes of time table interpretation. They are not the only days on which the service is provided. (b) Inclusive of stops between changing stations. (c) Runs via Newcastle. (d) 10.23 a.m. on Tuesday and Thursday and 11.53 a.m. on Saturday. (e) Arrives 10.45 a.m. on Saturdays and departs 3.30 p.m. on Sundays.

The time allowed for the journey from Port Augusta to Kalgoorlie, 37 hours 13 minutes (actual), gives an average speed of 29.44 miles per hour throughout, inclusive of stoppages. Exclusive of stoppages, which aggregate slightly under three hours, the average speed is approximately 30 miles per hour. In the opposite direction the gross time is 38 hours 45 minutes (actual), which gives an average speed of 27.13 miles per hour. Exclusive of stoppages, which aggregate about 3 hours 10 minutes, the average speed is about 29.55 miles per hour.

The average speed inclusive of all stops on the journey from Brisbane to Perth is 23.88 miles per hour, and from Perth to Brisbane 21.00 miles per hour.

The longest railway journey which can be undertaken in Australia, on one continuous line of railway, is from Longreach in Queensland to Meekatharra in Western Australia, a total distance of 4,760.31 miles.

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

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

5. **Non-conformity of Gauge.**—With but few exceptions, all the railway lines in the Commonwealth open for general traffic are now owned and managed by the respective States in whose territory they run, or by the Commonwealth Government; but, unfortunately for the purpose of interstate traffic, the construction of the various systems in different parts of Australia has proceeded without uniformity of gauge. In 1846 Mr. Gladstone, then Colonial Secretary, recommended in a despatch to the Governor of New South Wales that the 4-ft. 8½-in. gauge should be adopted. In 1850, however, the engineer to the Sydney Railroad and Tramway Company strongly advocated the adoption of the 5-ft. 3-in. gauge, and in 1852 an Act was passed making it compulsory that all railways in New South Wales should be constructed to the wider gauge, the Governors of Victoria and South Australia being duly advised of the step that had been taken. In 1852, however, the company mentioned having changed its engineer, also changed its views as to the gauge question, and in the following year succeeded in obtaining the repeal of the Act of 1852 and in securing the passing of another, under the provisions of which the narrower gauge was made imperative. This step was taken without the concurrence of the other States concerned, and a considerable amount of ill-feeling arose, especially in Victoria, where two private companies had already placed large orders for rolling stock to be constructed to the broad gauge originally chosen. The result was that it was decided in Victoria to adhere to the 5-ft. 3-in. gauge as the standard gauge for the State, while the Sydney Railroad and Tramway Company proceeded with the construction of its lines to the 4-ft. 8½-in. gauge, and these two gauges have since been adhered to as the standard gauges of the respective States. The Queensland Government had, at the outset, adopted a gauge of 3-ft. 6-in. as being best suited to the requirements of the colony, and has since adhered to that gauge throughout the State, so that all goods requiring conveyance into New South Wales or vice versa have to be transhipped at the boundary between the two States. In June, 1914, however, the Queensland Government purchased two short lengths of line laid on a 2-ft. gauge. In South Australia the 5-ft. 3-in. gauge was adopted, but in 1870, on the grounds of economy, the 3-ft. 6-in. gauge was introduced, and many of the lines in South Australia have been constructed with that gauge. The interstate line between Adelaide and Melbourne was opened as a through route in January, 1887, and is of the 5-ft. 3-in. gauge throughout. At the 30th June, 1921, of the 2,333.19 miles of State Government railways in South Australia 1,209.59 miles were of 3-ft. 6-in. gauge, exclusive of 477.95 miles of the same gauge from Port Augusta to Oodnadatta belonging to the Federal Government. In the Northern Territory the line from Darwin to Emungalan (Katherine River), 198.68 miles in length, is of 3-ft. 6-in. gauge. In Western Australia the 3-ft. 6-in. gauge was also adopted. In Tasmania the first line made had a gauge of 5-ft. 3-in., but it was converted in 1887 to 3-ft. 6-in., which, with the exception of three short lines with a 2-ft. gauge, is the present gauge of the Government and most of the privately-owned lines. It was recognised in both these States that the construction of railways was essential to their proper development, but as their financial resources would not bear a heavy initial expenditure in connexion with the establishment of railway lines, it was decided to adopt the narrow gauge. In Victoria, short lengths of light railways have been constructed to a gauge of 2-ft. 6-in. of an aggregate length of 121,90 miles.

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

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

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

7. **Unification of Gauge.**—The question of the unification of gauge in the several States has been under consideration for several years, and numerous conferences on the subject have been held from time to time between the several Railway Commissioners and between the Premiers of the States concerned. Reference to these conferences have been made in previous issues of the Year Book (see No. 11, pp. 657–8, and No. 14, pp. 563–4).

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

On 8th February, 1921, the Governor-General appointed a Royal Commission, consisting of two railway engineers—one civil and one mechanical—together with an independent commissioner to inquire into and report on the question of the unification of gauges. The Commission was constituted as follows:—Chairman, Mr. John James Garvan; Civil Engineer, Mr. Rustat Blake; Mechanical Engineer, Mr. Frederick Methven Whyte; with Mr. E. Simms as Secretary.

The result of the Commission's work was a recommendation that the gauge of 4-ft. 8½-in. be adopted as the standard for Australia; that no mechanical, third rail, or other device would meet the situation, and that uniformity could be secured by one means only, viz., by conversion of the gauges other than 4-ft. 8½-in.

The matter was discussed at a Conference of the Prime Minister with the Premiers in Melbourne, November, 1921, when it was decided to adopt 4-ft. 8½-in. as the standard gauge for Australia. At this Conference it was also resolved that the adoption of a uniform gauge is essential to the development and safety of the Commonwealth.

The scheme advocated by the Royal Commission as the first step will provide a standard 4-ft. 8½-in. gauge railway between Brisbane and Fremantle, and the conversion of the whole of the broad-gauge lines of Victoria and South Australia, at an estimated cost of £21,600,000, spread over a period of approximately eight years.

The details of the estimate of £21,600,000 for providing a main trunk line between Fremantle and Brisbane, and converting the 5-ft. 3-in. gauge lines of Victoria and South Australia are as shewn in the following table, which also includes an estimate of the cost within each State and the Commonwealth Territory together with the quota from each State and the Commonwealth, in terms of the allocation of cost agreed upon:—

State.	Alterations to existing railways and structures.	New Lines necessary.	Adjustments of Rolling Stock.	Total cost of work within the State.	Quota.
	£	£	£	£	£
New South Wales ..	800,000	857,000	..	1,657,000	7,094,388
Victoria	5,246,000	..	3,078,000	8,324,000	4,939,349
Queensland	..	1,250,000	598,000	1,848,000	2,535,868
South Australia ..	1,706,000	1,646,000	1,322,000	4,674,000	1,632,292
Western Australia ..	1,260,000	3,120,000	650,000	5,030,000	1,078,103
Commonwealth ..	..	..	67,000	67,000	4,320,000
Total	9,012,000	6,873,000	5,715,000	21,600,000	21,600,000

The estimated cost of conversion of the whole of the lines in the States concerned is £57,200,000, made up as follows:—

(a) Alterations to existing railways and structures .. £48,355,000
(b) Construction of any new lines necessary .. £2,596,000
(c) Adjustment of rolling stock £6,249,000

This estimate includes the 3-ft. 6-in. lines in isolated parts of Western Australia and the independent lines of Northern Queensland, those of South Australia on the Eyre Peninsula, and those Commonwealth Government lines running to Oodnadatta and from Darwin to Emungalan. All of these lines will probably be worked as at present for some considerable time. The cost of conversion of rolling stock at present in use is not included.

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

STATE AND FEDERAL GOVERNMENT RAILWAYS.—ROLLING STOCK GAUGES IN USE, 1921.

PASSENGER ROLLING STOCK.

Railway.	Gauge of Track.		Maximum Rolling Stock Gauge. Width.		Height above Rail Level.		Length over all.		Maximum Tare.		
	ft.	in.	ft.	in.	ft.	in.	ft.	in.	t.	c.	q.
New South Wales	4	8½	10	6	14	0	74	4½	44	2	1
Victoria	5	3	10	0	14	2	74	1¼	47	16	0
"	2	6	7	0¼	10	4¼	31	8	8	11	0
Queensland	3	6	9	4	12	9	55	5	26	17	0
"	2	0	6	3⅞	10	0	22	0	3	0	0
South Australia	5	3	10	4¼	14	1¾	74	1¼	40	11	0
"	3	6	9	4⅜	12	1	62	6	24	18	0
Western Australia	3	6	8	10	12	7	61	9	31	10	0
Tasmania	3	6	9	6	12	5	64	0	30	0	0
"	2	0	6	6	10	0	30	2	5	10	1
Federal—											
Trans-Australian	4	8½	10	6	14	6	78	11½	48	0	0
Northern Territory	3	6	9	4	12	9	39	0	12	0	0
Oodnadatta	3	6	10	2	12	4	39	0	12	0	0

GOODS ROLLING STOCK.

Railway.	Gauge of Track.		Maximum Rolling Stock Gauge. Width.		Height above Rail Level.		Length over all.		Maximum— Tare.			Carrying Capacity.		
	ft.	in.	ft.	in.	ft.	in.	ft.	in.	t.	c.	q.	t.	c.	q.
New South Wales ..	4	8½	9	8	13	6	60	11	20	10	3	40	0	0
Victoria	5	3	9	7½	13	7¾	55	4½	20	13	1	30	0	0
"	2	6	6	5½	9	7¼	27	3¾	7	12	2½	10	0	0
Queensland.. ..	3	6	8	9	12	0	45	5	14	16	0	21	8	0
"	2	0	6	6	9	0	22	0	4	10	0	16	0	0
South Australia ..	5	3	10	0¼	12	10¾	52	1	23	10	0	30	0	0
" ..	3	6	8	6	12	5¼	52	9	22	0	0	25	0	0
Western Australia ..	3	6	8	8	12	6	44	9	17	18	0	27	0	0
Tasmania	3	6	8	6	11	0	40	10	12	5	0	30	0	0
"	2	0	6	0	6	6	27	0	5	15	2	20	0	0
Federal—														
Trans-Australian ..	4	8½	10	6	14	6	47	6½	15	0	0	40	0	0
Northern Territory	3	6	9	4	12	9	34	6	9	10	0	12	0	0
Oodnadatta ..	3	6	10	2	12	4	18	0	5	0	0	12	0	0

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

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

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

Mileage of Government and Private Lines, 1855 to 1921. The subjoined table shews the mileage of Commonwealth Government, State Government, and private lines open for traffic (exclusive of sidings and cross-overs) in each State at different periods since the inauguration of railways in Australia in 1854 up to the year 1921. The railway mileage given for each State includes both Commonwealth and State Government railways in that State, and in this table and in those on the following page, is estimated from the geographic point of view and not from that of ownership. The figures from 1855 to 1881 are given to the end of the calendar year; the later figures are to the end of the financial year ended on the 30th June, unless otherwise stated, excepting the mileages for private lines, which are in most cases taken for the calendar year :—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OPEN, 1855 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Federal Territory	Nor. Ter.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1855 ..	14	2½	..	6¾*a*	..	..	..	..	23¼
1861 ..	73	114	..	56	..	..	..	..	243
1871 ..	358	276	218	133	12	45	..	..	1,042
1881 ..	1,040	1,247	800	845	92	168	..	..	4,192
1890–1	2,263	2,763	2,205	1,666	656*b*	425*b*	..	145	10,123
1900–1	2,926	3,238	2,904	1,736	1,984	618*c*	..	145	13,551
1910–11	4,027	3,574	4,390	1,993	3,208	675	..	145	18,012
1914–15	4,439	3,936½	5,449¼	2,955	4,553	779½	5	146	22,263¼
1915–16	4,491¾	4,152½	6,452½	3,060¼	4,707½	758¼	5	146	23,773¾
1916–17	4,781¾	4,176½	6,702¼	3,241¾	4,878½	783¾	5	199½	24,769
1917–18	5,025	4,222¾	6,769½	3,356½	4,904¼	781¾	5	199½	25,264¼
1918–19	5,170	4,260½	6,841½	3,404	4,965½	811	5	199½	25,657
1919–20	5,377	4,284½	6,946¾	3,458¼	4,846	840¼	5	198¾	25,956½
1920–21	5,402	4,337½	7,012¾	3,463½	4,906	877	5	198¾	26,202

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

It will be seen from the above table that the rate of construction up to the year 1871 was very slow, the average annual length of lines opened from 1861 to 1871 being only 80 miles for the whole Commonwealth. By the middle of the following decade, however, the principal mountain ranges had been crossed, and the work of construction could be proceeded with at a greater rate, and at a less cost per mile. A great period of activity was from 1881 to 1891, when the average annual length opened for traffic was 593 miles for the whole Commonwealth; the corresponding figures for the periods from June, 1891, to June, 1901, and from June, 1901, to June, 1911, were 343 and 446 miles respectively. Since June, 1911, the average annual length opened for traffic has been 819 miles.

The mileage of Government-owned lines in Western Australia has remained the same during the past two years. There has been no increase in the mileage of Government-owned lines in South Australia during the year.

10. **Comparative Mileage of Government and Private Lines, 1921.**—The subjoined table shews for each State (*a*) the length of lines owned by the State Government, and by the Commonwealth Government in that State, all of which lines are open for general use by the public, (*b*) the length of private lines available for general use by the public, and (*c*) the length not so available. The mileages specified in the case of Government lines are to the 30th June, 1921; those given for private lines are to the same date with the exception of Western Australia, which are to 31st December, 1920:—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OF GOVERNMENT LINES, OF PRIVATE LINES AVAILABLE FOR GENERAL TRAFFIC, AND OF PRIVATE LINES NOT SO AVAILABLE, 1920-21.

State or Territory.	Government Lines— State.	Government Lines— Federal.	Private Lines available for General Traffic.	Total Open for General Traffic.	Private Lines used for special Purposes only.	Grand Total.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	5,042.78	..	186.77	5,229.55	172.53	5,402.08
Victoria ..	4,266.58	..	24.94	4,291.52	45.83	4,337.35
Queensland ..	5,751.71	..	270.68	6,022.39	990.23	7,012.62
South Australia	2,333.19	1,075.41	33.80	3,442.40	20.95	3,463.35
Western Australia	3,538.23	453.99	278.10	4,270.32	635.51	4,905.83
Tasmania ..	629.84	..	199.86	829.70	47.31	877.01
Federal Territory	..	4.94	..	4.94	..	4.94
Northern Territory	..	198.68	..	198.68	..	198.68
Total ..	21,562.33	1,733.02	994.15	24,289.50	1,912.36	26,201.86

11. **Comparative Railway Facilities in Different States and Territories, 1921.**—The relations to populations and areas respectively of the mileage of line open to the public for general traffic (including both Government and private lines) on the 30th June, 1921, are shewn in the subjoined statement for each State, the Federal and Northern Territories, and also for the Commonwealth:—

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARISON OF RAILWAY FACILITIES IN DIFFERENT STATES AND TERRITORIES, 1921.

State or Territory.	Population, 30th June, 1921.	Area.	Mileage of Railway. Per 1,000 of Population.	Mileage of Railway. Per 1,000 sq. miles of Territory.
	Number.	Sq. miles.	Miles.	Miles.
New South Wales	2,101,384	309,432	2.57	17.48
Victoria	1,535,938	87,884	2.82	49.35
Queensland	768,964	670,500	9.12	9.56
South Australia	497,525	380,070	6.96	9.11
Western Australia	333,117	975,920	14.72	5.02
Tasmania	211,984	26,215	4.13	33.45
Federal Territory	2,583	940	1.91	5.26
Northern Territory	3,928	523,620	50.58	0.38
Commonwealth ..	5,455,423	2,974,581	4.80	8.80

12. **Classification of Lines according to Gauge, 1920-21.**—The subjoined table gives a classification, according to gauge, of the total mileage, exclusive of sidings and cross-overs, of (i) Commonwealth Government railways, given in the State or Territory in which situated; (ii) State Government railways; (iii) Private railways open to the

public for general traffic; and (iv) Private lines open for special purposes. Particulars of Government railways are up to the 30th June, 1921, of private railways open for general traffic to the 31st December, 1920, and of private railways open for special purposes to the 31st December, 1920, as nearly as possible.

GOVERNMENT AND PRIVATE RAILWAYS.—CLASSIFICATION ACCORDING TO GAUGE, 1920–21.

State or Territory in which situated.	Route mileage having a gauge of—								Total.
	5 ft. 3 in.	4ft. 8½ in.	3 ft. 6 in.	3 ft. 0 in.	2 ft. 6 in.	2 ft. 3 in.	2 ft. 0 in.	1 ft. 8 in.	
FEDERAL RAILWAYS.									
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
South Australia ..	..	597.46	477.95	..	..	..	..	..	1,075.41
Western Australia	..	453.99	..	..	..	..	..	..	453.99
Federal Territory ..	..	4.94	..	..	..	..	..	..	4.94
Northern Territory	..	..	198.68	..	..	..	..	..	198.68
Total ..	..	1,056.39	676.63	..	..	..	..	..	1,733.02
STATE RAILWAYS.									
New South Wales	..	5,003.27	39.51	..	..	..	..	..	5,042.78
Victoria	4,144.68	..	..	..	121.90	..	..	..	4,266.58
Queensland ..	..	..	5,721.45	..	..	..	30.26	..	5,751.71
South Australia ..	1,123.60	..	1,209.59	..	..	..	..	..	2,333.19
Western Australia	..	..	3,538.23	..	..	..	..	..	3,538.23
Tasmania ..	..	..	606.26	..	..	..	23.58	..	629.84
Total ..	5,268.28	5,003.27	11,115.04	..	121.90	..	53.84	..	21,562.33
PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC.									
New South Wales ..	45.00	78.85	36.67	..	..	..	26.25	..	186.77
Victoria	13.94	..	..	11.00	..	..	..	..	24.94
Queensland ..	..	..	113.09	..	7.00	..	150.59	..	270.68
South Australia ..	..	..	33.80	..	..	..	..	..	33.80
Western Australia	..	..	278.10	..	..	..	..	..	278.10
Tasmania ..	..	..	183.87	..	..	..	15.99	..	199.86
Total ..	58.94	78.85	645.53	11.00	7.00	..	192.83	..	994.15
PRIVATE RAILWAYS OPEN FOR SPECIAL PURPOSES.									
New South Wales ..	..	158.77	3.50	..	..	..	10.26	..	172.53
Victoria	28.83	..	..	4.40	..	..	12.60	..	45.83
Queensland ..	..	..	221.06	..	19.44	..	749.73	..	990.23
South Australia ..	..	..	..	..	2.00	3.60	15.35	..	20.95
Western Australia	..	..	567.51	..	..	..	40.00	28.00	635.51
Tasmania ..	..	..	25.50	..	..	..	21.81	..	47.31
Total ..	28.83	158.77	817.57	4.40	21.44	3.60	849.75	28.00	1,912.36
ALL RAILWAYS.									
New South Wales ..	45.00	5,240.89	79.68	..	..	..	36.51	..	5,402 08
Victoria	4,187.45	..	..	15.40	121.90	..	12.60	..	4,337.35
Queensland ..	..	..	6,055.60	..	26.44	..	930.58	..	7,012.62
South Australia ..	1,123.60	597.46	1,721.34	..	2.00	3.60	15.35	..	3,463.35
Western Australia	..	453.99	4,383.84	..	..	..	40.00	28.00	4,905.83
Tasmania ..	..	..	815.63	..	..	..	61.38	..	877.01
Federal Territory ..	..	4.94	..	..	..	..	..	..	4.94
Northern Territory	..	..	198.68	..	..	..	..	..	198.68
GRAND TOTAL ..	5,356.05	6,297.28	13,254.77	15.40	150.34	3.60	1,096.42	28.00	26,201.86

(B) Federal Railways.

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

2. **Trans-Australian Railway (Kalgoorlie to Port Augusta).**—In the issue of the Year Book for 1918 (No. 11, pp. 663 to 666 and p. 1213), a short history of the construction of the Trans-Australian line is given, also a description of the country through which the line passes between Kalgoorlie and Port Augusta.

On the 22nd October, 1917, the first through train left Port Augusta with an official party on board for Kalgoorlie. It should be mentioned that owing to deviations from the original route, the length of this line was reduced from 1,063.39 miles to 1,051.45 miles, a saving of 11.94 miles.

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

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

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

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

6. Summary of Federal Railways.—The following table shews the railway lines open for traffic under the control of the Commonwealth Government at 30th June, 1921, together with the lines which have been or are being surveyed :—

FEDERAL GOVERNMENT RAILWAYS, 30th JUNE, 1921.

Terminals.	Miles.
OPEN FOR TRAFFIC.	
Trans-Australian—Port Augusta to Kalgoorlie	1,051.45
Port Augusta to Oodnadatta (South Australia)	477.95
Canberra to Queanbeyan (Federal Territory)	4.94
Darwin to Emungalan, Katherine River (Northern Territory)	198.68
Total opened for traffic	1,733.02
SURVEYED, OR BEING SURVEYED.	
Katherine River to Mataranka (Northern Territory)	65.44
Mataranka to Daly Waters (Northern Territory)	95.00
Kingoonya to Boorthanna (South Australia)	176.44
Canberra to Jervis Bay (Federal Territory)	140.22
Canberra (Federal Territory) to Federal Territory Border in the direction of Yass (New South Wales)	11.67
Daly Waters (Northern Territory) to Oodnadatta (South Australia) ..	851.50
Port Augusta to Crystal Brook (South Australia)	69.25
Total surveyed or being surveyed	1,409.52

7. Mileage open for traffic, Average miles worked and Train miles run.—The following table shews the length of the Federal railways open for traffic, average miles worked, and the train miles run in the years 1917 to 1921 :—

FEDERAL RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, AVERAGE MILES WORKED AND TRAIN MILES RUN, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
MILES OPEN FOR TRAFFIC.					
	Miles.	Miles.	Miles.	Miles.	Miles.
1917	958	478	5	200	1,641
1918	1,051	478	5	200	1,734
1919	1,051	478	5	200	1,734
1920	1,051	478	5	199	1,733
1921	1,051	478	5	199	1,733

FEDERAL RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, AVERAGE MILES WORKED AND TRAIN MILES RUN, 1917 TO 1921—*continued.*

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
	AVERAGE MILES WORKED.				
	Miles.	Miles.	Miles.	Miles.	Miles.
1917	865	478	5	187	1,535
1918	1,051	478	5	200	1,734
1919	1,051	478	5	200	1,734
1920	1,051	478	5	199	1,733
1921	1,051	478	5	199	1,733
	TRAIN MILES RUN.				
1917	570,493	254,927	1,169	87,652	914,241
1918	475,936	259,838	1,127	112,648	849,549
1919	368,886	221,763	1,015	83,209	674,873
1920	401,709	262,917	1,000	60,348	725,974
1921	472,290	320,292	1,058	17,270	810,910

8. **Cost of Construction and Equipment of Federal Railways.**—In the following table particulars are given of the cost of construction and equipment for traffic of the undermentioned railways for each of the years 1916-17 to 1920-21:—

FEDERAL RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta. (a)	Federal Territory. (b)	Northern Territory.	
	TOTAL COST OF CONSTRUCTION AND EQUIPMENT OF LINES OPEN				
	£	£	£	£	£
1917	6,079,313	2,281,271	52,591	1,664,370	10,077,545
1918	6,674,278	2,281,939	47,883	1,695,556	10,699,656
1919	6,911,624	2,282,973	48,124	1,707,392	10,950,113
1920	7,053,900	2,282,934	48,144	1,709,932	11,094,910
1921	7,137,365	2,287,193	48,144	1,711,585	11,184,287
	COST PER MILE OPEN.				
1917	6,353	4,773	10,651	8,340	6,141
1918	6,349	4,774	9,693	8,496	6,171
1919	6,574	4,776	9,742	8,556	6,316
1920	6,710	4,776	9,746	8,607	6,402
1921	6,788	4,785	9,746	8,615	6,454

(a) Exclusive of Rolling Stock the property of South Australian Government Railways.
(b) Exclusive of Rolling Stock the property of New South Wales Government Railways.

9. **Gross Revenue.**—(i) *Total, per average mile worked, and per train mile run.* The following table shews the total revenue from all sources, the revenue per average mile worked and the revenue per train mile run for each of the undermentioned railways for the financial years from 1917 to 1921 inclusive:—

FEDERAL RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED AND PER TRAIN MILE RUN, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory	
TOTAL GROSS REVENUE.					
	£	£	£	£	£
1917	290,750	66,429	592	28,695	386,466
1918	175,039	69,231	705	32,511	277,486
1919	175,134	58,286	407	32,237	266,064
1920	213,388	74,709	571	27,089	315,757
1921	206 870	112,091	1,240	12,214	332,415
GROSS REVENUE PER AVERAGE MILE WORKED.					
1917	336	139	120	153	252
1918	166	145	141	163	160
1919	167	122	82	162	153
1920	203	156	116	136	182
1921	197	235	251	62	192
GROSS REVENUE PER TRAIN-MILE RUN.					
	d.	d.	d.	d.	d.
1917	122.32	62.54	121.54	78.57	101.45
1918	88.27	63.95	150.13	69.27	78.39
1919	113.94	63.08	96.24	92.98	94.62
1920	127.49	68.25	137.04	107.73	104.39
1921	105.12	83.99	281.29	169.74	98.38

(ii) *Coaching, Goods, and Miscellaneous Receipts, and Percentages on total Revenue.* The gross revenue is composed of (*a*) receipts from coaching traffic, including the carriage of mails, horses, parcels, etc., by passenger trains; (*b*) receipts from the carriage of goods and live stock and (*c*) rents and miscellaneous items. The subjoined table shews the gross revenue for 1917 to 1921 classified according to the three chief sources of receipts, together with their percentages on the total revenue. The respective totals of the three items have already been given in the preceding paragaph.

FEDERAL RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS, AND PERCENTAGES ON TOTAL REVENUE, 1917 TO 1921.

Year ended 30th June.	Receipts.					Percentages.				
	Railway.				Total.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory	Northern Territory		Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory	
COACHING TRAFFIC RECEIPTS.										
	£	£	£	£	£	%	%	%	%	%
1917 ..	4,411	15,447	39	5,412	25,309	1.52	23.25	6.59	18.86	6.55
1918 ..	72,352	14,586	31	5,341	92,310	41.33	21.07	4.40	16.43	33.27
1919 ..	93,867	12,455	34	5,250	111,606	53.60	21.37	8.25	16.28	41.95
1920 ..	95,671	10,600	15	4.433	110,719	44.83	14.19	2.63	16.36	35.07
1921 ..	128,953	18,589	20	2,700	150,262	62.34	16.58	1.61	22.11	45.20
GOODS AND LIVE STOCK RECEIPTS.										
1917 ..	271,013	48,026	553	17,152	336,744	93.21	72.30	93.41	59.77	87.13
1918 ..	77,339	51,213	674	19,539	148,765	41.19	73.97	95.60	60.10	53.61
1919 ..	50,485	43,194	373	19,676	113,728	28.83	74.11	91.75	61.04	42.74
1920 ..	82,490	61,401	453	14,930	159,274	38.67	82.19	79.33	55.12	50.44
1921 ..	39,750	90,802	1,210	4,859	136,621	19.21	81.01	97.58	39.78	41.10
MISCELLANEOUS RECEIPTS.										
1917 ..	15,326	2,956	..	6,131	24,413	5.27	4.45	..	21.37	6.32
1918 ..	25,348	3,432	..	7,631	36,411	14.48	4.96	..	23.47	13.12
1919 ..	30,783	2,636	..	7,311	40,730	17.57	4.52	..	22.68	15.31
1920 ..	35,227	2,708	103	7,726	45,764	16.50	3.62	18.04	28.52	14.49
1921 ..	38,167	2,700	10	4,655	45,532	18.45	2.41	0.81	38.11	13.70

10. **Working Expenses.**—(i) *Total.* The following table shews the total working expenses, and the percentages of the total of those expenses upon the corresponding gross revenues of each railway for each year from 1917 to 1921.

Details of the annual expenditure on (*a*) maintenance of ways, works and buildings; (*b*) locomotives, carriages and wagons repairs and renewals, (*c*) traffic expenses, and (*d*) compensation, general and miscellaneous charges, are given on the next page.

FEDERAL RAILWAYS.—TOTAL WORKING EXPENSES, AND PERCENTAGES OF WORKING EXPENSES ON GROSS REVENUE, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
	TOTAL WORKING EXPENSES.				
	£	£	£	£	£
1917	290,750	102,298	1,446	39,771	434,265
1918	232,468	100,179	1,496	53,482	387,625
1919	243,988	111,362	1,288	50,617	407,255
1920	256,028	112,191	802	48,616	417,637
1921	298,209	172,552	655	27,551	498,967
	PERCENTAGE OF WORKING EXPENSES ON REVENUE.				
	%	%	%	%	%
1917	100.00	153.99	244.26	138.60	112.37
1918	132.81	144.70	212.20	164.50	139.69
1919	139.31	191.06	316.45	157.02	153.07
1920	119.98	150.17	140.46	179.47	132.26
1921	144.15	153.94	52.82	225.57	150.10

(ii) *Working expenses per average mile worked and per train-mile run.* The following table shews the working expenses per average mile worked and per train-mile run for each railway for the years 1917 to 1921:—

FEDERAL RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED, AND PER TRAIN MILE RUN, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
	WORKING EXPENSES PER AVERAGE MILE WORKED.				
	£	£	£	£	£
1917	336	214	293	212	283
1918	221	198	299	267	220
1919	232	233	261	254	235
1920	243	235	162	245	241
1921	284	361	133	139	288
	WORKING EXPENSES PER TRAIN-MILE RUN.				
	d.	*d.*	*d.*	*d.*	*d.*
1917	122.32	96.31	296.87	108.90	114.00
1918	117.23	87.25	318.58	113.95	107.89
1919	158.74	120.52	304.55	145.99	145.00
1920	152.96	102.41	192.40	193.34	138.07
1921	151.54	129.30	148.59	382.87	147.67

(iii) *Distribution of Working Expenses.* The subjoined table shews the distribution of working expenses among four chief heads of expenditure for the years 1917 to 1921 :—

FEDERAL RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
		MAINTENANCE.			
	£	£	£	£	£
1917	69,232	46,921	768	18,858	135,779
1918	64,990	39,673	609	23,699	128,971
1919	71,309	45,284	601	21,500	138,694
1920	72,197	43,967	553	20,664	137,381
1921	99,558	57,921	254	13,237	170,970
		LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.			
1917	179,817	44,487	361	15,983	240,648
1918	121,574	42,582	544	22,309	187,009
1919	118,163	52,377	351	20,796	191,687
1920	119,753	53,437	196	19,841	193,227
1921	128,681	94,381	340	9,268	232,670
		TRAFFIC EXPENSES.			
1917	37,808	9,295	317	4,930	52,350
1918	41,022	10,400	343	5,704	57,469
1919	47,572	11,471	336	7,104	66,483
1920	54,606	12,803	52	6,881	74,342
1921	59,382	17,655	61	4,129	81,227
		OTHER CHARGES.			
1917	3,893	1,595	..	..	5,488
1918	4,882	1,804	..	1,769	8,455
1919	6,944	2,230	..	1,217	10,391
1920	9,471	1,985	..	1,231	12,687
1921	10,588	2,595	..	917	14,100

11. **Passenger Journeys, and Tonnage of Goods and Live Stock.**—In the next table particulars are given of the passenger journeys, and tonnage of goods and live stock carried on the Federal railways during the years 1917 to 1921 :—

FEDERAL RAILWAYS.—PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
		PASSENGER JOURNEYS.			
	No.	No.	No.	No.	No.
1917	4,160	(*a*)	1,578	8,034	(*b*) 13,772
1918	17,934	(*a*)	300	11,546	(*b*) 29,780
1919	23,942	51,516	93	5,842	81,393
1920	22,968	55,742	..	4,818	83,528
1921	29,686	69,407	..	3,704	102,797
		TONNAGE OF GOODS AND LIVE STOCK CARRIED.			
	tons.	tons.	tons.	tons.	tons.
1917	583,250	(*a*)	6,586	27,529	(*b*) 617,365
1918	124,806	(*a*)	7,261	40,862	(*b*) 172,929
1919	116,971	57,565	4,385	35,124	214,045
1920	53,722	94,802	4,691	23,122	176,427
1921	20,089	87,879	6,913	3,610	118,491

(*a*) Not available. (*b*) Exclusive of Oodnadatta line.

12. **Number and Description of Rolling Stock, 1921.**—The following table shews the numbers of locomotives and rolling stock in use on the Federal railways, classified according to gauge :—

FEDERAL RAILWAYS.—CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK, 1920–21.

Railway.	Gauge.		Total.	Gauge.		Total.	Gauge.		Total.
	4 ft. 8½ in.	3 ft. 6 in.		4 ft. 8½ in.	3 ft. 6 in.		4 ft. 8½ in.	3 ft. 6 in.	
	LOCOMOTIVES.			PASSENGER VEHICLES.			VEHICLES OTHER THAN PASSENGER.		
Trans-Australian	68	..	68	36	..	36	746	..	746
Oodnadatta (a)	..	1	1	..	..	..	..	31	31
Federal Territory (b) ..	..	..	..	..	..	..	..	..	..
Northern Territory ..	..	13	13	..	5	5	..	306	306
Total ..	68	14	82	36	5	41	746	337	1,083

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

13. **Number of Railway Employees.**—The following table shews the number of employees on the Federal railways at 30th June in each year 1917 to 1921 inclusive, classified according to salaried and wages staffs :—

FEDERAL RAILWAYS.—NUMBER OF EMPLOYEES ON RAILWAYS, 1917 TO 1921.

Railway.	30th June—									
	1917.		1918.		1919.		1920.		1921.	
	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Trans-Australian	157	2,981	201	913	194	846	184	798	172	961
Oodnadatta ..	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Federal Territory	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Northern Territory	16	161	12	164	20	150	12	79	7	60
Total ..	173	3,142	213	1,077	214	996	196	877	179	1,021

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

14. **Accidents.—Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock in each year ended 30th June 1918 to 1921, on the Federal railways :—

FEDERAL RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED ON FEDERAL RAILWAYS, 1918 TO 1921.

Railway.	Number of Persons—							
	Killed.				Injured.			
	1918.	1919.	1920.	1921.	1918.	1919.	1920.	1921.
Trans-Australian	} 3	} 1	} 3	} 3	} 14	} 10	} 9	2
Northern Territory ..								2
Oodnadatta	1	..	..	..	12	8	12	6
Federal Territory	..	..	..	..	..	..	..	..
Total	4	1	3	3	26	18	21	10

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

FEDERAL RAILWAYS.—ORDINARY PASSENGER MILEAGE RATES, 1921.

Single Fare for a Journey of—	Trans-Australian Railway.				Oodnadatta Railway.				Northern Territory Railway.			
	First Class.		Second Class.		First Class.		Second Class.		First Class.		Second Class.	
	Fare.	Average per Passenger Mile.	Fare.	Average per Passenger Mile.	Fare.	Average per Passenger Mile.	Fare.	Average per Passenger Mile.	Fare.	Average per Passenger Mile.	Fare.	Average per Passenger Mile.
Miles.	s. d.	d.	s. d.	d.	s. d.	d.	s. d.	d.	s. d.	d.	s. d.	d.
50	8 4	2.00	5 7	1.34	9 9	2.34	6 7	1.58	10 5	2.50	7 0	1.68
100	16 8	2.00	11 1	1.33	19 9	2.37	13 3	1.59	20 10	2.50	13 10	1.66
200	33 4	2.00	22 3	1.34	39 3	2.36	26 0	1.56	41 8	2.50	27 10	1.67
300	50 0	2.00	33 4	1.33	58 6	2.34	39 3	1.57	..	..	..	..
400	64 7	1.94	43 1	1.29	78 0	2.34	52 0	1.56	..	..	..	..
500	77 1	1.85	51 5	1.23	..	..	..	..	..	..	..	..
600	89 7	1.79	59 9	1.20	..	..	..	..	..	..	..	..
700	102 1	1.75	68 1	1.17	..	..	..	..	..	..	..	..
800	110 5	1.66	73 8	1.11	..	..	..	..	..	..	..	..
900	117 9	1.57	78 6	1.05	..	..	..	..	..	..	..	..
1,000	122 11	1.48	81 11	0.98	..	..	..	..	..	..	..	..
1,051	125 0	1.43	83 4	0.95	..	..	..	..	..	..	..	..

In the case of the Trans-Australian railway, through passengers have to pay for sleeping berths and meals in addition to the ordinary fares. For the first class sleeping berths the charge is twelve shillings and sixpence for a night or part of a night, the corresponding charge for the second class being eight shillings. There is a fixed scale of charges made in respect of the meals served to other than through passengers between Port Augusta and Kalgoorlie. It will be observed that both the first and second class fares on the Trans-Australian railway have a constant rate for distances up to 300 miles and then have a tapering character beyond that distance; while those for the Oodnadatta and the Northern Territory railways are practically uniform for all distances.

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

FEDERAL RAILWAYS.—RATES FOR AGRICULTURAL PRODUCE IN TRUCK LOADS, 1921.

For a haul of—	Northern Territory Railway.		Trans-Australian Railway.		For a haul of—	Trans-Australian Railway, *contd.*	
	Rate per Ton in Truck Loads.	Average per Ton Mile.	Rate per Ton in Truck Loads.	Average per Ton Mile.		Rate per Ton in Truck Loads.	Average per Ton Mile.
	s. d.	d.	s. d.	d.		s. d.	d.
50 miles ..	8 8	2.08	6 11	1.66	600 miles ..	38 4	0.77
100 " ..	15 3	1.83	12 2	1.46	700 " ..	42 6	0.73
200 " ..	19 3	1.16	15 5	0.93	800 " ..	46 8	0.70
300 " ..	..	..	21 8	0.87	900 " ..	50 5	0.67
400 " ..	..	..	27 6	0.83	1,000 " ..	53 9	0.65
500 " ..	..	..	33 4	0.80	1,051 " ..	55 0	0.63

FEDERAL RAILWAYS.—ORDINARY GOODS MILEAGE RATES, 1921.

For a Haul of—	Northern Territory Railway. Class of Freight. Highest. Rate per Ton.	Northern Territory Railway. Highest. Average per Ton Mile.	Northern Territory Railway. Lowest. Rate per Ton.	Northern Territory Railway. Lowest. Average per Ton Mile.	Trans-Australian Railway. Class of Freight. Highest. Rate per Ton.	Trans-Australian Railway. Highest. Average per Ton Mile.	Trans-Australian Railway. Lowest. Rate per Ton.	Trans-Australian Railway. Lowest. Average per Ton Mile.
Miles.	s. d.	d.	s. d.	d.	s. d.	d.	s. d.	d.
50	39 5	9.46	6 9	1.62	31 6	7.56	5 5	1.30
100	71 11	8.63	10 11	1.31	57 6	6.90	8 9	1.05
200	133 2	7.99	19 3	1.16	106 6	6.39	15 5	0.93
300	..	..	..	..	143 0	5.72	21 8	0.87
400	..	..	..	..	172 2	5.17	27 6	0.83
500	..	..	..	..	201 4	4.83	33 4	0.80

For a Haul of—	Trans-Australian Railway, *contd.* Class of Freight. Highest. Rate per Ton.	Trans-Australian Railway, *contd.* Highest. Average per Ton Mile.	Trans-Australian Railway, *contd.* Lowest. Rate per Ton.	Trans-Australian Railway, *contd.* Lowest. Average per Ton Mile.
Miles.	s. d.	d.	s. d.	d.
600	223 9	4.48	38 4	0.77
700	239 5	4.10	42 6	0.73
800	255 0	3.83	46 8	0.70
900	269 1	3.59	50 5	0.67
1,000	281 7	3.38	53 9	0.65
1,051	287 6	3.28	55 0	0.63

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

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

(C) State Railways.

1. Mileage Open, 1917 to 1921.—The following table shews the length of State railways open for traffic on the 30th June in the years 1917 to 1921 :—

STATE RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1917	4,437	4,123	5,214	2,221	3,425	581	20,001
1918	4,678	4,152	5,295	2,242	3,491	588	20,446
1919	4,825	4,190	5,469	2,290	3,538	601	20,913
1920	5,015	4,214	5,685	2,333	3,538	629	21,414
1921	5,043	4,267	5,752	2,333	3,538	630	21,563

The following statement shews the actual mileage opened for traffic in the year 1920–21, and also the annual average increase in mileage opened since 1911 in each State :—

STATE RAILWAYS.—MILEAGE OPENED ANNUALLY.

Mileage.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Total all States.
Mileage opened during 1920–21	27.45	52.58	66.61	..	..	1.14	147.78
Average annual mileage increase in 10 years to 30th June, 1921 ..	121.11	64.42	162.84	87.17	94.02	13.28	543.03

(i) *New South Wales.* During the year ended 30th June, 1921, the extension from Humula to Tumbarumba (28.29 miles) was opened for traffic. A few small readjustments of actual mileage on existing lines were made, reducing the mileage opened by 0.84 miles.

(ii) *Victoria.* The following lines were opened for traffic during 1920–21 :—Cavendish to Balmoral (25.03 miles); Alberton to Yarram (3.62 miles); Manangatang to Annuello (14.19 miles); and Beetoomba to Cudgewa (9.74 miles); a total of 52.58 miles.

(iii) *Queensland.* The increase of 66.61 miles in the mileage opened for traffic in 1920–21 was due to the opening of the following lines :—Goondah to Wallaville (12.20 miles); Kobble to Dayboro (4.28 miles); Styx to Wumalgi (8.94 miles); Wumalgi to St. Lawrence (10.86 miles); Koumala to Carmila (25.34 miles); and Ingham to Lilypond (4.99 miles).

(iv) *South Australia.* During the year 1920–21 no additional new lines were opened.

(v) *Western Australia.* There were no additional new lines opened during the year 1920–21.

(vi) *Tasmania.* During the year 1920–21 the line from Ulverstone to Ulverstone Wharf (0.50 miles) was completed and taken over, and the branch to Cadbury Works, Claremont (0.64 miles), also came into use for general traffic, making a total increase of 1.14 miles.

2. **Average Mileage Worked, Train Miles Run, Number of Passenger Journeys, and Tonnage of Goods and Live Stock Carried on State Government Railways.**—The table on page 552 gives the total mileage open for traffic at the end of each financial year, but, in considering the returns relating to revenue and expenditure, and other matters, it is desirable to know the average number of miles actually worked during each year. The next table shews the average number of miles worked, the total number of train miles run, the number of passenger journeys, and the tonnage of goods and live stock carried by the Government railways of each State during the years 1917 to 1921 inclusive :—

STATE RAILWAYS.—AVERAGE MILEAGE WORKED, TRAIN MILES RUN, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania. (a)	All States.
			AVERAGE MILEAGE WORKED.				
1917 ..	4,313	4,104	5,067	2,193	3,370	577	19,624
1918 ..	4,551	4,139	5,281	2,235	3,463	591	20,260
1919 ..	4,737	4,159	5,324	2,285	3,507	599	20,611
1920 ..	4,966	4,194	5,635	2,316	3,538	635	21,284
1921 ..	5,019	4,237	5,733	2,333	3,538	637	21,497
			TRAIN MILES RUN.				
1917 ..	20,300,717	14,022,040	10,729,187	5,730,539	4,500,211	1,080,459	56,363,153
1918 ..	18,143,267	13,626,371	10,319,694	5,440,515	4,094,510	1,056,373	52,680,730
1919 ..	19,935,202	13,03 ,655	9,942,744	5,412,924	4,256,627	1,107,890	53,687,042
1920 ..	22,834,889	15,022,465	10,443,619	5,192,038	4,851,446	1,266,625	59,611,082
1921 ..	22,792,053	15,900,291	10,735,723	5,712,491	4,918,113	1,387,417	61,455,088
			NUMBER OF PASSENGER JOURNEYS.				
1917 ..	96,709,846	108,341,540	24,837,714	18,107,015	17,466,744	1,971,888	267,434,747
1918 ..	94,304,516	105,753,073	25,682,368	18,936,104	16,081,695	1,874,029	262,631,785
1919 ..	98,568,768	111,904,786	26,414,817	20,176,544	17,325,424	1,889,102	276,279,441
1920 ..	114,654,660	134,012,162	28,177,817	22,852,116	18,411,231	2,267,856	320,375,842
1921 ..	120,735,140	134,045,683	27,735,179	23,787,884	17,732,571	2,687,837	326,724,294
			TONNAGE OF GOODS AND LIVE STOCK CARRIED.				
1917 ..	11,732,864	5,962,602	4,035,379	2,822,401	2,400,246	401,076	27,354,568
1918 ..	11,293,060	6,231,093	4,154,441	2,767,734	2,259,070	407,405	27,112,803
1919 ..	12,714,012	6,515,470	3,783,334	2,618,510	2,379,403	472,926	28,483,655
1920 ..	13,293,528	7,770,694	3,790,881	2,578,903	2,613,606	575,169	30,622,786
1921 ..	15,563,131	7,572,993	3,867,650	2,682,218	2,604,068	672,127	32,962,187

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

3. Length and Gauge of Railway Systems in each State.—In all the States the Government railways are grouped, for the convenience of administration and management, into several divisions or systems. A summary shewing concisely the gauge and length of the main and branch lines included in each division or system of the different States of the Commonwealth for the year ended the 30th June, 1918, was given in Year Book No. 12, pp. 646 and 651 to 653. Owing to limitations of space this information for the year ended 30th June, 1921, is not included in the present volume, but may be found in Transport and Communication Bulletin No. 13 issued by this Bureau.

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

5. Lines under Construction, and Lines Authorised, 1921.—The following statement gives particulars up to the 30th June, 1921, of the mileage of State railways (*a*) under construction, and (*b*) authorised for construction but not commenced :—

STATE RAILWAYS.—MILEAGE UNDER CONSTRUCTION AND AUTHORISED, 30th JUNE, 1921.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	All States.
Mileage under construction	*a* 635.84	52.38	*b* 130.00	138.63	*c* 83.00	37.65	1,077.50
Mileage authorised but not commenced ..	84.02	10.00	1,423.00	28.75	92.50	9.66	1,647.93

(*a*) Exclusive of 161.90 miles on which work has been suspended.
(*b*) Exclusive of 421 miles on which work has been suspended.
(*c*) Exclusive of 53.25 miles on which work has been suspended.

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

(*a*) In *New South Wales* the lines under construction (635.84 miles) consist of 312 miles of "pioneer lines" built to afford railway communication over level country suitable for settlement by returned soldiers. In addition there are 200 miles of a more expensive character passing through mountainous districts. The line from Coff's Harbour to Glenreagh (26.38 miles) will form part of the North Coast Railway, which will eventually be connected with Brisbane. The line from Molong to Dubbo (80.00 miles) will assist in the development of the Western system. Other lines under construction are Nimmitabel to Bombala (37.85 miles); Binnaway to Werris Creek (90.88

miles); Coonabarabran to Burren Junction (95.37 miles); Griffith to Hillston (62.18 miles); Barmedman to Rankin's Springs (70.90 miles); Yanco to Griffith (33.00 miles); Gilmore to Batlow (22.00 miles); Canowindra to Eugowra (26.70 miles); Westmead to Dural (1.56 miles); Glenreagh to Dorrigo (44.25 miles); Regent's Park to Cabramatta and Enfield (8.10 miles); Macksville to Raleigh (20.67 miles); and Tarana to Oberon (16.00 miles).

The following lines have been partly constructed, but further work is at present suspended:—Trida to Menindie (155.70 miles); Sydenham to Botany (6.20 miles); a total distance of 161.90 miles.

(*b*) *Victoria.* In this State the following lines were under construction by the Board of Land and Works on the 30th June, 1921:—*5-ft. 3-in. gauge:* Koo-wee-rup to McDonald's Track (30.75 miles); Yarram to Won Wron (8.63 miles); Bittern to Red Hill (10.00 miles); and Morwell Brown Coal Railway (3.00 miles), making in all 52.38 miles.

(*c*) *Queensland.* In December, 1910, the North Coast Railway Act was passed. Under this Act a series of lines, when constructed, will link up a number of existing lines in such a way that a through line will be obtained from Rockhampton to Cairns, via Mackay and Townsville, a total distance of 630 miles. By the completion of this line it will be possible to travel from Cairns to the southern border of the State at Wallangarra, a total distance of about 1,250 miles. At the same time the Great Western Railway Act was passed. Under this Act provision is made for the extension in a westerly or south-westerly direction of the lines already constructed to Quilpie, Yaraka, Winton, and Dajarra, in such a manner that they will form junctions with a line to be made running north-westerly from Eromanga to Camooweal. These extensions, together with the north-westerly line, will make an aggregate distance of 990 miles to be constructed. With the completion of both these schemes, the railways of this State will be brought into direct communication with each other on both their east and west boundaries. On the 30th June, 1921, the following lines, of an aggregate length of 130 miles, were under construction:—Northern Division—Gargett to Owen's Creek (6 miles); Merinda to Bowen Coal Fields (48 miles); Tarzali to Millaa Millaa (8 miles). North Coast Railway—Carmila to St. Lawrence (32 miles); Daradgee to Tully River (36 miles). The following lines are partially constructed but work thereon is temporarily suspended:—Kalbar to Mount Edwards (10 miles); Tara to Surat (50 miles); Wallaville to Kalliwa (18 miles), Murgon to Preston (26 miles); Longreach to Winton (109 miles); Yaraka to Powell's Creek (27 miles); Farleigh to Prosperine (68 miles); Lilypond to Cardwell (28 miles); Dajarra to Moonah Creek (41 miles); Mt. Molloy Extension (7 miles); and Winton to 37-Mile (37 miles); a total of 421 miles.

(*d*) *South Australia.* In this State the lines under construction on the 30th June, 1921, were as follow:—Clare to Spalding (23.63 miles), Wandana to Penong (54.00 miles), and Long Plains to Redhill (61.00 miles), an aggregate distance of 138.63 miles.

(*e*) In *Western Australia* the following lines were in course of construction by the Public Works Department on the 30th June, 1921:—Esperance northward (60 miles), Mt. Marshall Extension (23 miles), a total of 83 miles. The construction of the line from Narembeen to Merredin (53.25 miles) is at present in abeyance.

(*f*) *Tasmania.* At 30th June, 1921, the following lines were under construction:—Myalla to Stanley (27.00 miles); Irishtown to Smithton (5.84 miles); and Marrawah Tram Extension (4.81 miles); a total of 37.65 miles.

(ii) *Lines Authorised for Construction.* (*a*) *New South Wales.* At the 30th June, 1921, the following lines had been authorised for construction but not commenced:—Gilgandra to Collie (21.51 miles); Roslyn to Taralga (15.82 miles); Grafton to South Grafton with bridge over Clarence River (2.34 miles); The Rock to Pulletop (25.00 miles); Ballina to Buyong (12.50 miles); Richmond to Kurrajong (6.85 miles); a total distance of 84.02 miles.

(*b*) In *Victoria* the following line was authorised, but construction had not been commenced up to the end of June, 1921:—*5-ft. 3-in. gauge:* Merbein to Yelta (10 miles).

(*c*) *Queensland.* In addition to the new lines upon which work has been commenced, Parliament has also authorised the construction of the following parts of the Great Western Railway: Section A, from Quilpie to Eromanga (120 miles); Section B, from Powell's Creek (224 miles); Section C, from 37-Mile to Springvale (324 miles); and Section D, from Moonah Creek (217 miles); and on the North Coast Railway, Section E, from Tully River southwards to Cardwell (24 miles). The following lines were also authorised for construction: Branch to Windera (12 miles); Inglewood to Texas and Silverspur (44 miles); Mount Edwards to Maryvale (28 miles); Lanefield to Rosevale (17 miles); Gatton to Mount Sylvia (11 miles); Juandah to Taroom (42 miles); Dirranbandi extension (52 miles); Mundubbera to the Northern Burnett (32 miles); Yarraman to Nanango (16 miles); Brooloo to Kenilworth (10 miles); Many Peaks to northern end of approved line from Mundubbera to Northern Burnett (79 miles); Monte and Rannes to open up Callide Valley and Prairie Land (110 miles); Dobbyn to Myally Creek (50 miles); Peeramon towards Boonjee (11 miles); a total of 1,423 miles.

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

(*e*) In *Western Australia* the following lines were authorised for construction up to the 30th June, 1921:—Busselton-Margaret River (37.75 miles), Dwarda-Narrogin (33 miles), and Nyabing-Pingerup (21.75 miles), a distance of 92.50 miles.

(*f*) In *Tasmania* the following lines were authorised for construction, but work had not commenced at 30th June, 1921:—Preolenna Railway Extension (4.66 miles), and Melrose Extension (5.00 miles).

6. **Cost of Construction and Equipment of State Railways.**—The total cost of construction and equipment of the State railways of Australia at the 30th June, 1921, amounted to £226,295,406, or to an average cost of £10,495 per mile open for traffic. Particulars as to the capital expenditure incurred in each State on lines open for traffic are given in the following table:—

STATE RAILWAYS.—MILEAGE AND COST TO 30th JUNE, 1921.

State.	Length of Line Open (Route).	Total Cost of Construction and Equipment.	Average Cost per Mile Open.	Cost per Head of Population.	Mileage per 1,000 of Population.
	Miles.	£	£	£	Miles.
New South Wales (*a*) ..	5,042.78	82,304,194	16,321	39.17	2.40
Victoria	4,266.58	(*b*) 59,798,696	(*b*) 14,016	38.93	2.78
Queensland	5,751.71	41,368,640	7,192	53.80	7.48
South Australia (*a*) ..	2,333.19	(*c*) 19,270,704	(*c*) 8,259	38.73	4.69
Western Australia (*a*)..	3,538.23	18,169,980	5,135	54.55	10.62
Tasmania	629.84	5,383,192	8,547	25.39	2.97
All States ..	21,562.33	226,295,406	(*bc*) 10,495	41.53	3.96

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

It will be seen that the lowest average cost per mile open, £5,135, is in Western Australia, which is slightly less than one-third of the highest average cost, namely, £16,321 in New South Wales, compared with an average of £10,495 for all the State Government railways. In Western Australia there have been comparatively few engineering difficulties to contend with; moreover, the system was adopted in several instances in that State of giving contractors the right to carry traffic during the period of their contracts, with the result that, at least in all goldfields railway contracts, the cost of construction was considerably lessened.

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

(i) *Reduction of Cost per Mile in Recent Years.* The average cost per mile of the lines constructed lately in the Commonwealth is very much less than the figure given in the above table, in consequence of the construction of light "pioneer" lines, which have already been referred to, and which it was originally considered in New South Wales could be laid down at a cost of £1,750 per mile (exclusive of stations and bridges). It should also be remembered that in the early days of railway construction there were considerable engineering difficulties to overcome, and that labour was scarce and dear. Since 1892 many hundreds of miles of "pioneer" lines have been opened in New South Wales, the average cost ranging from about £2,000 to £7,500 per mile, according to the difficulties met in the country traversed. The lowest cost per mile for any line previously constructed had been that of the line from Nyngan to Cobar and the Peak, the average cost of which, to the end of June, 1921, was £3,792. In Victoria also the cost of construction has been greatly reduced in recent years. The total cost to the 30th June, 1921, of the narrow gauge (2 ft. 6 in.) lines, having a length of 121.90 miles, was only £346,112, which gives an average cost per mile of only £2,839. In the other States the cost of construction per mile has been similarly reduced by building light railways as cheaply as possible. Fairly substantial permanent way is laid down with reduced ballast, and, as settlement progresses and traffic increases, the road is strengthened, and the stations and siding accommodation enlarged. The subjoined table gives examples of some of the more expensive lines, most of which were built in the early days of railway construction in Australia.

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

Line.	Gauge.	Length.			Total Cost.	Average Cost per Mile.	Date of Opening.
		Double Lines and over.	Single Line.	Total.			
	ft. in.	Miles.	Miles.	Miles.	£	£	
NEW SOUTH WALES—							
Penrith to Bathurst ..	4 8½	91 51	22.58	114.09	4,545,496	39,843	1876
Sydney to Nowra	4 8½	44.25	54.10	98.35	4,830,105	49,110	1887
Homebush to Waratah ..	4 8½	95.71	..	95.71	3,605,345	37,668	1889
VICTORIA—							
Melbourne to Bendigo ..	5 3	100.89	..	100.89	4,991,683	49.476	1862
North Geelong to Ballarat ..	5 3	41.45	11.98	53.43	1,966,396	36,803	1862

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

The average cost per mile of the 462.47 miles comprised in the above table was £43,114, whereas the average cost of the 351.15 miles referred to in the next table was £1,936.

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

Line.	Gauge.		Length.	Total Cost.	Average Cost per Mile.	Date of Opening.
	ft.	in.	Miles.	£	£	
NEW SOUTH WALES—						
Parkes to Condobolin ..	4	8½	62.66	138,824	2,215	1898
Burren Junction to Pokataroo ..	4	8½	42.55	105,112	2,470	1906
VICTORIA—						
Wangaratta to Whitfield ..	2	6	30.49	40,964	1,344	1899
Wycheproof to Sea Lake ..	5	3	47.89	87,210	1,821	1895
Ultima to Chillingollah ..	5	3	20.14	34,766	1,726	1909
QUEENSLAND—						
Dalby to Bell	3	6	23.50	38,415	1,635	1906
Mahar to Jandowae	3	6	28.24	61,122	2,164	1914
SOUTH AUSTRALIA—						
Wandilo to Glencoe	3	6	9.13	11,740	1,287	1904
Tailem Bend to Pinnaroo ..	5	3	86.55	161,841	1,870	1906

The comparisons afforded in the two preceding tables are subject to certain limitations, inasmuch as the cost is naturally greater in the case of the older lines. Further, the figures given represent the cost of construction only (*i.e.*, exclusive of cost of equipment), and cannot therefore be directly compared with the average cost per mile open given in the table on page 556.

(ii) *Capital Cost of Construction and Equipment, Total and per Mile Open.* The increase in the total capital cost of construction and equipment of Government railways in each State for each year from 1917 to 1921 is shewn in the following table :—

STATE RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
			TOTAL COST OF LINES OPEN.				
	£	£	£	£	£	£	£
1917 ..	72,006,621	55,652,275	36,476,000	17,687,344	17,466,802	4,912,395	204,202,437
1918 ..	75,050,450	a56,535,414	37,301,889	b17,974,348	17,760,566	4,979,399	(a, b)209,602,066
1919 ..	76,601,591	a57,403,576	38,244,494	b18,649,979	17,995,911	5,076,014	(a, b)213,971,595
1920 ..	79,318,917	a58,287,897	40,005,868	b19,105,510	18,062,354	5,240,276	(a, b)220,020,822
1921 ..	82,304,194	a59,798,69[illegible]	41,368,640	b19,270,704	18,169,980	5,383,192	(a, b)226,295,406
			COST PER MILE OPEN.				
1917 ..	16,229	13,498	6,996	7,964	5,100	8,447	10,210
1918 ..	16,042	(a)13,659	7,045	(b) 8,058	5,087	8,470	(a, b)10,263
1919 ..	15,877	(a)13,743	6,992	(b) 8,186	5,036	8,438	(a, b)10,243
1920 ..	15,815	(a)13,832	7,037	(b) 8,188	5,105	8,344	(a, b)10,275
1921 ..	16,321	(a)14,016	7,192	(b) 8,259	5,135	8,547	(a, b)10,495

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

(iii) *Loan Expenditure on Railways.* The subjoined table shews the total loan expenditure on Government railways (including lines both open and unopen) in each State, except Tasmania, and on Government railways and tramways in the latter State for the years 1916-17 to 1920-21 :—

STATE RAILWAYS.—LOAN EXPENDITURE, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas. (a)	All States.
	£	£	£	£	£	£	£
1917 ..	3,706,422	1,266,352	1,342,249	413,095	308,027	133,056	7,169,201
1918 ..	2,294,547	761,705	984,147	500,441	181,394	55,561	4,777,795
1919 ..	1,441,105	878,384	1,416,302	324,041	154,720	39,165	4,253,717
1920 ..	2,337,303	982,182	2,356,498	236,925	93,676	91,221	6,147,805
1921 ..	3,598,351	1,685,329	1,760,932	252,097	145,724	254,079	7,696,512

(a) Including tramways.

The following statement shews the total loan expenditure on railways to the 30th June, 1921 :—

STATE RAILWAYS.—TOTAL LOAN EXPENDITURE IN EACH STATE TO 30th JUNE, 1921.

State ..	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.a	All States.
	£	£	£	£	£	£	£
Expenditure	87,485,009	58,190,597	44,568,670	21,451,931	17,586,723	5,851,065	235,133,995

(a) Including tramways.

7. **Gross Revenue; Total, per Average Mile Worked, and per Train-mile Run.**—The following table shews the total revenue from all sources, the revenue per average mile worked, and the revenue per train-mile run in each State during each financial year from 1917 to 1921 inclusive :—

STATE RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED, AND PER TRAIN-MILE RUN, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
TOTAL GROSS REVENUE.							
	£	£	£	£	£	£	£
1917	8,380,084	5,952,719	3,831,967	2,273,530	1,877,382	340,505	22,656,187
1918	8,954,880	6,562,259	4,023,921	2,331,549	1,816,388	356,735	24,045,732
1919	9,958,173	6,432,277	3,934,597	2,391,409	1,872,897	401,364	25,040,717
1920	13,083,847	8,224,972	4,960,150	2,726,540	2,291,876	506,177	31,793,562
1921	14,267,205	9,795,763	5,279,412	2,942,028	2,720,032	600,045	35,604,485
GROSS REVENUE PER AVERAGE MILE WORKED.							
	£	£	£	£	£	£	£
1917	1,943	1,450	756	1,037	557	591	1,155
1918	1,968	1,585	762	1,043	525	604	1,166
1919	2,102	1,547	748	1,047	534	670	1,215
1920	2,635	1,961	880	1,177	648	797	1,494
1921	2,843	2,312	921	1,261	768	942	1,656
GROSS REVENUE PER TRAIN-MILE RUN.							
	d.	d.	d.	d.	d.	d.	d.
1917	99.07	101.89	85.72	95.22	100.12	75.64	96.47
1918	118.46	115.58	93.58	102.85	106.47	81.05	109.55
1919	119.88	118.46	96.18	106.03	105.60	86.95	111.94
1920	137.51	131.40	113.99	126.03	113.38	95.91	127.80
1921	150.23	147.77	118.02	123.60	132.74	103.79	139.05

8. **Coaching, Goods, and Miscellaneous Receipts.**—The gross revenue is composed of (*a*) receipts from coaching traffic, including the carriage of mails, horses, parcels, etc., by passenger trains; (*b*) receipts from the carriage of goods and live stock; and (*c*) rents and miscellaneous items. The subjoined table shews the gross revenue for 1917 to 1921, classified according to the three chief sources of receipts. The total of the three items specified has already been given in the preceding paragraph.

STATE RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
COACHING TRAFFIC RECEIPTS.							
	£	£	£	£	£	£	£
1917 ..	3,637,656	2,918,557	1,308,896	739,483	607,537	171,220	9,383,349
1918 ..	3,932,936	3,254,274	1,396,803	819,197	617,606	177,854	10,198,670
1919 ..	3,978,180	3, 41,194	1,392,476	807,747	637,851	188,329	10,245,777
1920 ..	5,714,131	4,205,420	1,833,349	1,130,659	764,872	236,763	13,885,194
1921 ..	6,384,031	4,923,067	1,885,677	1,185,878	911,007	270,635	15,560,295
GOODS AND LIVE STOCK TRAFFIC RECEIPTS.							
1917 ..	4,542,619	2,934,259	2,433,868	1,502,363	1,176,058	158,162	12,747,329
1918 ..	4,652,113	3,137,547	2,516,564	1,480,460	1,105,836	168,095	13,060,624
1919 ..	5,583,982	2,957,789	2,483,698	1,536,209	1,127,539	203,412	13,892,629
1920 ..	6,807,792	3,721,122	3,000,829	1,556,224	1,394,908	261,657	16,742,532
1921 ..	7,270,856	4,411,276	3,267,289	1,719,556	1,637,979	320,798	18,627,754
MISCELLANEOUS RECEIPTS.							
1917 ..	(*a*)199,809	99,903	89,203	31,684	93,787	11,123	525,509
1918 ..	(*a*)369,831	170,438	110,554	31,883	92,946	10,786	786,438
1919 ..	(*a*)396,011	233,294	108,423	47,453	107,507	9,623	902,311
1920 ..	(*a*)561,924	(*b*)298,430	125,972	39,657	132,096	7,757	1,165,836
1921 ..	(*a*)612,318	(*b*)461,420	126,446	36,594	171,046	8,612	1,416,436

(*a*) Including Refreshment Rooms, 1917, £102,375; 1918, £274,699; 1919, £289,810; 1920, £426,323; and 1921, £455,212. (*b*) Including Refreshment Rooms, 1920, £105,619; and 1921, £258,315.

(i) *New South Wales.* The total earnings for the year 1920–21 amounted to £14,267,205, an increase of £1,183,358 as compared with the previous year. Increases of £669,900, £463,064, and £50,394 took place in the coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(ii) *Victoria.* In Victoria, traffic receipts shewed increases as compared with the previous year of £717,647, £690,154, and £162,990, a total increase of £1,570,791 for the year in coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(iii) *Queensland.* In Queensland, there were increases in 1920–21 of £52,328, £266,460, and £474, representing an increase of £319,262 for the year for all services in respect of coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(iv) *South Australia.* In this State there were increases of £55,219 and £163,332 in coaching traffic and goods and live stock receipts respectively, and a decrease of £3,063 in miscellaneous receipts, the net increase for the year 1920–21, being £215,488 in advance of the receipts for the previous year.

(v) *Western Australia.* In this State the earnings in 1920–21 shewed an increase of £428,156 as compared with 1919–20. There were increases of £146,135, £243,071, and £38,950 in the coaching traffic, goods and live stock traffic, and miscellaneous receipts respectively.

(vi) *Tasmania.* The gross revenue in 1920-21 shewed an increase of £93,868 as compared with the previous year, made up by coaching traffic, £33,872; goods and live stock traffic, £59,141; and miscellaneous receipts, £855.

The following table shews for the two years 1919-20 and 1920-21 the percentage which each class of receipts bears to the total gross revenue :—

STATE RAILWAYS.—PERCENTAGE OF REVENUES FROM VARIOUS SOURCES ON TOTAL REVENUE, 1920 and 1921.

Particulars.	1919-20.						
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	43.67	51.13	36.96	41.46	33.38	46.78	43.67
Goods and live stock ..	52.03	45.24	60.50	57.08	60.86	51.68	52.66
Miscellaneous	4.30	3.63	2.54	1.46	5.76	1.54	3.67

Particulars.	1920-21.						
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	44.75	50.26	35.72	40.31	33.49	45.10	43.70
Goods and live stock ..	50.96	45.03	61.89	58.45	60.22	53.46	52.32
Miscellaneous	4.29	4.71	2.39	1.24	6.29	1.44	3.98

9. **Coaching Traffic Receipts per Average Mile Worked, and per Passenger-train Mile.**—The subjoined table shews the receipts from coaching traffic per average mile of line worked, and per passenger-train mile, in each State and for all States for the year ended the 30th June, 1921 :—

STATE RAILWAYS.—COACHING TRAFFIC RECEIPTS PER MILE WORKED, AND PER PASSENGER-TRAIN MILE, 1920-21.

State.	Number of Passenger-Train Miles.(a)	Coaching Traffic Receipts.		
		Gross.	Per Average Mile Worked.	Per Passenger-Train Mile.
	No.	£	£	d.
New South Wales	11,301,271	6,384,031	1,272	135.58
Victoria	8,400,876	4,923,067	1,162	140.64
Queensland	3,767,645	1,885,677	329	120.12
South Australia	2,815,117	1,185,878	508	101.10
Western Australia	2,053,479	911,007	257	106.47
Tasmania	494,451	270,635	425	131.36
Total	28,832,839	15,560,295	724	129.52

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

New South Wales ..	1,651,962	Western Australia ..	1,063,039
Victoria	2,529,249	Tasmania	664,536

The preceding table shews that, amongst the States, there is a considerable difference in the amount of the average receipts per average mile worked. In this respect New South Wales shews the maximum of £1,272, while Western Australia has a minimum of £257, the average for all States being £724. In the case of the receipts per passenger-train mile the maximum occurs in Victoria with 140.64 pence, and the minimum in South Australia, 101.10 pence, the average for all States being 129.52 pence.

With regard to the number of passenger journeys in the various States, it will be seen from the table on page 553 *ante* that there has been a preponderance in favour of Victoria for years past, though it was a declining one during the years 1917 and 1918. In the year 1920–21, however, there was an increase over the two previous years.

This preponderance in Victoria is accounted for, to a great extent, by the large number of metropolitan suburban passengers in that State. Of the total number of passengers carried in Victoria in 1920–21, 123,983,817 were metropolitan suburban passengers, *i.e.*, were carried between stations within twenty miles of Melbourne, while in New South Wales the number of suburban passenger journeys between stations within thirty-four miles of Sydney, including the Richmond line, and of Newcastle, including Greta, was 110,255,795. In Sydney a large proportion of the metropolitan suburban traffic is carried on the electric and steam tramways, the number of passenger journeys during the year 1920–21 being 277,687,038. In Melbourne, on the other hand, the number of passengers carried on the cable system and Royal Park horse tramway during the same period was 149,048,681; and the number carried on the St. Kilda–Brighton, Sandringham–Black Rock, North Melbourne tramways, and tramways of the Metropolitan Tramways Trust, exclusive of the cable and horse tramway, 71,628,633, making a total of 220,677,314. This matter is referred to hereinafter. (See sub-section 14.)

10. Goods and Live-Stock Traffic Receipts per Mile Worked, per Goods-train Mile, and per Ton Carried.—The following table shews the gross receipts from goods and live-stock traffic per mile worked, per goods-train mile, and per ton carried, for the year ended the 30th June, 1921 :—

STATE RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS PER MILE WORKED, PER GOODS-TRAIN MILE, AND PER TON CARRIED, 1920–21.

State.	Number of Goods-Train Miles. (a)	Goods and Live-Stock Tonnage.	Goods and Live-Stock Traffic Receipts.			
			Gross.	Per Average Mile Worked.	Per Goods-Train Mile.	Per Ton Carried.
	No.	Tons.	£	£	d.	d.
New South Wales ..	11,490,782	15,563,131	7,270,856	1,449	151.86	112.12
Victoria	7,508,415	7,572,993	4,411,276	1,041	141.00	139.80
Queensland ..	6,968.078	3,867,650	3,267,289	570	112.53	202.74
South Australia ..	2,897.374	2,682,218	1,719,556	737	142.44	153.86
Western Australia ..	2,864,634	2,604,068	1,637,979	463	137.23	150.96
Tasmania	892,966	672,127	320,798	504	86.22	114.55
Total ..	32,622,249	32,962,187	18,627,754	867	137.04	135.63

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

New South Wales ..	1,651,962	Western Australia ..	1,063,039
Victoria	2,529.249	Tasmania	664,536

From the preceding table it will be seen that the average cost of freight per ton ranges from 112.12 pence in New South Wales to 202.74 pence in Queensland, the average for all States being 135.63 pence.

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

The following table shews the total annual expenditure, comprising expenses on (*a*) maintenance of way, works, and buildings; (*b*) locomotive power—repairs and renewals; (*c*) carriages and wagons—repairs and renewals; (*d*) traffic expenses; (*e*) compensation; and (*f*) general and miscellaneous charges; and the percentage of the total of these expenses upon the corresponding gross revenues in each State for each year 1917 to 1921 :—

STATE RAILWAYS.—TOTAL WORKING EXPENSES, AND PERCENTAGE OF WORKING EXPENSES ON GROSS REVENUE, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria. (*a*)	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	TOTAL WORKING EXPENSES.						
	£	£	£	£	£	£	£
1917	5,915,360	4,154,040	2,994,187	1,725,341	1,448,451	289,186	16,526,565
1918	5,940,447	4,451,092	3,410,157	1,747,055	1,451,334	277,952	17,278,037
1919	6,904,450	4,279,663	3,690,445	1,829,634	1,567,591	324,595	18,596,378
1920	9,570,983	6,058,912	4,323,392	2,007,361	2,000,473	390,191	24,351,312
1921	11,032,677	7,835,756	5,048,498	2,655,465	2,422,004	476,187	29,470,587
	PERCENTAGE OF WORKING EXPENSES ON GROSS REVENUE.						
	%	%	%	%	%	%	%
1917	70.59	69.78	78.14	75.89	77.15	84.93	72.95
1918	66.34	67.83	84.75	74.93	79.90	77.92	71.85
1919	69.33	66.53	92.62	76.51	83.70	80.87	74.26
1920	73.15	73.66	87.16	73.62	87.29	77.08	76.59
1921	77.33	79.99	95.63	90.26	89.04	79.35	82.77

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

(i) *New South Wales.* In this State the total working expenses in 1920–21 amounted to £11,032,677, an increase of £1,461,693 as compared with the previous year. There were heavy increases in wages to the staff under awards of the Court of Industrial Arbitration and the Board of Trade's determination in respect of the basic wage, and also large increases in the prices paid for coal and other materials, additional payments in rates on property under the Local Government Act 1919, and additional cost of repairing damage by floods, all of which accounted for a sum of £1,645,663.

(ii) *Victoria.* In Victoria there was an increase of £1,776,844 in working expenses. This was partly due to increases in wages made by the Railway Classification Board and certain other Wages Boards, involving a total of £727,502; the higher cost of coal and heavier handling and junction charges, owing to coal being brought overland as a result of the shipping strike, amounted to £270,861.

(iii) *Queensland.* In this State the working expenses increased by £725,106 compared with 1919-20, which increase is chiefly accounted for by factors beyond control of the Department, viz. :—Increased salaries and wages due to 1920 Railway Award, £353,051 ; increased wages March, 1921, Basic Wage variation and automatic increases, £75,741 ; extra cost of coal due to September, 1920, Fuel Award, £45,000. The remainder of the increase is due to extra train mileage, viz., 292,104 miles above previous year.

(iv) *South Australia.* In South Australia the working expenses in 1920-21 shewed an increase of £648,105 over 1919-20. This increase was mainly due to higher wages through Tribunal Awards and raising of Basic Wage, £471,797 ; and during the year the material purchased in connection with working cost approximately £158,000 more than was paid on the same account in 1919-20.

(v) *Western Australia.* In this case the expenditure in 1920-21 was £421,531 greater than in the previous year, and this is principally attributable to Arbitration Award increases, £313,000 ; fuel and other material, additional and increased price, £79,000 ; and staff increases to cope with extra business, £28,500.

(vi) *Tasmania.* In 1920-21 the working expenses were £85,996 higher than in the previous year. This was mainly owing to the increased salaries and wages paid, higher cost of material of all descriptions, and increase in train mileage of 120,792.

In the preceding table it will be observed that the percentages of the total working expenses to the total gross earnings of the State railways have varied but slightly during the period 1916 to 1920, but during the past year there has been a distinct increase in all States, though less pronounced in Western Australia and Tasmania. The increase for all States since 1917 is 9.82 per cent.

(vii) *Working Expenses per Average Mile Worked and per Train-mile Run.* The following table shews the working expenses per average mile worked and per train-mile run in each State for the years 1917 to 1921 :—

STATE RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED AND PER TRAIN-MILE RUN, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
WORKING EXPENSES PER AVERAGE MILE WORKED.							
	£	£	£	£	£	£	£
1917	1,372	1,012	591	787	430	502	842
1918	1,305	1,075	646	782	419	470	838
1919	1,457	1,029	693	801	447	542	902
1920	1,927	1,445	767	867	565	614	1,144
1921	2,198	1,849	881	1,138	684	748	1,371
WORKING EXPENSES PER TRAIN-MILE RUN.							
	d.	d.	d.	d.	d.	d.	d.
1917	69.93	71.10	66.98	72.26	77.25	64.24	70.37
1918	78.58	78.40	79.31	77.07	85.07	63.15	78.72
1919	83.12	78.82	89.08	81.12	88.39	70.32	83.13
1920	100.59	96.80	99.35	92.79	98.96	73.93	98.04
1921	116.17	118.21	112.86	111.56	118.19	82.37	115.10

12. **Distribution of Working Expenses.**—The subjoined table shews the distribution of working expenses, among four chief heads of expenditure, for the years 1917 to 1921 :—

STATE RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
MAINTENANCE.							
	£	£	£	£	£	£	£
1917	932 990	927,315	774,833	391,334	349,714	82.571	3.458,757
1918	996,502	1,049,270	851,525	304,462	371,411	72,515	3,645,685
1919	1,126,118	870,123	904,199	338,785	411,986	87,902	3,739,113
1920	1,589,472	1,288,030	988,881	350,953	485,647	100,276	4,803,259
1921	1,807,964	1,576,857	1,153,095	526,120	561,845	122,349	5,748,230
LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.							
1917	2,926,231	1,953,262	1,326,902	909,660	681,243	125,889	7,923,187
1918	2.755.183	2 042,846	1,515,121	982 298	656.576	125,190	8,077,214
1919	3,277,623	2,019,967	1,650.263	981,646	689,333	149,260	8,768,092
1920	4,603.775	2.785,614	2,000,901	1,101,629	927,139	185,576	11.604,634
1921	5,459,582	3,541,967	2,374,560	1,414,866	1,095,300	229,154	14,115,429
TRAFFIC EXPENSES.							
1917	1,763,466	1,137,703	821,941	391,309	375,655	64,247	4,554,321
1918	1,727,861	1,225,479	974,513	426,775	379,991	63,728	4,798.347
1919	1,927.612	1,257,685	1,067,667	459,147	418.050	72,514	5,202,675
1920	2,535,813	1,820,588	1,251.192	495,700	529,802	87,786	6,720.881
1921	2,992,003	2,483.789	1,428,008	651,579	688,077	109,521	8,352,977
OTHER CHARGES.							
1917	(a)292,673	135,760	70,511	33,038	41,839	16,479	590,300
1918	(a)460,901	133.497	68,998	33,520	43,356	16,519	756,791
1919	(a)573,097	131,888	68,316	50,056	48,222	14,919	886,498
1920	(a)841,923	(b)164.680	82,418	59.079	57,885	16.553	1,222,538
1921	(a)773,128	(b)233,143	92,835	62,900	76,782	15,163	1,253.951

(a) Including Refreshment Rooms, 1917, £94,914; 1918, £236,063; 1919, £248,249; 1920, £352,616; and 1921, £393,963. (b) Including Refreshment Rooms, 1920, £78,840; and 1921, £212,398.

13. **Net Revenue.**—The following table shews the net sums available to meet interest charges, also the percentage of such sums upon the capital cost of construction and equipment of lines opened for traffic in each State for the years 1917 to 1921 :—

STATE RAILWAYS.—NET REVENUE AND PERCENTAGE OF NET REVENUE ON CAPITAL COST OF LINES OPEN, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
NET REVENUE.							
	£	£	£	£	£	£	£
1917	2,464,724	1,798,679	837,780	548,189	428,931	51,319	6,129,622
1918	3,014,433	2,111,167	613,764	584,494	365,054	78,783	6,767,695
1919	3,053,723	2,152,614	294.152	561,775	305.306	76,769	6,444.339
1920	3,512,863	2,166,060	636,758	719,180	291.403	115,986	7,442.250
1921	3,234,528	1,960,007	230,914	286,563	298,028	123,858	6,133,898
PERCENTAGE OF NET REVENUE ON CAPITAL EXPENDITURE.							
	%	%	%	%	%	%	%
1917	3.42	3.23	2.30	3.10	2.46	1.04	3.00
1918	4.02	3.73	1.65	3.25	2.06	1.58	3.23
1919	3.99	3.75	0.77	3.01	1.70	1.51	3.01
1920	4.43	3.72	1.59	3.76	1.61	2.21	3.38
1921	3.93	3.27	0.56	1.48	1.64	2.30	2.72

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

STATE RAILWAYS.—NET REVENUE PER AVERAGE MILE WORKED AND PER TRAIN-MILE RUN, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
NET REVENUE PER AVERAGE MILE WORKED.							
	£	£	£	£	£	£	£
1917	571	438	165	250	127	89	312
1918	663	510	116	261	105	133	328
1919	645	518	55	246	87	128	313
1920	708	516	113	311	82	183	350
1921	645	463	40	123	84	194	286
NET REVENUE PER TRAIN-MILE RUN.							
	d.	d.	d.	d.	d.	d.	d.
1917	29.14	30.79	18.74	22.96	22.87	11.40	26.10
1918	39.88	37.18	14.27	25.78	21.40	17.90	30.83
1919	36.76	39.64	7.10	24.91	17.21	16.63	28.81
1920	36.92	34.61	14.63	33.24	14.42	21.97	29.96
1921	34.06	29.56	5.16	12.04	14.55	21.42	23.95

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

As an indication of the different traffic conditions prevailing in the several States, the following table is given shewing the numbers of passenger journeys and the tons of goods carried per 100 of mean population and per average mile worked in each State during the financial year 1920–21 :—

STATE RAILWAYS.—PASSENGER JOURNEYS AND TONNAGE OF GOODS AND LIVE STOCK, 1920–21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
PER 100 OF MEAN POPULATION.							
Passenger journeys .. No.	5,732	8,720	3,627	4,782	5,322	1.260	5,992
Goods and live stock Tons	739	493	506	539	782	315	605
PER AVERAGE MILE OF LINE WORKED.							
Passenger journeys .. No.	24,058	31,639	4,838	10,195	5,012	4,220	15,199
Goods and live stock Tons	3,101	1,787	675	1,150	736	1,055	1,533

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

(i) *Metropolitan and Country Passenger Traffic.* A further indication of the difference in passenger traffic conditions might be obtained from a comparison of the volume of metropolitan, suburban, and country traffic in each State. Particulars are, however, available only for the States of New South Wales and Victoria. The subjoined table shews the number of metropolitan and country passengers carried in each of the States mentioned and the revenue derived therefrom during the year 1920–21 :—

STATE RAILWAYS.—METROPOLITAN, SUBURBAN, AND COUNTRY PASSENGER TRAFFIC, 1920–21.

Particulars.	Number of Passenger Journeys.			Revenue.		
	Metropolitan.	Country.	Total.	Metropolitan.	Country.	Total.
				£	£	£
N.S.W. ..	*a*110,255,795	10,479,345	120,735,140	2,039,654	3,696,602	5,736,256
Victoria ..	*b*123,983,817	10,061,866	134,045,683	1,846,564	2,551,560	4,398,124

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

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

(ii) *Electrification of Melbourne Suburban Railways.* The scheme for the electrification of the Melbourne Suburban Railways which has been in progress during the last nine years, and which has been referred to in previous issues of the Year Book, is expected to be completed early in 1923.

The scheme comprised the electrification of 143 route miles of steam-operated railway including sidings. Lines totalling 95 route miles are now being served by electric trains. The remaining 48 route miles, comprising the sections Mordialloc to Frankston, Oakleigh to Dandenong, Melbourne to Ringwood, Kew and Darling, and Heidelberg to Eltham, are expected to be also converted to electric traction before the middle of 1923.

Electric traction has now been in operation on the Melbourne suburban system for three years and has proved highly successful. More frequent services at a cheap cost are commercially practicable, especially during the off-peak hours of the day. The number of cars in a train can readily be reduced from six to four or two at times when few people are travelling, thus reducing the cost for car maintenance. During the rush periods the automatic signalling system permits of trains being run safely at closer intervals. The trains are better lighted, and, owing to the elimination of smoke, are much cleaner than steam trains.

The higher speed of electric trains and their flexibility at terminals enable a much greater volume of traffic to be handled with the same tracks and stations than is possible with a steam service. In this way the electrification has postponed the necessity for costly duplications and extensions.

(*a*) *Suburban Lines.* Electric traction is now in operation on the following lines :—

Route.	Route Mileage.	Date of Commencement.
1. Sandringham–Essendon–Flemington Racecourse	18.75	29th May, 1919
2. Melbourne–St. Kilda	3.50	1st September, 1919
3. Melbourne–Port Melbourne and Piers	3.00	26th October, 1919
4. Melbourne–Williamstown Pier and Williamstown Racecourse	11.00	29th August, 1920
5. Melbourne–Coburg–Fawkner	8.25	5th December, 1920
6. Melbourne–Clifton Hill–Reservoir–Royal Park ..	11.00	31st July, 1921
7. Clifton Hill–Heidelberg	4.75	31st July, 1921
8. Essendon–Broadmeadows	5.50	4th September, 1921
9. Footscray–St. Albans	7.75	2nd October, 1921
10. Melbourne–Caulfield–Oakleigh–Glen Huntly ..	10.50	5th March, 1922
11. Caulfield–Mordialloc–Frankston	19.00	25th August, 1922.

The following lines are in process of conversion, and are expected to be completed by the dates shewn hereunder.

The estimates, however, were based on the manufacture of plant proceeding without interruption by industrial or other troubles either in Australia or Great Britain. Owing to certain industrial troubles which eventuated the completion of these lines has been delayed, but, as stated previously, it is anticipated that the conversion of the suburban system to electric traction will be completed by the middle of 1923.

Route.	Route Mileage.	Completion date forecasted.
Oakleigh–Dandenong–Spring Vale Cemetery ..	10.50	November, 1922
Melbourne–Box Hill–Kew–Glen Iris	15.00	November, 1922
Box Hill–Ringwood	6.00	January, 1923
Heidelberg–Eltham	8.25	February, 1923

(*b*) *Country Lines.* As the traffic on main country lines develops, it is intended to convert to electric traction busy sections which are within reasonable distance of a cheap power supply.

Investigations are at present being made in order to determine which lines offer prospects of financial success.

(*c*) *Parcels Traffic.* Two electric motor coaches have been constructed and put into operation for the transfer of parcels from the central stations to suburban stations, and also to convey luggage and parcels between the two main terminal stations. These coaches, which run to a fixed schedule, are the nucleus of a fleet which will eventually separate on the suburban system the whole of the parcels traffic from the passenger traffic.

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

The following table shews the number of tons of various representative commodities carried, and the percentage of each class on the total tonnage carried during the financial year 1920–21 :—

STATE RAILWAYS.—CLASSIFICATION OF COMMODITIES CARRIED, 1920–21.

State.	Minerals.	Fire-wood.	Grain and Flour.	Hay, Straw, and Chaff.	Wool.	Live Stock.	All other Com-modities.	Total.
			TONS CARRIED.					
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales	a9,655,184	204,419	c1,216,834	389,757	93,760	732,804	2,969,048	a15,261,806
Victoria ..	b1,441,827	850,294	1,522,899	366,387	53,964	499,601	2,838,021	7,572,993
Queensland ..	1,261,169	241,508	d 38,775	f 224,160	66,147	422,335	1,613,556	3,867,650
South Australia	662,446	217,421	781,650	110,845	29,888	140,262	739,706	2,682,218
Western Australia	270,227	475,434	427,502	100,802	15,836	82,812	1,231,455	2,604,068
Tasmania ..	184,781	66,159	e	50,741	4,222	22,501	343,723	672,127
All States ..	13,475,634	2,055,235	3,987,660	1,242,692	263,817	1,900,315	9,735,509	32,660,862
			PERCENTAGE ON TOTAL TONNAGE CARRIED.					
	%	%	%	%	%	%	%	%
New South Wales	63.27	1.34	7.97	2.56	0.61	4.80	19.45	100.00
Victoria ..	19.04	11.23	20.11	4.84	0.71	6.60	37.47	100.00
Queensland ..	32.61	6.24	1.00	5.80	1.71	10.92	41.72	100.00
South Australia	24.70	8.11	29.14	4.13	1.11	5.23	27.58	100.00
Western Australia	10.38	18.25	16.42	3.87	0.61	3.18	47.29	100.00
Tasmania ..	27.49	9.84	e	7.55	0.63	3.35	51.14	100.00
All States ..	41.26	6.29	12.21	3.80	0.81	5.82	29.81	100.00

(a) Exclusive of 301,325 tons of coal on which only shunting and haulage were collected. (b) Coal, stone, gravel, and sand. (c) Up journey only (to coast). (d) Flour only. (e) Included in all other commodities. (f) Sugar-cane.

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

In the Commonwealth, information regarding "passenger-miles" and "ton-miles" is available. either wholly or in part, for four of the States only, viz., New South Wales, South Australia, Western Australia, and Tasmania, but is not available at all for either Victoria or Queensland. Of the States which give particulars of the nature indicated, New South Wales furnishes the information in a classified form according to class of passengers and nature of commodities carried. South Australia supplies particulars for all classes of passengers and of goods together, and Tasmania supplies particulars for all classes of passengers together and a classification of nature of commodities carried. Western Australia furnished particulars as to ton-miles for the years 1907 to 1912, but no records were furnished for the period 1913 to 1918.

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

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

STATE RAILWAYS.—SUMMARY OF "PASSENGER-MILES," 1917 TO 1921.

Year ended 30th June—	Passenger Train Mileage.	Number of Passenger Journeys.	Total Passenger-miles.	Amount Received from Passengers.	Average Number of Passengers carried per Train.	Average Mileage per Passenger-journey.	Average Receipt per Passenger-mile.	Average Fare per Passenger-journey.	Density of Traffic per Average Mile Worked.
	Miles. (,000 omitted.)	No. (,000 omitted.)	No. (,000 omitted.)	£	No.	Miles.	d.	d.	No.
NEW SOUTH WALES.									
1917	10,435	96,710	1,473,707	3,202,167	141	15.24	0.52	7.95	341,690
1918	9,441	94,305	1,384,766	3,473,340	147	14.67	0.60	8.84	304,277
1919	9,689	98,569	1,367,691	3,533,869	141	13.88	0.62	8.60	288,725
1920	11,136	114,655	1,632,627	5,137,247	147	14.24	0.74	10.75	328,761
1921	11,301	120,735	1,620,857	5,736,256	143	13.42	0.85	11.57	322,976
SOUTH AUSTRALIA.									
1917	2,635	18,107	210,303	615,909	80	11.61	0.70	8.16	95,897
1918	2,597	18,936	234,197	703,221	90	12.37	0.72	8.91	104,786
1919	2,644	20,177	238,845	703,748	90	11.84	0.71	8.37	104,527
1920	2,576	22,852	305,834	979,596	119	13.38	0.77	10.29	132,052
1921	2,815	23,788	280,904	1,019,480	100	11.81	0.87	10.29	120,438
TASMANIA.									
1917	471	1,972	40,164	145,941	85	20.37	0.87	17.76	69,607
1918	448	1,874	40,385	151,874	90	21.55	0.90	19.45	68,324
1919	448	1,889	39,961	167,035	89	21.15	1.00	21.22	67,713
1920	472	2,268	46,015	209,866	97	20.29	1.09	22.21	72,465
1921	494	2,688	50,263	238,719	102	18.70	1.14	21.31	78,905

(ii) *Ton-Miles.* Particulars regarding total "ton-miles" are available for each year since 1901 for the States of New South Wales, South Australia, and Tasmania. Corresponding particulars for Western Australia are available for the years 1907 to 1912, and from the year 1919 onwards, but not for the intervening years. The average freight-paying load carried per "train" is obtained by dividing the total "ton-miles" in the fourth column by the "goods-train mileage" in the second column. In New South Wales the tonnage carried is exclusive of coal on which only shunting and haulage charges are collected, and the amount of earnings specified excludes terminals. In South Australia and Tasmania terminals are included.

STATE RAILWAYS.—SUMMARY OF "TON-MILES," 1917 TO 1921.

Year ended the 30th June—	Goods Train Mileage.	Total Tons Carried.	Total "Ton-miles."	Earnings.	Average Freight-paying Load carried per "Train."	Average Miles per Ton.	Earnings per "Ton-mile."	Density of Traffic per Average Mile Worked.
	No. (,000 omitted.)	No. (,000 omitted.)	No. (,000 omitted.)	£	Tons.	Miles.	d.	Tons.
NEW SOUTH WALES. (a)								
1917	9,866	11,468	1,136,485	3,936,639	115.19	99.10	0.83	263,502
1918	8,703	11,094	1,044,437	4,051,655	120.02	94.14	0.93	229,496
1919	10,246	12,469	1,237,806	4,889,343	120.80	99.27	0.95	261,306
1920	11,698	13,010	1,394,099	6,106,563	119.17	107.15	1.05	280,729
1921	11,491	15,262	1,418,386	6,501,914	123.44	92.94	1.10	282,631
SOUTH AUSTRALIA.								
1917	3,095	2,822	298,442	1,502,363	96.41	105.74	1.21	136,089
1918	2,844	2,768	270,104	1,480,469	94.99	97.59	1.32	120,852
1919	2,769	2,619	263,984	1,536,209	95.33	100.81	1.40	115,529
1920	2,616	2,579	196,534	1,556,224	75.13	76.21	1.90	84,859
1921	2,897	2,682	217,879	1,719,556	75.20	81.23	1.81	93,383
WESTERN AUSTRALIA.								
1907	1,940	2,091	144,856	964,653	74.67	69.26	1.60	86,429
1912	2,747	2,542	184,748	1,154,087	67.25	72.67	1.49	77,767
1919	2,485	2,379	173,283	1,127,539	69.73	72.83	1.56	49,411
1920	2,873	2,614	207,384	1,394,908	72.18	79.34	1.61	58,616
1921	2,865	2,604	200,379	1,637,979	69.95	76.95	1.96	56,633
TASMANIA. (b)								
1917	609	380	21,288	146,248	34.93	55.98	1.65	36,894
1918	609	389	21,539	153,577	35.39	55.42	1.71	36,444
1919	660	456	23,745	190,524	35.97	52.12	1.93	39,641
1920	794	553	30,967	234,147	38.99	56.01	1.81	48,767
1921	893	650	33,638	302,594	37.67	51.78	2.15	52,807

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

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

The subjoined statement gives particulars for the last financial year in respect of the above-mentioned States. Miscellaneous traffic consists of timber, bark, bricks, drain-pipes in six-ton lots, and cement in full truck loads, agricultural and vegetable seeds in five-ton lots, and traffic of a similar nature. A and B classes consist of lime, vegetables, tobacco leaf, caustic soda and potash, copper ingots, fat and tallow, water and mining plant in six-ton lots, leather in one and three-ton lots, agricultural implements in five-ton lots, and other traffic of a similar nature. In the case of New South Wales, the table does not include 301,325 tons of coal on which only shunting and haulage charges were collected, nor does it include £154,024 for haulage, tonnage dues, etc.

NEW SOUTH WALES.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1921.

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings (exclusive of Terminals).	Earnings per "Ton-mile."	Per cent. on Total Tonnage.
	No.	No.	No.	£	d.	%
Coal, coke, and shale	8,614,857	358,575,478	41.62	1,133,016	0.76	56.45
Other minerals ..	1,040,327	63,108,448	60.66	182,733	0.70	6.82
Crude ores ..	222,167	23,545,133	105.98	73,920	0.75	1.46
Miscellaneous ..	1,295,602	144,597,879	111.61	631,311	1.05	8.49
Firewood	204,419	6,574,348	32.16	40,012	1.46	1.34
Fruit	132,468	29,674,645	224.01	156,087	1.26	0.87
Grain, flour, etc. (Up journey to coast) ..	1,216,834	345,408,953	283.86	793,846	0.55	7.97
Hay, straw, and chaff	389,757	94,609,967	242.74	233,197	0.59	2.55
Frozen meat ..	13,389	1,691,788	126.36	11,498	1.63	0.09
A class	536,507	46,703,952	87.05	349,248	1.79	3.51
B class	275,150	28,403,028	103.23	322,959	2.73	1.80
C class	33,892	2,851,374	84.13	50,283	4.23	0.22
1st class	208,470	16,685,393	80.04	298,487	4.29	1.37
2nd class	251,403	36,863,639	146.63	853,286	5.56	1.65
Wool	93,760	27,824,069	296.76	334,122	2.88	0.61
Live stock	732,804	191,267,893	261.01	1,037,909	1.30	4.80
Total ..	15,261,806	1,418,385,987	92.94	6,501,914	1.10	100.00

WESTERN AUSTRALIA.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1921.

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings.	Earnings per "Ton-mile."	Per cent. on Total Tonnage.
		No.	No.	£	d.	%
Native coal, coke, shale, and charcoal ..	234,280	25,708,816	109.74	119,101	1.11	9.00
Imported coal, coke, shale, and charcoal	35,947	1,280,075	35.61	10,714	2.01	1.38
Wool	15,836	1,955,601	123.49	41,266	5.06	0.61
Hay, straw, and chaff..	100,802	11,497,795	114.06	67,047	1.40	3.87
Wheat	299,483	35,569,590	118.77	166,594	1.12	11.50
Firewood	475,434	6,739,808	14.18	50,272	1.79	18.26
Native timber ..	497,345	35,229,128	70.83	319,656	2.18	19.10
Imported timber ..	4,547	73,426	16.15	2,302	7.52	0.18
Fruit and garden produce	50,607	7,505,547	148.31	60,966	1.95	1.94
Fertilizers	87,849	11,889,989	135.35	26,803	0.54	3.37
Water	7,270	262,290	36.08	1,885	1.72	0.28
Miscellaneous (including ores and minerals) ..	347,448	13,129,025	37.79	87,170	1.59	13.34
Grain and special grain class (other than wheat, chaff, &c.) ..	128,019	10,915,422	85.26	71,607	1.57	4.92
A class	25,009	2,343,460	93.70	20,267	2.08	0.96
B class	23,778	5,887,790	247.62	45,534	1.86	0.91
C class	15,695	2,947,012	187.77	39,920	3.25	0.60
1st class	58,645	7,042,311	120.08	161,096	5.49	2.25
2nd class	23,697	2,828,039	119.34	85,031	7.22	0.91
3rd class	16,100	2,650,394	164.62	89,345	8.09	0.62
All other goods paying	73,465	3,218,539	43.81	42,082	3.14	2.82
Live stock	82,812	11,704,894	141.34	129,321	2.65	3.18
Total ..	2,604,068	200,378,951	76.95	1,637,979	1.96	100.00

TASMANIA.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1921.

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings.	Earnings per "Ton-mile."	Per cent. on Total Tonnage.
	No.	No.	No.	£	d.	%
Agricultural produce ..	97,978	5,326,063	54.35	41,944	1.89	15.08
Hay, straw, chaff, and horse feed	50,741	3,159,252	62.26	23,144	1.75	7.81
Stable manure ..	2,657	81,961	30.84	421	1.23	0.41
Manures, other than stable	11,929	341,636	28.63	2,517	1.76	1.84
Fruit	6,464	349,969	54.14	4,095	2.80	0.99
Native coal	70,501	7,353,950	104.30	26,088	0.85	10.85
Minerals, other than native coal ..	114,280	2,261,830	19.79	19,453	2.06	17.60
Bark	1,728	71,850	41.57	727	2.42	0.27
Firewood	66,159	2,051,869	31.01	11,405	1.33	10.18
Timber	145,746	7,603,307	52.16	58,590	1.84	22.44
Wool	4,222	347,567	82.32	6,648	4.59	0.65
Miscellaneous goods ..	77,221	4,688,555	60.71	107,562	5.50	11.88
Total	649,626	33,637,809	51.78	302,594	2.15	100.00

16. **Interest Returned on Capital Expenditure.**—In the year 1901–2 the State Government railways made a profit of 2.94 per cent. on the capital expenditure at that time. In the subsequent years up to and including the year 1910–11, the percentages were 2.56, 3.11, 3.36, 3.98, 4.45, 4.32, 4.22, 4.26, and 4.63 respectively, rates which shew substantial increases with one exception on that for the first-named year. Since 1910–11, the rates have oscillated and have shewn a decreasing tendency, the rate for the year 1920–21 being 2.72, or 1.91 less than that for the year 1910–11 The reasons for this reduction are to be found in the increases of the charges in respect of working expenses, brought about by the opening of new lines, the higher cost of materials, and the raising of the rates of wages, while in recent years additional expenses have been incurred in consequence of the war. The return on the capital invested as at the 30th June, 1921, was not equal to the interest payable for that year, the rate of which was 4.33 per cent. This average, however, does not accurately express the position.

A false impression may be gained from these averages, but it should be borne in mind that the loan money expended on railway construction and equipment, forming as it does approximately three-fifths of the total debt, has been sunk in undertakings which are increasingly reproductive, and yielding in most cases a direct return on capital expended and representing a greater value than their original cost.

Further, in the early days of settlement in the several States the construction of railways to open up undeveloped districts was imperative, and the money raised for this purpose was borrowed at a high rate of interest. The anticipated advantage of this policy has borne fruit in the ultimate settlement of the country, and the several State Governments have furthered such development by utilizing their respective railway systems to the maximum extent consistent with the direct payment by the customers of the railways of the cost of operating and interest charged.

In Europe, on the other hand, the debt of various countries has been incurred through numerous and prolonged wars.

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

The losses during the last four years for all the States are due to the causes to which allusion has already been made in the remarks as to increases in the working expenses of the railways (see pp. 563 and 564 *ante*). It will be observed in the following table that the interest charges in 1921 were £1,929,543 higher than they were in 1917.

STATE RAILWAYS.—INTEREST ON LOAN EXPENDITURE, PROFIT OR LOSS, AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST, 1917 TO 1921.

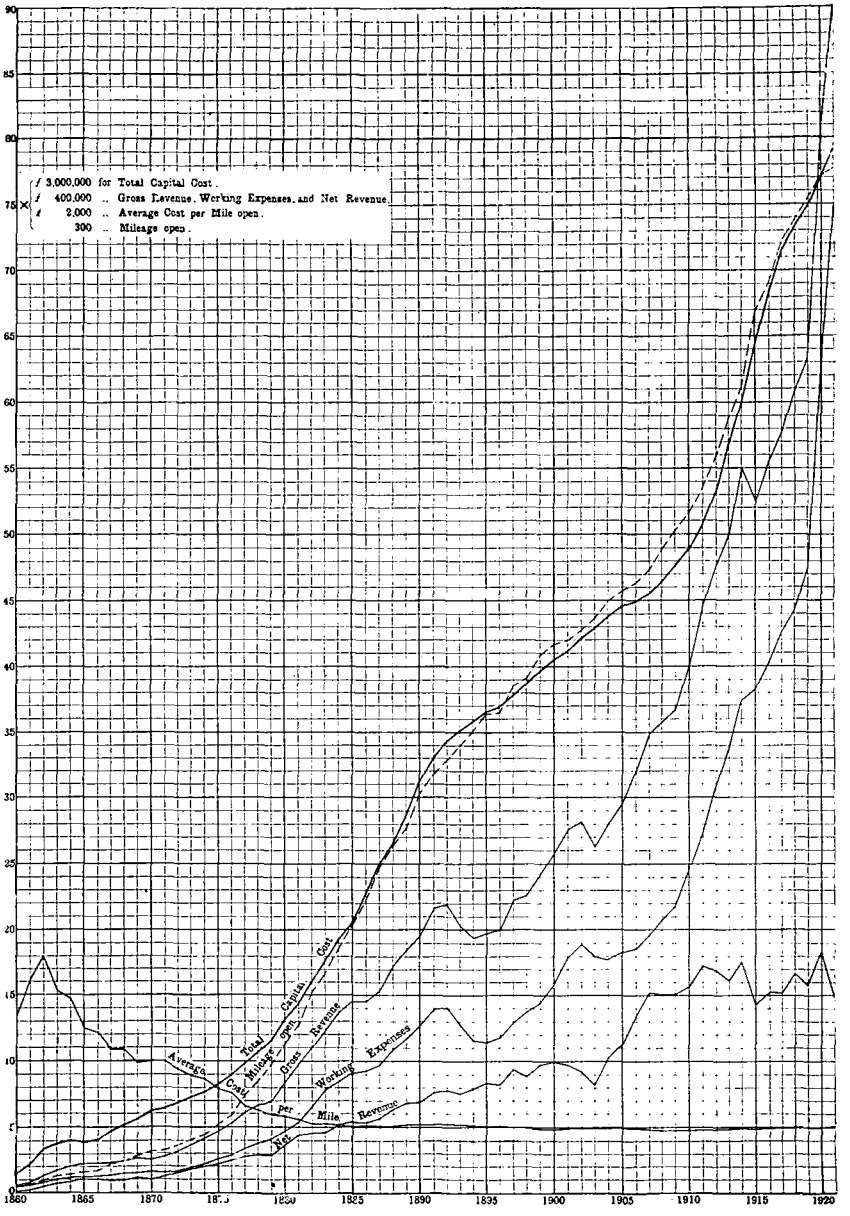
Year ended 30th June.	N.S.W.	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tosmania.	All States
AMOUNT OF INTEREST ON RAILWAY LOAN EXPENDITURE.							
	£	£	£	£	£	£	£
1917	2,858,789	2,006,197	1,500,800	673,985	643,765	181,617	7,865,153
1918	3,043,349	2,120,547	1,559,136	716,234	654,059	183,977	8,277,302
1919	3,265,540	2,157,798	1,617,404	747,671	665,100	186,402	8,639,915
1920	3,641,988	2,225,881	1,723,760	789,362	690,618	197,587	9,269,196
1921	3,811,560	2,401,132	1,811,974	847,867	716,398	205,765	9,794,696
PROFIT OR LOSS AFTER PAYMENT OF WORKING EXPENSES, INTEREST, AND OTHER CHARGES.(b)							
	£	£	£	£	£	£	£
1917	− 394,064	− 207,518	− 663,020	− 125,796	− 214,834	− 130,298	−1,735,530
1918	− 28,916	− 9,380	− 945,372	− 131,740	− 289,005	− 105,194	−1,509,607
1919	− 211,817	− 5,184	−1,323,252	− 185,896	− 359,794	− 109,633	−2,195,576
1920	− 129,125	− 59,821	−1,087,001	− 70,182	− 399,215	− 81,601	−1,826,945
1921	− 577,032	− 441,125	−1,581,060	− 561,304	− 418,370	− 81,907	−3,660,798
PERCENTAGE OF PROFIT OR LOSS ON CAPITAL COST OF CONSTRUCTION AND EQUIPMENT.(b)							
	%	%	%	%	%	%	%
1917	−0.55	−0.37	−1.82	−0.71	−1.23	−2.65	−0.85
1918	−0.03	−0.02	−2.53	−0.73	−1.63	−2.11	−0.72
1919	−0.28	−0.01	−3.46	−1.00	−2.00	−2.16	−1.03
1920	−0.16	−0.10	−2.71	−0.36	−2.21	−1.55	−0.83
1921	−0.70	−0.74	−3.82	−2.91	−2.30	−1.52	−1.62

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

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

(i) *Passenger Fares.* On the Australian Government railways two classes are provided for passenger traffic. The fares charged may be classified as follows:—(*a*) Fares between specified stations (including suburban fares). (*b*) Fares computed according to mileage rates. (*c*) Return, periodical, and excursion fares. (*d*) Special fares for workingmen, school pupils, and others. Fares in class (*a*) are issued at rates lower than the ordinary mileage rates. Fares in class (*b*) are charged between stations not included in class (*a*). On the average, mileage-rate fares run about 2.21 pence per mile for first-class and about 1.42 pence per mile for second-class single tickets. In New South Wales, Victoria, and Queensland the mileage rates are based upon a tapering principle, *i.e.*, a lower charge per mile is made for a long journey than for a short journey. In Victoria return fares are generally about 1½ to 1¾ times the single fare, and the second-class are about 30 to 45 per cent. lower than the first-class fares, whilst in Western Australia the return fares are double the single rates. In all the States with

GRAPHS SHEWING THE FINANCIAL POSITION OF THE GOVERNMENT RAILWAYS OF THE COMMONWEALTH, 1860 TO 1921.



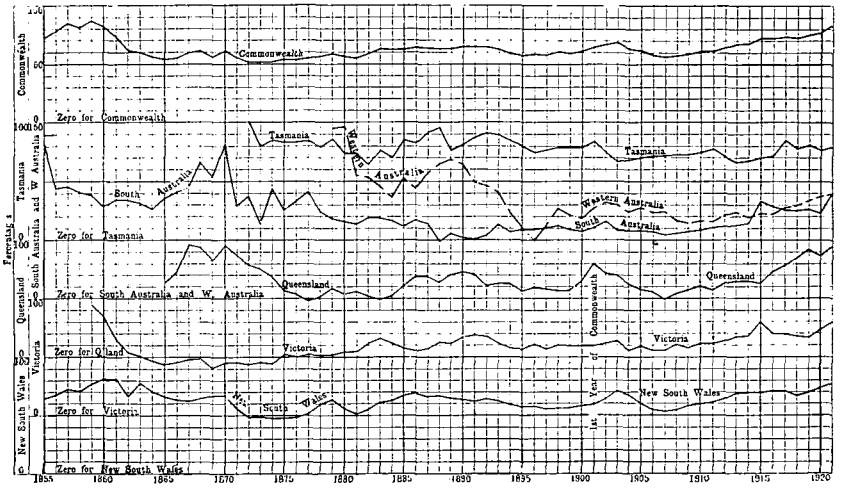
(See page 556.)

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, the vertical side of each square denotes £3,000,000.

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

GRAPHS SHEWING PERCENTAGES OF WORKING EXPENSES TO GROSS REVENUE OF GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 TO 1921.

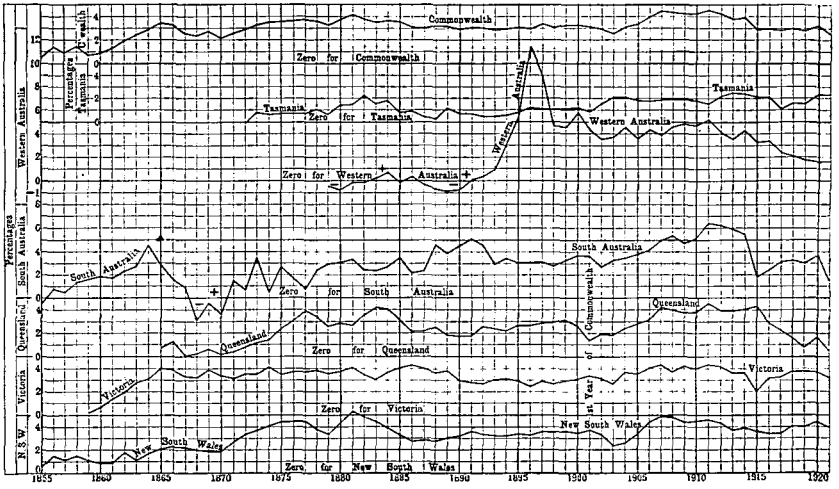


(See page 563.)

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

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

GRAPHS SHEWING PERCENTAGES OF NET REVENUE TO CAPITAL COST OF GOVERNMENT RAILWAYS OF STATES AND COMMONWEALTH, 1855 TO 1921.



(See page 565.)

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 is necessary to avoid confusion of the curves.

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

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

the exception of Western Australia the issue of ordinary return tickets outside the suburban areas has now been discontinued. Special excursion return tickets are, however, issued at certain times of the year, subject to restrictions as to break of journey and trains available for such tickets.

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

ORDINARY PASSENGER MILEAGE RATES ON STATE RAILWAYS, 1921.

State.	For a Journey of—											
	50 Miles.		100 Miles.		200 Miles.		300 Miles.		400 Miles.		500 Miles.	
	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales	11 0	7 2	22 0	14 7	43 11	27 3	65 4	39 9	86 10	50 9	101 6	57 10
Victoria ..	9 9	6 6	18 11	12 7	37 9	25 2	52 9	35 2	64 0	42 8	75 3	50 1
Queensland ..	9 4	6 3	17 0	11 0	32 0	20 6	46 0	28 9	59 0	36 0	71 0	43 0
South Australia	9 9	6 7	19 9	13 3	39 3	26 0	58 6	39 3	78 0	52 0	83 6	55 9
West'n. Aust...	8 4	5 3	16 8	10 5	33 4	20 10	50 0	31 3	66 8	41 8	83 4	52 1
Tasmania ..	10 6	6 9	20 9	13 9	41 0	27 6	61 3	41 0	..	..	..	..
Average ..	9 9	6 5	19 2	12 7	37 10	24 6	55 8	35 10	70 11	44 7	82 11	51 9
Increase over 1920 ..	1 1	0 9	2 3	1 6	4 5	2 10	6 6	4 2	8 6	5 1	6 10	4 2
Average per passenger mile	d. 2.34	d. 1.54	d. 2.30	d. 1.51	d. 2.27	d. 1.47	d. 2.23	d. 1.43	d. 2.13	d. 1.34	d. 1.99	d. 1.24
Increase over 1920 ..	0.26	0.18	0.27	0.18	0.27	0.17	0.26	0.16	0.26	0.16	0.16	0.10

The above rates were those in force in June, 1921. Since that time several changes have been made in the rates, of which full particulars are not yet available.

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

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

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

RATES FOR AGRICULTURAL PRODUCE IN TRUCK-LOADS ON STATE RAILWAYS, 1921.

State.	Charge per Ton in Truck-loads for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales	7 4	11 6	14 5	16 1	17 7	19 0
Victoria	7 0	10 10	14 4	16 6	18 8	20 8
Queensland	5 8	10 2	12 0	13 0	14 6	15 6
South Australia (a) ..	9 1	12 11	19 2	25 4	31 7	37 8
Western Australia	8 3	10 11	14 1	19 0	24 0	26 0
Tasmania	8 4	12 11	16 8	16 8	..	..
Average	7 7	11 6	15 1	17 9	21 3	23 9
Increase over 1920	0 10	1 0	1 7	1 10	2 3	2 7
	d.	d.	d.	d.	d.	d.
Average per ton-mile ..	1.82	1.38	0.91	0.71	0.64	0.57
Increase over 1920	0.20	0.12	0.10	0.08	0.07	0.06

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

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

ORDINARY GOODS MILEAGE RATES ON STATE RAILWAYS, 1921.

State.	Charge per ton for a Haul of—											
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
	Highest Class Freight.						Lowest Class Freight.					
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
N.S. Wales	39 2	76 8	130 10	160 0	180 0	197 6	5 0	6 9	8 5	10 0	11 3	12 4
Victoria ..	32 6	63 3	119 3	163 0	200 6	238 3	3 6	5 4	7 10	10 6	11 8	12 8
Queensland	51 10	89 4	159 8	a220 6	a254 1	a268 4	5 8	10 2	17 3	21 2	25 8	30 3
South Aust.	40 1	77 3	145 2	199 5	247 1	287 9	4 3	8 0	13 9	16 7	18 10	21 1
Westn. Aust.	47 1	77 1	131 10	177 9	215 4	246 8	3 3	4 1	6 2	8 3	10 4	12 5
Tasmania ..	46 1	72 9	134 1	..	..	..	4 4	7 0	13 0	..	..	..
Average ..	42 9	76 1	136 10	184 2	219 5	247 8	4 4	6 11	11 1	13 4	15 7	17 9
Increase over 1920 ..	4 9	8 3	14 2	14 11	19 1	22 5	0 7	0 8	1 7	1 4	1 3	1 0
Average per ton mile	d. 10.26	d. 9.13	d. 8.21	d. 7.37	d. 6.57	d. 5.94	d. 1.04	d. 0.83	d. 0.66	d. 0.53	d. 0.47	d. 0.43
Increase over 1920 ..	1.14	0.99	0.85	0.60	0.53	0.53	0.14	0.08	0.09	0.05	0.04	0.03

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

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

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

18. Numbers and Description of Rolling Stock, 1920–21.—The following table shews the rolling stock in use on the State Government railways in each State, classified according to gauge :—

ROLLING STOCK ON STATE GOVERNMENT RAILWAYS IN EACH STATE, CLASSIFIED ACCORDING TO GAUGE, 1920–21.

State.	Gauge.					Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
LOCOMOTIVES.						
New South Wales	..	1,301	..	..	..	1,301
Victoria ..	772	..	..	17	..	789
Queensland ..	..	..	674	..	6	680
South Australia ..	251	..	242	..	..	493
Western Australia	..	..	423	..	..	423
Tasmania ..	..	..	76	..	7	83
Total ..	1,023	1,301	1,415	17	13	3,769

PASSENGER VEHICLES.

	Ordinary.	With Motors.	Ordinary.	With Motors.	Ordinary.	With Motors.			Ordinary.	With Motors.
New South Wales	..	..	1,670	72	..	..	..	..	1,670	72
Victoria ..	1,482	210	..	..	..	..	49	..	1,531	210
Queensland ..	..	..	..	..	825	(a)17	..	7	832	(a)17
South Australia ..	450	..	..	..	181	2	..	..	631	2
Western Australia	..	..	..	..	396	..	..	..	396	..
Tasmania ..	..	..	..	..	156	2	..	6	162	2
Total ..	1,932	210	1,670	72	1,558	21	49	13	5,222	303

VEHICLES, OTHER THAN PASSENGER.

New South Wales	..	23,182	..	..	..	23,182
Victoria ..	20,238	..	..	249	..	20,487
Queensland ..	..	..	14,752	..	150	14,902
South Australia ..	4,056	..	5,416	..	..	9,472
Western Australia	..	..	10,128	..	..	10,128
Tasmania ..	..	..	1,804	..	77	1,881
Total ..	24,294	23,182	32,100	249	227	80,052

(a) Exclusive of 2 road motors.

19. Number of Railway Employees.—The following table shews the number of employees in the Railway Department of each State in each year from 1917 to 1921 inclusive, classified according to (a) salaried staff, and (b) wages staff :—

STATE RAILWAYS.—NUMBER OF EMPLOYEES IN RAILWAY DEPARTMENTS, 1917 TO 1921.

State.	At 30th June—									
	1917.		1918.		1919.		1920.		1921.	
	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.
New South Wales ..	*a*4,590	*a*30,726	*a*4,870	*a*29,370	*a*4,937	*a*29,776	4,913	*a*29,807	5,088	32,470
Victoria	*a*2.344	*a*17,126	*b*2,380	*b*16,859	*b*2,525	*b*17,285	2.727	21,824	2,738	24,411
Queensland ..	3,024	10.784	3,251	11,090	3,296	11,222	3,239	10,692	3,121	11,237
South Australia ..	1,057	9,241	*a*1,099	*a*8,904	*a*1,075	*a*8,570	1,004	8,122	1,038	8,392
Western Australia ..	961	5,623	972	5.675	1,037	6,057	1,115	6,553	1,187	6,896
Tasmania	233	1,151	221	1,146	199	1,240	210	1,330	205	1,454
All States ..	12,209	74,651	12,793	73,044	13,069	74,150	13,208	78,328	13,377	84,860

(*a*) Including those absent on military or naval service. (*b*) Excluding those absent on active service.

In the period under review it is seen that the totals of salaried and wages staffs fell from 86,860 in 1917 to 85,837 in 1918, but rose to 98,237 in 1921, the latter being an increase of 13.1 per cent. on the number in 1917.

20. **Accidents.—Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock on the Government railways in each State for each of the years 1916-17 to 1920-21 inclusive :—

STATE RAILWAYS.—NUMBER OF PERSONS KILLED AND INJURED, 1917 TO 1921.

State.	In year ended 30th June—									
	1917.		1918.		1919.		1920.		1921.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales	63	572	59	496	44	690	70	751	68	554
Victoria	32	465	44	561	52	510	38	451	41	597
Queensland	30	280	21	205	28	162	20	694	20	905
South Australia	11	247	17	189	22	193	13	157	12	174
Western Australia	20	106	13	86	20	140	30	127	18	134
Tasmania	1	4	2	7	4	7	3	31	..	47
All States	157	1,674	156	1,544	170	1,702	174	2,211	159	2,411

(D) Graphical Representation of Government Railway Development.

1. **General.**—Railways are so important a factor in the development of Australia that it has been deemed desirable to represent graphically the main facts of their progress from 1860 onwards. To this end the graphs shewn on pages 571 to 574 have been prepared.

2. **Capital Cost and Mileage Open** (page 571).—The graph shews that the ratio between these elements was, naturally enough, very variable from 1860 to 1870, consequent upon progressive decrease in cost of construction. It then became subject to a more regular change, implying reduction of average cost, though in recent years a slight increase has been in evidence.

3. **Cost per Mile Open.**—The fluctuations in cost per mile open from 1860 are clearly indicated by the graph on page 571. In 1855 the cost per mile open was no less than £28,430; by 1858 it had fallen to £17,752, when it rose again to a maximum of £35,958 in 1862. It then diminished rapidly till 1885—when it reached £10,074 per mile—rose to £10,244 in 1886, then fell slowly till 1888, when it amounted to £10,092 per mile. Again rising, this rate attained to £10,481 in 1892, since when it has, on the whole, been declining, reaching its lowest value, £9,466, in 1911. In 1912, 1913, and 1914 it rose to £9,544, £9,665, and £9,820 respectively, but fell in 1915 to £9,632. Since that year there has been a gradual increase except in 1919 when the cost was only £1 less than in 1918 (£9,943). At the end of 1921 it had risen to £10,194.

4. **Gross Revenue.**—This graph (page 571) exhibits considerable irregularities, the most striking of which are the maxima in 1892, 1902, 1914, and 1921. The fall commencing in 1892 was in consequence partly of the commercial crisis and partly of the then droughty conditions of several of the States, while that of 1902-3 was due to drought. In the latter case the recovery was very rapid, and there has been a continuous rise up to the year 1914. In 1915, there was a fall amounting to £1,016,421. Since 1915 each year has given an increase over the previous year's figures, the increases for 1917, 1918, 1919, 1920, and 1921 being £813,479, £1,280,565, £983,563, £6,802,538, and £3,827,581 respectively.

5. **Working Expenses.**—In this case the graph (page 571) has the same characteristics as those of gross revenue. It should be noted, however, that working expenses have been increasing during the last six years at a greater rate than gross revenue, owing to increases in wages and the higher cost of materials.

6. **Net Revenue.**—This graph (page 571) shews a fairly constant rate of increase up to 1900. Thence to 1903 there was a continuous fall, which was followed by a rapid rise to 1907. Since that year there has been a pronounced oscillation with maxima in 1911, 1914, and 1920. The amount fell from £7,340,370 in the latter year to £5,967,346 in 1921.

7. **Percentage of Working Expenses on Gross Revenue.**—This is shewn for each State and for the Commonwealth, from the year 1855, on page 573. The curve for the Commonwealth shews considerable fluctuations, but points also to the fact that, although a slight rise occurred in in 1908, there was from 1903 to 1907 a rapid decline in the percentage of working expenses to gross revenue; since 1907, however, there has been a steady increase up to 1915. In 1916 the percentage slightly declined, rose again in 1917, declined in 1918, but rose in 1919, 1920, and 1921. In the case of the individual States it will be seen that the curves shew considerable fluctuations, particularly in the early years of the period under review.

8. **Percentage of Net Revenue on Capital Cost.**—The fluctuations in this item from the year 1855 are shewn in the graph on page 574. After exhibiting somewhat remarkable oscillations in the earlier years, and less marked ones between 1885 and 1900, and also a rapid fall to 1903, the curve for the Commonwealth from that year shews a well-marked increase until the year 1908, a slight fall occurring in that year and in 1909. Maxima were reached in 1865, 1877, 1881, 1907, and 1911, viz.:—3.44, 3.71, 4.12, 4.45, and 4.54 per cent. Since 1911 the rate has varied considerably, that for 1921 being 2.03 lower than that for 1911.

For the individual States the results are in general very satisfactory up to 1911. The greatest maximum percentage attained by each of the States in any year during the period under review is as follows:—New South Wales 5.31 in 1881, Victoria 4.51, Queensland 4.51, and South Australia 6.47 in 1911, Western Australia 11.48 in 1896, and Tasmania 2.49 in 1913. Since 1911 the States (except Tasmania) have shewn varying and declining rates. In the case of Tasmania the percentage rose from 1.53 in 1911 to 2.49 in 1913, declined to 1.04 in 1917, and thereafter shews a slight annual increase (except in 1919). ultimately reaching 2.30 in 1921. The effect of the drought of 1915 is discernible, also the rise of wages and higher cost of materials, to which allusion has already been made.

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

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

GOVERNMENT RAILWAYS.—AVERAGE COST PER MILE OF LINE OPEN, 1859 TO 1921.

STATE AND FEDERAL.

Date ..	1859.	1869.	1879.	1889.	1899.	1909.	1919.	1921.
	£	£	£	£	£	£	£	£
Cost per mile	27,857	19,857	11,891	10,367	9,722	9,489	9,942	10,194

While the sinister influence of the drought of 1902 is strikingly shewn in the curves (*a*) by the fall in the gross and net revenue in 1902–3, (*b*) by the fall in the percentage of net revenue on capital cost, and (*c*) by the increase of working expenses on gross revenue, the rapidity of recovery is even more striking, and serves to indicate the great elasticity of the economic condition of the Commonwealth. Although the percentage of net revenue on capital cost during the year 1920–21 has been exceeded in previous years, nevertheless it is satisfactory that the Government railways, necessarily constructed largely in accordance with a policy of widespread development of Australia's resources rather than as mere commercial enterprises, and costing so large a sum as £237,479,693 for construction and equipment up to the 30th June, 1921, should yield a return of 2.51 per cent.

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

(E) Government Railways Generally.

1. **Rolling Stock.**—In the following table particulars of the numbers of the rolling stock employed on both the Federal and State Government railways are set out, classified according to gauge, as at the 30th June in the years 1901, 1911, 1920, and 1921 respectively, together with the percentage of the numbers for each gauge on the total for the mainland. For geographical reasons the figures for Tasmania are shewn separately from those for the mainland.

ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE GOVERNMENT RAILWAYS AS AT 30th JUNE, 1901, 1911, 1920, AND 1921.

LOCOMOTIVES.

Gauge.	At 30th June—							
	1901.		1911.		1920.		1921.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	688	35.23	705	26.84	1,012	27.16	1,023	27.15
4 ft. 8½ in. ..	495	25.34	903	34.37	1,349	36.20	1,369	36.33
3 ft. 6 in. ..	765	39.17	1,009	38.41	1,343	36.07	1,353	35.91
2 ft. 6 in. ..	5	0.26	10	0.38	17	0.46	17	0.45
2 ft. 0 in. ..	..	..	..	..	5	0.11	6	0.16
Total ..	1,953	100.00	2,627	100.00	3,726	100.00	3,768	100.00
Tasmania—								
3 ft. 6 in. ..	64	..	72	..	73	..	76	..
2 ft. 0 in. ..	7	..	7	..	7	..	7	..
Grand Total	2,024	..	2,706	..	3,806	..	3,851	..

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

PASSENGER VEHICLES, INCLUDING THOSE FITTED WITH MOTORS.

(See below.)

Gauge.	At 30th June—							
	1901.		1911.		1920.		1921.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	1,365	49.71	1,618	42.50	2,085	39.72	2,142	39.65
4 ft. 8½ in. ..	610	22.21	1,136	29.84	1,698	32.35	1,778	32.91
3 ft. 6 in. ..	761	27.71	1,032	27.11	1,410	26.87	1,426	26.40
2 ft. 6 in. ..	10	0.37	21	0.55	49	0.93	49	0.91
2 ft. 0 in. ..	..	..	..	..	7	0.13	7	0.13
Total ..	2,746	100.00	3,807	100.00	5,249	100.00	5,402	100.00
Tasmania—								
3 ft. 6 in. ..	163	..	170	..	172	..	158	..
2 ft. 0 in. ..	8	..	6	..	6	..	6	..
Grand Total	2,917	..	3,983	..	5,427	..	5,566	..

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

Gauge.	At 30th June—			
	1901.	1911.	1920.	1921.
Mainland—				
5 ft. 3 in. ..	2	..	152	210
4 ft. 8½ in. ..	..	..	1	72
3 ft. 6 in. ..	..	2	18	19
Total ..	2	2	171	301
Tasmania—				
3 ft. 6 in. ..	..	..	2	2
Grand Total	2	2	173	303

VEHICLES, OTHER THAN PASSENGER.

Gauge.	At 30th June—							
	1901.		1911.		1920.		1921.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	12,204	31.05	15,430	27.80	24,232	30.77	24,294	30.65
4 ft. 8½ in. ..	11,540	29.36	17,112	30.83	23,708	30.11	23,928	30.19
3 ft. 6 in. ..	15,481	39.38	22,775	41.03	30,411	38.62	30,633	38.65
2 ft. 6 in. ..	82	0.21	190	0.34	249	0.32	249	0.32
2 ft. 0 in. ..	..	..	..	..	148	0.18	150	0.19
Total ..	39,307	100.00	55,507	100.00	78,748	100.00	79,254	100.00
Tasmania—								
3 ft. 6 in. ..	1,389	..	1,618	..	1,780	..	1,804	..
2 ft. 0 in. ..	50	..	71	..	77	..	77	..
Grand Total	40,746	..	57,196	..	80,605	..	81,135	..

In the period under review the percentages of the numbers of locomotives for each gauge on the total number of locomotives on all Government railways on the mainland have undergone the following changes: on the 5-ft. 3-in. gauge the percentage has fallen by 8.08 per cent., the 4-ft. 8½-in. gauge increased by 10.99, and the 3-ft. 6-in. gauge fallen by 3.26 per cent.

As regards passenger vehicles the alterations are as follow: on the 5-ft. 3-in. gauge the percentage has fallen by 10.06 per cent., the 4-ft. 8½-in. gauge increased by 10.70, and the 3-ft. 6-in. gauge fallen by 1.31 per cent.

In the case of vehicles other than passenger the changes have been small, the 5-ft. 3-in. gauge percentage having fallen 0.40, the 4-ft. 8½-in. gauge risen by 0.83, and the 3-ft. 6-in. gauge fallen by 0.73 per cent.

2. **Railway Mileage (Route) Open for Traffic.**—The Government railway route mileages open for traffic, classified according to gauge, as at the 30th June in each of the years 1901, 1911, 1920, and 1921, are set out in the following table, which gives as well the percentages of each mileage on the total on the mainland, the figures for Tasmania being shewn separately, as in the case of the preceding table relating to rolling stock:—

RAILWAY (ROUTE) MILEAGE OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS, CLASSIFIED ACCORDING TO GAUGE AS AT 30th JUNE IN EACH OF THE YEARS 1901, 1911, 1920, AND 1921, WITH PERCENTAGES ON TOTAL FOR MAINLAND.

Gauge.	At 30th June—							
	1901.		1911.		1920.		1921.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
Mainland—								
5 ft. 3 in. ..	3,696.77	30.50	4,023.61	25.78	5,215.70	23.16	5,268.28	23.24
4 ft. 8½ in. ..	2,805.34	23.14	3,717.17	23.82	6,032.05	26.79	6,059.66	26.74
3 ft. 6 in. ..	5,571.02	45.96	7,742.96	49.62	11,118.81	49.38	11,185.41	49.36
2 ft. 6 in. ..	48.25	0.40	121.90	0.78	121.90	0.54	121.90	0.53
2 ft. 0 in. ..	..	..	..	..	30.26	0.13	30.26	0.13
Total ..	12,121.38	100.00	15,605.64	100.00	22,518.72	100.00	22,665.51	100.00
Tasmania—								
3 ft. 6 in. ..	439.33	..	448.93	..	605.12	..	606.26	..
2 ft. 0 in. ..	18.72	..	23.57	..	23.58	..	23.58	..
Grand Total	12,579.43	..	16,078.14	..	23,147.42	..	23,295.35	..

From the above table it will be seen that in the twenty-one years from 1901 to 1921 the 5-ft. 3-in. gauge percentage has fallen by 7.26 per cent., and the 4-ft. 8½-in. and 3-ft. 6-in. gauges risen by 3.60 and 3.40 per cent. respectively.

3. **Railway Mileage (Track) Open for Traffic.**—In the following table, the track mileages of all Government railways and sidings, exclusive of Tasmania, are shewn for the years ended 30th June, 1901, 1911, 1920, and 1921, classified according to gauge, together with the percentages of each mileage on the total.

RAILWAY (TRACK) MILEAGE, FEDERAL AND STATE GOVERNMENT RAILWAYS, EXCLUSIVE OF TASMANIA, ACCORDING TO GAUGE AS AT 30th JUNE, 1901–1921.

Gauge.	At 30th June—							
	1901.		1911.		1920.		1921.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
5 ft. 3 in. ..	4,531.09	32.13	5,102.77	27.64	6,650.84	24.71	6,671.62	24.67
4 ft. 8½ in. ..	3,387.08	24.01	4,666.34	25.28	7,794.49	28.96	7,827.13	28.96
3 ft. 6 in. ..	6,134.78	43.50	8,562.97	46.38	12,302.01	45.71	12,376.10	45.77
2 ft. 6 in. ..	51.00	0.36	128.65	0.70	131.04	0.49	131.07	0.48
2 ft. 0 in. ..	..	..	..	..	34.00	0.13	34.00	0.12
Total ..	14,103.95	100.00	18,460.73	100.00	26,912.38	100.00	27,039.92	100.00

In the period under review, the 5-ft. 3-in. gauge percentage has fallen by 7.46 per cent., and the 4-ft. 8½-in. and 3-ft. 6-in. gauges have risen by 4.95 and 2.27 per cent. respectively.

4. **Summary of Working of Federal and State Government Railways.**—In the following table a summary is given of the working of all Government railways, both Federal and State, for the year ended 30th June, 1921, fuller particulars of which have been given in the sections B and C of this chapter :—

SUMMARY OF THE WORKING OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS FOR THE YEAR ENDED 30th JUNE, 1921.

Particulars.		Federal Railways.	State Railways.	Total for Commonwealth.
Total mileage open	Miles	1,733.02	21,562.33	23,295.35
Average miles open during the year ..	„	1,733,02	21,496.57	23,229.59
Total train mileage	„	810,910	61,455,088	62,265,998
Total cost of construction of lines open	£	11,184,287	a226,295,406	237,479,693
Cost per mile	£	6,454	a10,495	10,194
Gross revenue	£	332,415	35,604,485	35,936,900
Working expenses	£	498,967	29,470,587	29,969,554
Percentage of working expenses on gross revenue	%	150.10	82.77	83.39
Net revenue	£	– 166,552	6,133,898	5,967,346
Interest payable	£	288,648	9.794,696	10,083,344
Number of passenger journeys ..	No.	102,797	326,724,294	326,827,091
Tonnage of goods and live stock carried	Tons	118,491	32,962,187	33,080,678
Number of employees at 30th June, 1920—				
Salaried	No.	179	13,377	13,556
Wages	„	1,021	84,860	85,881
Number of persons killed and injured during the year through train accidents and movement of rolling stock—				
Killed	„	3	159	162
Injured	„	10	2,411	2,421

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

NOTE.—The sign (–) denotes a loss on working.

5. **Government Railway Facilities.**—On page 538 *ante* the population per mile of line open for general traffic is given in respect of the States' railways for each State. In the following table is given the mileage of all Government railways, State and Federal, in each State and Territory, per 1,000 of population :—

MILEAGE OF ALL GOVERNMENT RAILWAYS, FEDERAL AND STATE, PER 1,000 OF POPULATION IN EACH STATE AND TERRITORY AS AT 30th JUNE, 1921.

State or Territory.	Population 30th June, 1921.	Length of Line Open (Route).			Mileage per 1,000 of Population.
		State.	Federal.	Total.	
	No.	Miles.	Miles.	Miles.	Miles.
New South Wales ..	2,101,384	5,042.78	..	5,042.78	2.40
Victoria	1,535,938	4,266.58	..	4,266.58	2.78
Queensland	768,964	5,751.71	..	5,751.71	7.48
South Australia	497,525	2,333.19	1,075.41	3,408.60	6.85
Western Australia ..	333,117	3,538.23	453.99	3,992.22	11.98
Tasmania	211,984	629.84	..	629.84	2.97
Federal Territory ..	2,583	..	4.94	4.94	1.91
Northern Territory ..	3,928	..	198.68	198.68	50.58
Commonwealth	5,455,423	21,562.33	1,733.02	23,295.35	4.27

(F) Private Railways.

1. **Total Mileage Open, 1920-21.**—As has been stated in a previous part of this section (see A. 8) a number of private railway lines have from time to time been constructed in the Commonwealth. By far the greater proportion of such lines, however, has been laid down for the purpose of hauling timber, sugar-cane, coal, or other minerals, and is not generally used for the conveyance of passengers or for public traffic: in many cases the lines are often practically unballasted and are easily removable, running through bush and forest country in connexion with the timber and sugar-milling industries, and for conveying firewood for mining purposes. Private railways referred to herein include (*a*) lines open to the public for general passenger and goods traffic; and (*b*) branch lines from Government railways and other lines which are used for special purposes and which are of a permanent description. Other lines are referred to in the part of this section dealing with Tramways (see § 3, *Tramways*).

The following table gives particulars of private railways in the Commonwealth open for traffic for general and special purposes during 1920-21. A classification of these lines according to their gauge has already been given (see page 543).

MILEAGE OF PRIVATE RAILWAYS OPEN, 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
For general traffic ..	186.77	24.94	270.68	33.80	278.10	199.86	994.15
For special purposes	172.53	45.83	990.23	20.95	635.51	47.31	1,912.36
Total ..	359.30	70.77	1,260.91	54.75	913.61	247.17	2,906.51

2. **Classification of Private Railways.**—On account of the necessity for economy of space, the classification shewing particulars of the private railways open for general traffic and for special purposes has been omitted from this issue and has been transferred to the "Transport and Communication Bulletin No. 13."

3. **Private Railways open for General Traffic.**—In the last issue of the Year Book (see No. 14, pp. 612-3) a statement was given with reference to the private lines open to the public for general traffic in each of the several States of the Commonwealth. It is not proposed to repeat the information in this present issue owing to lack of space. In the case of Tasmania, it will be noticed in the table on page 585 that the two undermentioned lines, which have not hitherto appeared, are included. Particulars of these lines are as follows:—

(i) *Marrawah Line.* This line, which was constructed by the Tasmanian Government and is at present under the control of the Department of Public Works, runs from Smithton to Marrawah, and is 31 miles in length, 8 miles of which is of wooden rails and horse-drawn; the latter portion is being gradually converted to steel rails and proper formation for steam traffic.

(ii) *North Mt. Farrell Line.* This line is the property of the North Mount Farrell Mining Co., but has been worked on lease up to November, 1921, by a private firm. The line is 7 miles in length and connects Tullah with the Emu Bay Co. line.

4. **Operations of Private Railways, 1920-21.**—The tabular statement given below shews particulars, so far as returns are available, for the year 1920-21, of all private railways open to the public for general traffic in the Commonwealth.

PARTICULARS OF PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC, 1920–21.

Line.	Miles Open (Route).	Train Miles.	Capital Cost.	Gross Revenue.	Expenses. Working.	Expenses. Interest, etc.	Rolling Stock. Locos.	Rolling Stock. Coaches.	Rolling Stock. Other Vehicles.	Passenger Journeys.	Tons of Goods, etc.	No of Employees.
	No.	No.	£	£	£	£	No.	No.	No.	No.	Tons.	No.
NEW SOUTH WALES.												
C'wealth Oil Corp'r'n	33.00	14,604	194,500	9,027	10,620	(h)	4	(d)3	69	1,987	14,446	27
Deniliquin-Moama..	45.00	46,193	162,672	31,934	22,068	(h)	4	6	64	18,105	33,247	40
South Maitland ..	19.44	444,671	546,086	171,794	130,004	27,304	23	27	45	1,177,957	m136,378	300
Goondah-B'juck (a)	26.25	28,552	80,756	(i) 1,009	11,065	(j)	4	3	28	2,904	3,701	37
Hexham-Minmi ..	6.00	3,552	1,000,000	358	850	(h)	1	1	..	5,068	480	10
New Redhead Co.	9.45	(h)	102,000	12,854	(h)	(h)	(c)	(c)	(c)	549,312	538,241	(c)
Seaham Colliery Co.	5.13	7,920	25,000	1,296	2,930	(h)	2	2	2	19.156	9,258	13
Silverton Tramway	36.67	49,597	484,786	68,883	54,074	(h)	20	1	676	36,483	231,418	143
Liverpool-H'worthy	5.00	1,849	35,354	372	(h)	(h)	(c)	(c)	(c)	10,932	13,119	(c)
Warwick Farm ..	0.83	(h)	(h)	(h)	(h)	(h)	(c)	(c)	(c)	(h)	(h)	(c)
Total (b) ..	186.77	596,938	2,631,154	297,577	231,611	27,304	58	43	884	1,821,904	980,288	570
VICTORIA.												
Kerang-Koondrook	13.94	14,430	39,229	7,421	6,476	3,519	2	2	9	15,292	22,203	13
Yarra J.-Powellt'n..	11.00	22,000	48,500	6,400	4,973	465	2	2	33	13,300	68,000	13
Total ..	24.94	36,430	87,729	13,821	11,449	3,984	4	4	42	28,592	90,203	26
QUEENSLAND.												
Aramac-Barcaldine	41.50	15,064	87,565	13,066	8,949	3,115	3	2	2	5,299	10,590	14
Beaudesert (e) ..	33.00	(h)	93,559	12,337	10,651	..	1	3	1	14,090	11,585	27
Belmont Tramway	4.31	10,013	19,903	1,972	2,966	..	(c)	(c)	(c)	58,122	11,242	(c)
Buderim ..	7.00	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)
Irvinebank ..	13.50	(h)	37,000	1,726	2,562	..	3	1	37	737	4,404	7
Douglas-Mossman ..	17.71	8,600	43,238	11,792	8,193	3,330	2	3	22	7,500	7,300	10
Invicta Mill ..	8.70	2,484	20,067	1,110	860	..	(c)	(c)	(c)	79	11,410	(c)
Lucinda Pt. to Stone R. and Lg. Pocket	50.75	(h)	(h)	(h)	(h)	(h)	2	3	82	(h)	47,001	(h)
Green Hills to Hambledon Junc. ..	4.50											
Macgregor ..	22.13	1,692	66,328	1,162	1,106	(k) 1,213	(c)	(c)	(c)	679	176	4
Mapleton ..	15.00	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)
Moreton Central S.M.	8.50	2,490	17,865	1,260	714	269	2	3	2	15,168	1,086	2
South Johnstone Central S.M. ..	19.63	4,094	105,000	5,270	3,857	..	2	4	23	14,100	5,510	7
Stannary Hills ..	21.00	5,478	(f) 64,320	1,996	3,093	(h)	2	2	76	1,427	4,029	6
Tannymorell Tram	3.45	1,791	(h)	208	104	(h)	(c)	(c)	(c)	664	2,548	(c)
Total (b) ..	270.68	51,706	554,845	51,899	43,055	7,927	17	21	245	117,865	116,881	77
SOUTH AUSTRALIA.												
Iron Knob (b) ..	33.80	78,470	(h)	(h)	(h)	(h)	7	3	165	1,903	450,446	51
WESTERN AUSTRALIA.												
Midland Railway (e)	278.10	263,273	2,053,521	130,321	91,604	(h)	18	18	402	65,006	79,876	259
TASMANIA.												
Emu Bay Railway (g)	102.94	91,831	616,405	52,966	38,701	24,117	9	6	155	27,939	36,853	143
Magnet Railway ..	9.99	2,100	18,750	328	1,646	(h)	2	1	6	529	546	6
Mt. Lyell Railway (l)	22.13	40,016	216,086	24,020	24,180	(h)	7	7	116	27,669	37,568	97
North Mt. Lyell Rly. (l)	27.80	8,739	316.638	4.415	10,410	(h)	4	4	56	4,196	13,318	21
Marrawah ..	31.00	24,000	60,160	6,197	4,345	..	3	2	81	1,620	25,388	11
North Mt. Farrell ..	6.00	7,512	(h)	1,830	1,232	..	1	3	8	1,178	(h)	7
Total (b) ..	199.86	174,198	1,228,039	89,756	80,514	24,117	26	23	422	63,131	113,673	285
Total for C'wealth (b)	994.15	1,201,015	6,555,288	583,374	458.233	63,332	130	112	2160	2,098,401	1,831,367	1268

(a) The property of Commissioner of Water Conservation and Irrigation; for year ended 30th June, 1920. (b) Incomplete. (c) Worked by Government Railways. (d) Including one motor car. (e) For year ended 31st December, 1916. (f) For year ended 30th June, 1917. (g) Including 47.66 miles owned by the Emu Bay and Mount Bischoff Railway Company. (h) Not available. (i) Including interest. (j) Included in working expenses. (k) Rental of Permanent Way Material. (l) For year ended 30th September, 1921. (m) Exclusive of shipment coal.

5. **Comparative Railway Statistics.**—On page 538 *ante* a table is given shewing the railway facilities in 1920-21 in the States, in the Northern Territory, and in the Commonwealth, the railway mileage open for traffic being compared both with the area and population.

In the table below, comparative railway statistics of a like character are given in respect of the principal countries of the world at certain dates. The dates have been so chosen as to bring into relation the latest accurate figures for both population and railway mileage.

COMPARATIVE RAILWAY STATISTICS, VARIOUS COUNTRIES.

Country.	Year.	Miles of Railway.	Population.	Area in Square Miles.	Miles of Railway.	
					Per 1,000 of Population.	Per 1,000 Sq. Miles of Territory.
Europe—						
United Kingdom ..	1920	23,734	47,307,601	121,633	0.50	195.12
Belgium	1919	4,649	7,684,272	11,744	0.61	395.86
Denmark	1920	2,662	3,289,195	17,144	0.81	155.27
France	1920	26,250	39,209,766	212,659	0.67	123.44
Greece	1920	1,470	5,447,077	41,933	0.27	35.06
Italy	1920	9,741	40,070,161	110,632	0.24	88.05
Netherlands	1920	2,377	6,841,155	12,582	0.35	188.92
Norway	1920	2,072	2,646,306	124,964	0.78	16.58
Portugal	1920	2,128	5,957,985	35,490	0.36	59.96
Spain	1919	9,436	20,783,844	194,783	0.45	48.44
Sweden	1920	9,420	5,903,762	173,035	1.60	54.44
Switzerland ..	1920	3,915	3,880,320	15,976	1.01	245.06
Asia—						
India	1921	37,029	319,075,132	1,802,629	0.12	20.54
Africa—						
Egypt	1921	(a)3,032	13,387,000	350,000	0.23	8.66
Union of South Africa	1921	10,066	6,922,813	473,096	1.45	21.28
America, North—						
Canada	1920	39,196	9,030,000	3,729,665	4.34	10.51
Mexico	1914	10,754	15,501,684	767,198	0.69	14.02
United States ..	1919	253,152	105,710,620	2,973,774	2.39	85.13
America, South—						
Argentina	1920	22,590	8,698,516	1,153,119	2.60	19.59
Brazil	1920	17,847	30,645,296	3,275,510	0.58	5.45
Chile	1920	5,403	3,754,723	289,829	1.44	18.64
Australasia—						
Australia	1921	26,202	5,455,423	2,974,581	4.80	8.80
New Zealand ..	1921	3,147	1,305,926	103,861	2.41	30.30

(a) Exclusive of Sudan Military Railway (375 miles).

It will be seen from the above table that per 1,000 of population the Commonwealth of Australia had the greatest mileage (in 1921), 4.80 miles; the next in magnitude being Canada (1920) with 4.34 miles, Argentina (1920) with 2.60 miles, New Zealand (1920) with 2.41 miles, and the United States (1919) with 2.39 miles.

The least mileage per 1,000 of population is shown in the case of India (1921) with 0.12 mile, followed by Egypt (1921) with 0.23 mile.

With regard to the mileage per 1,000 square miles of territory, Belgium (1919) with 395.86 miles was easily first, followed by Switzerland (in 1920) with 245.06 miles, the United Kingdom (in 1920) with 195.12 miles, Netherlands (in 1920) with 188.92 miles, and Denmark (in 1920) with 155.27 miles.

The least mileage open per 1,000 square miles is that of Brazil (in 1920) with 5.45 miles.

§ 3. Tramways.

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

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

(i) *Total Mileage Open and Classification of Lines.* The following tables shew the total mileage of tramway lines open for general passenger traffic in each State and in the Commonwealth for the year 1920–21, and also in the Commonwealth as a whole for the years 1911–12 to 1920–21, classified (*a*) according to the motive power utilised, (*b*) according to the nature of the authority by which the lines are controlled and (*c*) according to gauge :—

TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC IN EACH STATE AND IN THE COMMONWEALTH, 1920–21.

Nature of Motive Power, Controlling Authority, and Gauge.	N.S. Wales.	Victoria.	Q'land.	South Australia. (*a*)	Western Australia.	Tasmania.	C'wealth.
ACCORDING TO MOTIVE POWER.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric	156.81	105.26	42.60	66.40	50.90	23.13	445.10
Steam	73.98	..	6.00	..	17.75	..	97.73
Cable	..	45.90	..	..	..	..	45.90
Horse	..	0.63	..	19.86	7.40	..	27.89
Total ..	230.79	151.79	48.60	86.26	76.05	23.13	616.62
ACCORDING TO CONTROLLING AUTHORITY.							
Government ..	227.29	118.13	..	19.86	52.56	..	417.84
Municipal ..	..	..	6.00	66.40	8.66	23.13	104.19
Private	3.50	33.66	42.60	..	14.83	..	94.59
Total ..	230.79	151.79	48.60	86.26	76.05	23.13	616.62
ACCORDING TO GAUGE.							
Gauge—							
5 ft. 3 in. ..	..	5.16	..	7.35	..	..	12.51
4 ft. 8½ in. ..	230.79	146.63	42.60	66.40	..	..	486.42
3 ft. 6 in. ..	..	..	6.00	10.01	58.90	23.13	98.04
2 ft. 0 in. ..	..	..	..	2.50	17.15	..	19.65
Total ..	230.79	151.79	48.60	86.26	76.05	23.13	616.62

(*a*) 16·36 miles included in South Australian Government railway mileage.

TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC IN THE COMMONWEALTH, 1911-12 TO 1920-21.

Nature of Motive Power, Controlling Authority, and Gauge.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
According to Motive Power.										
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric ..	322.24	345.07	365.39	386.30	404.76	422.89	426.40	430.87	443.03	445.10
Steam	91.78	91.65	90.25	90.25	90.25	93.81	93.80	99.39	98.86	97.73
Cable	46.04	46.04	46.04	46.04	46.04	46.04	46.04	45.92	45.90	45.90
Horse	43.44	42.51	46.51	45.05	34.97	35.61	32.37	23.74	25.15	27.89
Total ..	503.50	525.27	548.19	567.64	576.02	598.35	598.61	599.92	612.94	616.62
According to Controlling Authority.										
Government ..	239.61	248.96	283.04	291.75	297.25	345.58	345.94	345.09	413.46	417.84
Municipal ..	82.86	102.85	114.55	129.86	143.32	158.13	158.03	159.17	103.82	104.19
Private	181.03	173.46	150.60	146.03	135.45	94.64	94.64	95.66	95.66	94.59
Total ..	503.50	525.27	548.19	567.64	576.02	598.35	598.61	599.92	612.94	616.62
According to Gauge.										
Gauge—										
5 ft. 3 in. ..	14.77	14.80	14.80	15.12	15.12	12.51	12.51	12.51	12.51	12.51
4 ft. 8½ in. ..	384.89	407.62	420.93	438.97	444.60	467.46	469.76	473.28	484.57	486.42
3 ft. 6 in. ..	76.09	78.02	87.63	91.12	93.87	95.95	93.91	94.48	96.21	98.04
2 ft. 0 in. ..	27.75	24.83	24.83	22.43	22.43	22.43	22.43	19.65	19.65	19.65
Total ..	503.50	525.27	548.19	567.64	576.02	598.35	598.61	599.92	612.94	616.62

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

(i) *Government Tramways.* In Sydney and suburbs the Government tramways are divided into distinct systems. There were in June, 1921, seven such systems in operation within the metropolitan area, the most important being the City and Suburban lines, 114.43 miles in length (209.70 miles single track); the North Shore line, 21.93 miles in length (37.20 miles single track); the Ashfield to Mortlake line, 8.47 miles in length (15.12 miles single track); Manly to the Spit, Brookvale, and Narrabeen, 10.73 miles in length (15.47 miles single track); and Rockdale to Brighton-le-Sands, 1.25 miles in length (single track). The last-mentioned line was purchased from a private company and opened for traffic on 7th June, 1914. All of these systems are now operated by electricity. There are two systems on which the motive power used is steam, namely—(*a*) from Kogarah to Sans Souci, 5.56 miles in length (6.99 miles single track), and (*b*) from Arncliffe to Bexley, 2.62 miles long (single track).

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

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

(*b*) *Other Tramway Systems.* In Newcastle the first section of the tramways, from Perkins-street to Plattsburg, was opened on 31st December, 1887; the total length open on the 30th June, 1921, was 34.09 miles (44.46 miles single track). At Broken Hill and Parramatta the first sections of the tramways were opened in 1902. On the 30th June, 1921, the mileage open at Broken Hill amounted to 10.05 miles (11.44 miles single track), and at Parramatta to 6.69 miles (single track). The line from East to West Maitland, 4.06 miles long (single track), was opened in February, 1909, and the line from Sutherland to Cronulla, 7.40 miles long (single track), on the 12th June, 1911. Further particulars are given below.

(*c*) *Particulars of all Government Tramways.* The following table shews the total length, the capital cost, the gross revenue, working expenses, net earnings, interest, percentages of working expenses on gross revenue, and of net earnings on capital cost, passengers carried and persons employed for the financial years 1917 to 1921 :—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF GOVERNMENT TRAMWAYS, 1917 TO 1921.

Year ended 30th June—	Mileage Open for Traffic. (Route.)	Total Cost of Construction and Equipment.	Gross Revenue.	Working Expenses.	Net Earnings.	Interest	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost.	Passengers carried.	Persons employed.
	Miles.	£	£	£	£	£	%	%	No. '000	No.
1917 ..	223·98	8,209,629*a*	2,008,539	1,691,367	317,172	335,361	84·21	3·82	295,304	9,763
1918 ..	225·35	8,470,091*a*	1,992,641	1,603,260	389,381	348,546	80·46	4·60	255,741	8,955
1919 ..	225·54	8,568,138*a*	2,237,701	1,850,724	386,977	368,529	82·71	4·52	268,798	9,028
1920 ..	225·81	8,768,548*a*	2,881,797	2,486,121	395,676	404,125	86·27	4·51	324,885	8,970
1921 ..	227·29	9,060,757*a*	3,471,737	2,943,251	528,486	421,814	84·78	5·83	337,690	9,018

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

The net result, after providing for all working expenses and £421,814 for interest on the capital invested, was a profit of £106,672 as compared with a loss of £8,448 in the preceding year. During the year 1920–21, 337,689,873 passengers were carried, an increase of 12,805,222 as compared with the previous year.

(*d*) *Particulars of Different Systems of Government Tramways.* In the subjoined statement particulars are given of the working of the electric and steam tramways in Sydney, and of other tramways under Government control in 1920–21 :—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF VARIOUS GOVERNMENT TRAMWAYS, 1920–21.

Line.	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Gross Revenue.	Working Expenses.	Net Earnings. (*a*)	Interest.	Profit or Loss.(*a*)	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost.(*a*)
	Route.	Track.								
	Miles.	Miles.	£	£	£	£	£	£	%	%
Sydney and Suburban—										
Electric	156.81	278.75	8,009,611	3,216,358	2,649,132	+ 567,226	374,776	+192450	82.36	+ 7.08
Steam	8.19	9.61	52,489	21,630	29,203	− 7,573	2,490	− 10,063	135.01	−14.43
Total	165.00	288.36	8,062,100	3,237,988	2,678,335	+ 559,653	377,266	+182387	82.72	+ 6.94
Parramatta —Steam	6.69	6.69	39,897	13,658	14,455	− 797	1,896	− 2,693	105.84	− 2.00
Sutherland to Cronulla—Steam	7.40	7.40	52,314	19,101	16,007	+ 3,094	2,491	+ 603	83.80	+ 5.91
Newcastle —Steam	34.09	44.46	780,152	182,110	196,338	− 14,228	34,173	− 48,401	107.81	− 1.82
East to West Maitland —Steam	4.06	4.06	35,107	7,128	8,500	− 1,372	1,667	− 3,039	119.25	− 3.91
Broken Hill —Steam	10.05	11.44	91,187	11,752	29,616	− 17,864	4,321	− 22,185	252.01	−19.59
Total	227.29	362.41	9,060,757	3,471,737	2,943,251	+ 528,486	421,814	+106672	84.78	+ 5.83

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

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

CAPITAL COST OF NEW SOUTH WALES GOVERNMENT TRAMWAYS AS AT 30th JUNE, 1921.

Permanent Way.	Rolling Stock.	Power-houses, Sub-stations, and Plant.	Machinery.	Workshops.	Furniture.	Store Advances Account.	Total.
£	£	£	£	£	£	£	£
4,717,197	1,862,373	1,817,738	162,593	246,464	2,392	252,000	9,060,757

The average cost per mile open was £20,754 for permanent way and £19,110 for all other charges, making a total of £39,864 per mile.

During the year 1920–21, one new extension, 1.46 mile in length, was opened for traffic.

(*e*) *Sydney Electric Tramways.* The current for the operation of the City and Suburban tramways is generated at the power-houses at Ultimo and White Horse Bay, which have been erected at a total cost of £1,817,738, including the cost of the sub-stations and plant. The total output of the power-houses, for both lighting and traction purposes, during the year 1920–21 was 131,373,411 kilowatt-hours, of which the direct-current

supply was 65,121, and the alternating current 131,308,290 kilowatt-hours. The following table gives particulars of the working of the electric tramways for the financial years 1916–17 to 1920–21 :—

NEW SOUTH WALES.—PARTICULARS OF SYDNEY ELECTRIC TRAMWAYS, 1916–17 TO 1920–21.

Year ended 30th June—	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Route.	Track.				
	Miles.	Miles.	£	Kilowatt-hours.	No.	No.
1917 ..	152.99	270.84	7,615,110	80,608,220	23,955,722	275,180,334
1918 ..	154.37	274.55	7,738,377	73,384,629	20,618,808	239,442,696
1919 ..	154.56	274.75	7,779,227	83,780,703	23,298,238	250,706,503
1920 ..	155.35	276.00	7,842,549	92,074,950	25,394,701	304,986,683
1921 ..	156.81	278.75	8,009,611	97,193,560	27,112,029	315,847,363

Year ended 30th June—	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Working Expenses on Gross Revenue.	Cars in Use.	Persons Employed.
	£	£	£	%	No.	No.
1917	1,853,399	1,535,423	317,976	82.84	1,398	9,295
1918	1,847,868	1,457,349	390,519	78.87	1,398	8,463
1919	2,063,055	1,673,536	389,519	81.12	1,393	8,610
1920	2,676,748	2,246,674	430,074	83.93	1,394	8,440
1921	3,216,358	2,649,132	567,226	82.36	1,414	8.352

(ii) *Private Tramways.* A private steam tramway passes through the township of Parramatta. Commencing at the park gates, it runs as far as the Duck River, a distance of 3½ miles, where it connects with the Parramatta River steamers, conveying passengers and goods to and from Sydney. This line, the gauge of which is 4 ft. 8½ in., was opened for traffic in 1883. In 1921 the number of tram miles run was 18,200, and the number of passengers conveyed 134,503.

(iii) *Sydney Harbour Ferries.* As the ferry services on the waters of Port Jackson are mainly supplementary to the suburban railway and tramway systems, it has been thought advisable to include them here rather than under Shipping. The figures for the year 1920–21 are based on returns shewing the working of two companies for that year. The business of the Watson's Bay and South Shore Ferry Company Ltd. was taken over by the Sydney Ferries Ltd. on 1st June, 1920. Returns from the latter company are for the year ended 31st December, 1920, and for the Port Jackson and Manly Steamship Co. for the year ended 30th June, 1921. The returns shew that these companies had 62 boats in commission, which were licensed to carry a total of 40,382 passengers, or an average of 651 per boat and per trip. The total number of passengers carried during the year is stated as 40,000,190, an average of 109,589 per day. In addition to the ordinary passenger traffic there are two lines providing for vehicular traffic, which afford the only rapid means of transit for such traffic between the city and the northern suburbs. The two companies employed during the year a total of 1,078 persons. The gross revenue amounted to £498,107, and the expenditure to £567,206, thus giving a net revenue of £69,099. The services are well managed, and the boats constructed during recent years—double-ended screwboats—are claimed to be superior in size and equipment to boats employed on similar service in any part of the world.

3. **Victoria.**—In Melbourne there are several tramway systems carried on under the control of various authorities, the most important being the cable system worked by the Melbourne Tramway and Omnibus Company up to the 1st July, 1916, and since that date by the Melbourne and Metropolitan Tramway Board, to which reference will be made further on. There are also four lines of electric tramways, viz. :—(*a*) St. Kilda to Brighton, belonging to the Government and under the control of the Railway Commissioners; (*b*) an electric tramway between Sandringham and Black Rock, 2.41 miles in length, which has been constructed by the Railway Department and was opened for traffic on 11th March, 1919; (*c*) Flemington Bridge to the Saltwater River and Keilor-road, owned by a private company; and the following lines controlled by the Melbourne and Metropolitan Tramways Board, viz. :—(*d*) lines connecting Prahran, Windsor, St. Kilda and Elsternwick with Glen Huntly, Caulfield, Malvern, Glenferrie and Kew, formerly controlled by the Prahran and Malvern Tramways Trust; (*e*) Prince's-bridge to Burwood; Burke-road to Boundary-road, Wattle Park; and Bridge-road, Richmond, to Power-street, formerly owned by the Hawthorn Tramways Trust; (*f*) lines from Queensberry-street, Melbourne, to Bell-street, Coburg, and Moreland-road to Baker's-road, Fawkner, formerly owned by the Melbourne, Brunswick, and Coburg Tramways Trust; (*g*) the Fitzroy, Northcote and Preston Tramway and (*h*) The Footscray Tramway. A cable tramway, 2¼ miles in length, between Clifton Hill and Preston, was owned by the Northcote municipality, but was, on 2nd February, 1920, transferred to the control of, and has since been operated by, the Melbourne and Metropolitan Tramways Board. There are also systems of electric tramways at Ballarat, Bendigo, and Geelong, constructed and run by private companies. Numerous tramways have been constructed for special purposes in various parts of the State under the provisions of the Tramway Act 1890. These, however, correspond to the description of private railways referred to in sub-section 1 hereof. A tramway to the Zoological Gardens, with horse traction, is operated by the Melbourne and Metropolitan Tramways Board.

(i) *Melbourne Cable Tramways.* A short account of the formation of the Melbourne Tramway and Omnibus Company, and of the Tramway Trust, will be found in previous issues of this book. (See Year Books No. 7, page 652, and No. 9, page 679.) The company was required by the original Act, as amended in 1892, to complete the tramways by the end of the year 1893, and in return a thirty-two years' lease of the tramways was granted to it, dating from the 1st July, 1884—when the liability for interest on the loans commenced—and expiring on the 1st July, 1916. The total amount the Trust was empowered to borrow was £1,650,000, which was raised in London by means of debentures bearing interest at 4½ per cent. The premiums received amounted to £55,794, making a total of £1,705,794. This amount had been expended by the end of the year 1893, when further loan expenditure ceased. Up to the 30th June, 1911, the total cost of construction and equipment of the tramways amounted to £2,376,285 (including £4,000 expenditure in the case of the Royal Park horse tram). The first line—that to Richmond—was opened for traffic on the 11th November, 1885, and the work being rapidly pushed on, the other lines were opened at short intervals, and the whole system was completed in 1891. The complete system consisted of 43.68 miles of double-track cable lines, using constantly over 90 miles of wire rope, and 4.48 miles of horse tram line. Of the latter, 1.79 miles were transferred to the Kew Council in November, 1914, and 2.06 miles to the Hawthorn Tramway Trust in January, 1916, for electrification, leaving 0.63 mile of horse tramway at Royal Park. The gauge of track is 4 feet 8½ inches. The company also had omnibuses at work for many years down to 3rd May, 1916, when the East Brunswick line of omnibuses ceased running owing to the construction of an electric tramway along the route.

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

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

(*b*) *Particulars of Working.* The subjoined statement shews the tram mileage, the number of passengers carried, and the revenue and expenditure for the years 1917 to 1921 :—

MELBOURNE CABLE TRAMWAYS.(*b*)—PARTICULARS OF WORKING, 1917 TO 1921.

Year ended 30th June—	Mileage Open (Route).			Mileage Run during Year.			Number of Passengers Carried.		
	Cable.	Horse.	Total.	Tram.		Total.	Tram.		Total.
				Cable.	Horse.		Cable.	Horse.	
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	No.	No.	No.
1917 (*c*)	43.68	0.63	44.31	12,413,485	10,444	12,423,929	(*a*)	(*a*)	103,118,377
1918 (*c*)	43.68	0.63	44.31	12,822,147	10,882	12,833,029	112,754,979	279,178	113,034,157
1919 (*c*)	43.68	0.63	44.31	13,138,992	10,645	13,149,637	118,043,604	259,177	118,302,781
1920 (*b*)	45.90	0.63	46.53	13,424,488	10,648	13,435,136	133,378,390	296,651	133,675,041
1921	45.90	0.63	46.53	14,058,575	10,406	14,068,981	148,755,005	293,676	149,048,681

Year ended 30th June—	Traffic Revenue.			Working Expenses.			Percentage of Working Expenses on Revenue.	No. of Employees at end of Year.
	Tram.		Total.	Tram.		Total.		
	Cable.	Horse.		Cable.	Horse.			
	£	£	£	£	£	£	%	No.
1917	(*a*)	(*a*)	841,784	(*a*)	(*a*)	462,132	54.90	2,104
1918	902,471	549	903,020	513,717	735	514,452	56.97	2,273
1919	945,286	513	945,799	577,736	1,154	578,890	61.21	2,400
1920	1,075,236	606	1,075,842	722,482	1,564	724,046	67.30	2,786
1921	1,146,955	792	1,147,747	843,333	1,100	844,433	73.60	2,836

(*a*) Not available. (*b*) Inclusive of Northcote Cable Tramway from 2nd February, 1920, to 30th June, 1920. (*c*) Exclusive of Northcote Cable Tramway.

(*c*) *Metropolitan Tramway Board.* In a previous issue of the Year Book (see No. 12, pp. 698–9) reference was made to the *Melbourne and Metropolitan Tramways Act* 1918, and to the terms under which it was to come into operation. On 2nd July, 1919, the appointments of the chairman and other members of the Tramway Board were made by the Governor in Council, and it was arranged that the Board should take over control of the Melbourne Cable Tramway System and of the Royal Park Horse Tramway on the 1st November, 1919.

On 2nd February, 1920, the Electric Tramway systems of the following Trusts were vested in the Board :—Prahran and Malvern Tramways; Hawthorn Tramways; Melbourne, Brunswick and Coburg Tramways; Fitzroy, Northcote and Preston Tramways; Footscray Tramways; and the Cable Tramway of the Northcote Council.

Authority is given by the Act to acquire the Electric Tramways of the North Melbourne Electric Tramway and Lighting Company Limited (Essendon) by agreement or by compulsory acquisition. (This was effected on 1st August, 1922.)

The Board is empowered to borrow up to £750,000 by the issue of stock or debentures, secured upon its revenues and undertakings, this being in addition to the transferred liabilities attaching to the tramways vested in it. Power is given to have an overdraft not exceeding £200,000. The power to borrow upon debentures has not been exercised so far.

The Board is preparing a general scheme for the future development of tramways in the metropolis. This scheme is to be reported upon by the Railways Standing Committee, and subsequently submitted to Parliament.

(ii) *Electric Tramways.* As already mentioned, there are in Melbourne four electric tramway systems in operation, viz. :—(*a*) the St. Kilda–Brighton line, (*b*) the Sandringham–Black Rock line, (*c*) the North Melbourne Tramways ; and the lines controlled by the Melbourne and Metropolitan Tramways Board (previously referred to), viz., (*d*) The Prahran and Malvern Tramways ; (*e*) The Hawthorn Tramways ; (*f*) The Melbourne, Brunswick and Coburg Tramways ; (*g*) The Fitzroy, Northcote and Preston Tramways ; and (*h*) The Footscray Tramways.

(*a*) *The St. Kilda–Brighton Line.* Under the St. Kilda and Brighton Electric Street Railway Act 1904, the Board of Land and Works was authorized to construct a tramway from St. Kilda to Brighton. The amount of interest payable on the cost of the land acquired for the tramway was guaranteed by the municipalities of St. Kilda and Brighton for a period of twenty years, and authority was given by the Act to the municipalities to levy either a general or special rate not exceeding one shilling in the pound for the purpose of paying the guarantee. The profit, if any, during the first twenty years is to be set off in reduction of the guarantee. The line was opened for traffic between St. Kilda and Park-street, Middle Brighton, on the 7th May, 1906, and the extension to Brighton Beach was opened on the 22nd December following. The capital cost to the 30th June, 1921, exclusive of rolling stock, was £109,789, and of rolling stock £43,792, making a total of £153,581. The gauge of track is 5 ft. 3 in. The subjoined statement gives particulars of the working of this line for the financial years ended the 30th June, 1917 to 1921 :—

ST. KILDA-BRIGHTON ELECTRIC STREET TRAMWAY, 1917 TO 1921.

Year ended 30th June—	Mileage Open (Route).	Total Cost of Construction and Equipment	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses	Interest.	Net Profit or Loss. (*a*)
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	£	£
1917 ..	5.16	156,242	780,320	572,735	3,450,442	27,919	20,502	6,250	+ 1,167
1918 ..	5 16	158,986	745,853	521,525	3,854,677	31,614	23,653	6,359	+ 1,602
1919 ..	5.16	164,347	932,010	527,305	4,945,627	40,048	27,207	6,574	+ 6,267
1920 ..	5.16	(*b*)150,128	1,381,821	551,307	6,805,892	50,494	42,813	6,005	+ 1,676
1921 ..	5.16	153,581	1,487,928	552,772	5,572,454	47,005	63,921	6,143	− 23,059

(*a*) Profit is indicated by + , loss by − (*b*) Cost of Rolling Stock for Sandringham–Black Rock electric street railway was included under this head in preceding years.

The average fare paid per passenger was 1.99 pence in 1920–21 as against 1.76 pence in 1919–20. The gross revenue in 1920–21 was 20.41 pence per passenger car mile and £4,555 per mile of single track open.

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

The capital cost to the 30th June. 1921, was £59,973. The cost of rolling stock at 30th June, 1919, is included in that for the St. Kilda–Brighton line. The gauge of this line is 4 ft. 8½ in. The subjoined statement gives particulars of the working of this line to the 30th June, 1921 :—

SANDRINGHAM-BLACK ROCK ELECTRIC STREET TRAMWAY, 1919 TO 1921.

Year ended 30th June—	Mileage Open (Route).	Total Cost of Construction.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses	Interest.	Net Profit. or Loss.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	£	£
1919 (*c*)	2.41	(*a*) 42,706	38,650	29,008	616,746	3,751	1,792	529	1,430
1920 ..	2.41	(*b*) 57,910	161,370	113,405	2,433,162	11,597	7,898	2,316	1,383
1921 ..	2.41	(*b*) 59,973	172,920	121,575	1,232,796	9,140	8,802	2,399	−2,061

(*a*) Exclusive of Rolling Stock. (*b*) Inclusive of Rolling Stock. (*c*) Period, 11th March to 30th June. (−) Indicates loss.

(c) *The North Melbourne Tramways*, extending through the northern suburbs to the Saltwater River and to Keilor-road, were constructed by a private company, and were opened for traffic on the 11th October, 1906. The route and track mileage for year ended 30th September, 1921, were 7.51 and 11.43 miles respectively, the gauge of line being 4 feet 8½ inches. The number of passengers carried during the same period was 3,924,742. The current used during the year for traction purposes was 817,602 kilowatt-hours, while the number of persons employed was 124.

(d) *The Prahran and Malvern Tramways.* The lines were constructed under the control of a trust, which consisted of seven members appointed from the councils of Prahran, Malvern, St. Kilda, Caulfield, Hawthorn, Kew, and Camberwell. At the 30th June, 1921, the total route mileage open was 35.11 miles, the total track mileage being 66.12 miles, and the total capital cost £950,516. The gauge of the track is 4 ft. 8½ in. The current is supplied by the Melbourne Electric Supply Company Limited at a price varying according to the consumption of current and the price of fuel. The first section of the lines was opened for traffic on 31st May, 1910. During the year ended 30th June, 1921, the current used for traction purposes was 8,434,489 kilowatt-hours and the number of tram miles run was 3,501,763, the number of passengers carried 40,521,613, and the gross revenue £303,064. The number of cars in use was 105, and the number of persons employed 759.

(e) *The Hawthorn Tramways.* The first section of these tramways, that from Prince's-bridge to Power-street, Hawthorn, was opened for traffic on 6th April, 1916, and on 30th June, 1921, the route and track mileages in operation were 11.12 and 17.94 miles respectively. During the year ended 30th June, 1921, the current used for traction purposes was 2,817,604 kilowatt-hours, the tram miles run 1,083,956, the number of passengers carried 8,448,862, and the gross revenue £96,381. The number of cars in use was 39, the number of persons employed 217, and the capital cost £330,109.

(f) *The Melbourne, Brunswick and Coburg Tramways.* The first section of these tramways, that between Moreland-road and Bell-street, was opened for traffic on 27th April, 1916. At the 30th June, 1921, the route and track mileages open for traffic were 7.07 and 12.32 miles respectively. During the year ended 30th June, 1921, the current used for traction purposes was 1,740,430 kilowatt-hours, the tram miles run 842,809, the number of passengers carried 7,275,304, and the gross revenue £56,323. Twenty-one cars were in use, the number of persons employed was 257, and the capital cost £209,281.

(g) *Fitzroy, Northcote and Preston Tramway.* This line was opened for traffic on 1st April, 1920, and at 30th June, 1921, the route and track mileage in operation were 5.82 miles and 7.73 miles respectively. During the year the current used for traction purposes was 657,000 kilowatt-hours, tram miles run 380,257, and number of passengers carried 2,259,923. The gross revenue was £17,245. Eight cars were in use, and the number of persons employed was 42. The capital cost was £141,233.

(h) *Footscray Tramway.* The construction of this line was practically completed at 30th June, 1920, but the opening for traffic was deferred until 6th September, 1921, pending the supply of electric power from the Victorian Government Railways Power Station at Newport. The gauge is 4 ft. 8½ in. and the route and track mileage are respectively 4.73 miles and 5.31 miles. The capital cost was £129,503.

(i) *The Ballarat and Bendigo Electric Tramways* are under the control of a private company, and run along the main streets and to and from the outlying suburbs of the two cities. The total length of lines open for traffic is 21.25 route miles and 25.86 track miles, the gauge being 4 ft. 8½ in. During the year ended 31st December, 1921, 6,242,032 passengers were carried, the gross revenue being £61,118, and the working expenses £46,281. The number of cars in use was 55, and the number of persons employed 146.

(j) *The Geelong Electric Tramways*, which are privately owned, were opened for traffic on the 14th March, 1912, and up to the 31st August, 1921, the cost of construction and equipment, exclusive of generating plant, totalled £66,304. The system has a route and track mileage of 4.90 and 5.67 miles respectively, the gauge being 4 ft. 8½ in.

The car mileage for the year ending on the last-mentioned date was 232,272 miles, and the number of passengers carried 1,937,000. For the same period the revenue was £23,839, and the expenditure £17,244.

(iii) *Particulars of Working of all Electric Tramways.* The following table gives particulars of the working of all electric tramways in Victoria for each year from 1917 to 1921 inclusive :—

VICTORIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1917 TO 1921.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1917	89.08	1,861,771	11,910,707	6,462,318	51,586,576	373,594	271,315	255	1,074
1918	92.17	1,939,887	13,169,343	6,775,538	57,020,726	432,921	318,163	268	1,167
1919	94.58	2,027,057	13,955,124	6,832,873	60,753,278	463,320	344,220	274	1,318
1920	105.26	2,442,746	15,758,101	7,302,713	74,359,826	553,507	418,462	294	1,554
1921	105.26	2,528,665	17,618,387	8,102,393	79,807,665	647,067	539,652	302	1,795

4. **Queensland.**—In this State there is a system of electric tramways running through the streets of the city and suburbs of Brisbane and controlled by a private company which has its head office in London. The total length of the Brisbane system was 42.60 route miles at the end of the year 1921. There is also a steam tramway in operation at Rockhampton having a length of 6 route miles.

(i) *Brisbane Electric Tramways.* These tramways are run on the overhead trolley system, the voltage of the line current being 550. The total cost of construction and equipment to the end of the year 1920 was £1,640,127, the gauge of line being 4 ft. 8½ in. The following table gives particulars of these tramways for the calendar years 1917 to 1921 :—

QUEENSLAND.—BRISBANE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING 1917 TO 1921.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1917	41.58	1,435,414	8,964,113	4,377,104	51,860,308	371,850	257,035	172	1,121
1918	41.58	*a*1,435,414	9,453,441	4,379,679	57,456,832	412,569	264,858	173	1,103
1919	42.60	*a*1,435,414	10,309,349	4,600,482	61,415,350	445,333	295,697	174	1,073
1920	42.60	*a*1,435,414	11,000,875	4,934,043	69,236,690	527,264	387,456	178	1,130
1921	42.60	1,640,127	11,413,745	4,994,357	68,056,309	544,828	411,180	178	1,142

(*a*) Figures for 1917.

(ii) *Rockhampton Municipal Tramways.* These tramways were opened for traffic in 1909, the motive power being steam. The length of line is 6 route miles, and the gauge 3 ft. 6 in. The capital cost to 31st December, 1921, was £43,028. During the year 1,671,594 passengers were carried, the revenue being £16,464, and working expenses £15,724. The number of the staff at end of year was 48.

(iii) *Sugar-Mill Tramways.* In various parts of Queensland there are tramways used in connexion with the sugar-milling industry, chiefly for the purpose of hauling cane to the mills. Some of these lines are of a permanent nature, running through sugar-cane plantations, while others are portable lines running to various farms. Particulars of these lines are given in Transport and Communication Bulletin No. 13 as the lack of space precludes the publication of such information in this volume.

5. **South Australia.**—Up to the year 1906 the tram service in the principal streets of Adelaide and suburbs was a horse system run by various private companies. Power to acquire these lines, and to provide for their extension and management by means of a Trust, was given to the Government by the Municipal Tramways Trust Act 1906. In accordance with the provisions of the Act, a Trust consisting of eight members, of whom two were nominated by the Governor, two elected by the City Corporation, and two each by the Suburban Corporations and the District Councils involved, was formed in 1907, and a length of 49 route miles of horse traction tramways was purchased from the private companies for a sum of £282,582. On the 10th March, 1909, the electric car system was inaugurated on the Kensington route. At the end of July, 1921, a length of 66.40 route miles had been electrified and opened for traffic, the corresponding length of track opened being 114.04 miles, all of which are of a gauge of 4 ft. 8½ in. The cost of construction and equipment on the 31st July, 1921, was £1,890,067. The following table gives particulars of the tramways for the years ended 31st July, 1917 to 1921 :—

SOUTH AUSTRALIA.—ADELAIDE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING, 1917 TO 1921.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1917	64.46	1,703,151	10,382,667	4,954,848	45,431,691	338,361	211,662	170	1,200
1918	65.66	1,751,943	10,758,897	5,359,776	46,466,258	414,836	250,586	174	1,099
1919	65.66	1,789,487	10,730,307	5,176,264	45,882,376	428,477	284,993	185	1,337
1920	66.03	1,793,298	11,261,046	5,407,654	50,815,848	505,303	339,166	190	1,270
1921	66.40	1,890,067	12,096,515	5,785,148	55,323,737	555,421	392,824	190	1,264

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

SOUTH AUSTRALIA.—PARTICULARS OF HORSE TRAMWAYS, 1921.

GOVERNMENT TRAMWAYS.

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

(a) Included in mileage of Government railways.

6. **Western Australia.**—Apart from the electric tramways, there are in this State several tramways, amounting in all on the 30th June, 1921, to a length of 25.16 miles, which are the property of the Government. Of these, which are under the control of the Harbour and Light Department, the most important is the line between Roebourne and Cossack, constructed on a 2-ft. gauge. The length of this line is 12.50 miles, and it is worked by steam. The remaining 12.66 miles belonging to the Government are made up of several short lengths, worked by steam or horses, in connexion with the jetties at certain ports for the purpose of providing the necessary communication between such

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

(i) *Steam and Horse Tramways.* Particulars as to the working of the Government steam or horse tramways for the year ended 30th June, 1920, shew that the capital cost of the lines to that date was £85,451, the gross revenue for the year being £8,281, and the working expenses £3,495.

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

(*a*) *The Perth Electric Tramways* were opened for traffic by a private company on the 24th September, 1899, and the system has since been extended to many of the suburbs. This tramway system was taken over by the Government on 1st July, 1913, and is now running in conjunction with the Government railways. On the 30th June, 1921, the route and track miles open for traffic were 27.40 and 36.86 miles respectively, the total cost of construction and equipment to that date being £654,047. During the year, 25,753,113 passengers were carried, the gross revenue being £224,892 and the working expenses £204,459. Eighty-three motors were in use, and the number of employees was 556. The gauge of line is 3 ft. 6 in.

(*b*) *The Fremantle Tramways* were opened in November, 1905, under the control of the municipality. On the 31st August, 1921, there were 8.66 route and 11.55 track miles of line open for traffic, the cost of construction and equipment at that date being £120,939. This line has a gauge of 3 ft. 6 in. During the year 5,968,482 passengers were carried, the gross revenue being £60,443 and the working expenses £52,167. Twenty-one care were in use, and the number of employees was 132.

(*c*) *The Kalgoorlie and Boulder Tramways* are run by a private company, the first line being opened in 1902. At the beginning of 1904 legislative authority was given for the construction of lines in Boulder and suburbs, and in November, 1904, the last section of the Boulder system was completed. At the end of the year 1921 the total mileage of the whole system—in Kalgoorlie and Boulder—amounted to 14.83 route or 21.50 track miles, the total cost of construction and equipment being £452,318. During the year 1,655,529 passengers were carried, the gross revenue being £27,860 and the working expenses £19,981. Twenty-five motors and seven trailers were in use, and the number of employees was 40. The gauge of this line is 3 ft. 6 in.

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

(*e*) *Particulars of Working of all Electric Tramways.* The subjoined table shews so far as returns are available, particulars of the working of all electric tramway systems in the State for the years 1917 to 1921:—

WESTERN AUSTRALIA.—PARTICULARS OF ELECTRIC TRAMWAYS, 1917 TO 1921.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1917*a*	51.61	1,161,478	5,799,337	2,955,503	19,178,047	197,880	153,847	122	526
1918	50.62	1,152,417	6,118,637	3,127,284	21,218,019	215,011	169,058	130	503
1919	50.22	1,150,018	5,922,421	2,951,653	20,954,579	209,664	170,261	130	545
1920	50.66	1,175,597	7,724,522	3,612,417	27,322,826	278,117	221,045	136	629
1921	50.90	1,227,304	8,412,175	3,472,632	33,377,124	313,195	276,607	136	728

(*a*) Exclusive of Leonora tramway.

(iii) *Perth Ferries.* As the Perth ferry services are mainly used for suburban passenger traffic, they are referred to in this section rather than under Shipping. Of the thirteen boats in service, four are under the control of the Western Australian Government, the other nine belonging to a private company. The number of passengers carried during the year 1920–21 was 1,192,099, the revenue and expenditure for the same period being £17,093 and £16,554 respectively, and the number of persons employed 29.

7. **Tasmania.**—(i) *Tramways.* In Hobart there is a system of electric tramways, the first line of which was opened for traffic in 1893, amounting in all to a length of 13 and 17 route and track miles respectively. This was originally owned by a private company, but is now the property of the Hobart Municipal Council. Under the authority of the Launceston Tramway Act of 1906 the Launceston City Council entered into an agreement with a private company for the construction of a system of electric tramways in the city and suburbs of Launceston. The agreement provided that the company was to run the tramways for a period of 25 years, when the council could purchase the lines and stock at cost price ; the electric power required was to be supplied by the Council. This agreement, however, lapsed, and the Council has constructed the tramways, and is running them as a municipal undertaking. The system, which was opened on the 16th August, 1911, has a route and track mileage of 10.13 and 13.50 miles respectively. The gauge of track in both these systems is 3 ft. 6 in.

The following table gives particulars of the working of the two systems for the years 1917 to 1921 :—

TASMANIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1917 TO 1921.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1917	21.95	383,219	1,687,407	1,115,090	8,349,789	79,693	49,930	60	259
1918	22.00	389,659	1,91[illegible],720	1,192,955	9,785,155	81,918	56,103	60	253
1919	23.25	400,375	2,396,717	1,215,663	10,070,263	97,459	63,561	60	288
1920	23.13	413,060	2,192,420	1,257,911	11,961,256	112,023	83,385	63	362
1921	23.13	443,872	2,610,504	1,428,696	14,766,819	142,500	108,684	67	428

In addition, a private steam tramway 2 ft. 0 in. gauge, 6 miles in length, joins a Government line, about 6 miles from Zeehan, running in the direction of Pieman Crossing.

(ii) *Ferries.* The Hobart ferry service, being of a suburban character, is referred to here rather than under Shipping. There is one company controlling a fleet of five boats, and also a ferry operated by the Public Works Department with two boats. In the year 1919–20 the number of passengers carried was 859,059, the revenue £14,615, the working expenses £13,465, and the number of persons employed 36.

8. **Electric Traction in Commonwealth, 1920-21.**—The subjoined table gives particulars of electric tramways for each State and the Commonwealth. The returns for the Hobart tramways in Tasmania, for the Ballarat and Bendigo tramways in Victoria, for the Kalgoorlie tramways in Western Australia, and for the Brisbane tramways, are for the calendar year 1921 ; and for other tramways the returns are, generally, for the financial year 1920–21.

ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1920-21.

State.	Mileage open for Traffic (Route).	Total Cost of Construction and Equipment.	Current used for Traction purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Percentage of Working Expenses on Gross Revenue.	Cars, Motors and Trailers.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	%	No.	No.
N.S.W. ..	156.81	8,009,611	97,193,560	27,112,029	315,847,363	3,216,358	2,649,132	82.36	1,414	8,352
Victoria..	105.26	2,528,665	17,618,387	8,102,393	79,807,665	647,067	539,652	83.40	302	1,795
Q'land ..	42.60	1,640,127	11,413,745	4,994,357	68,056,309	544,828	411,180	75.47	178	1,142
S. Aust...	66.40	1,890,067	12,096,515	5,785,148	55,323,737	555,421	392,824	70.73	190	1,264
W. Aust.	50.90	1,227,304	8,412,175	3,472.632	33,377.124	313,195	276,607	88.32	136	728
Tasmania	23.13	443,872	2,610,504	1,428,696	14,766,819	142,500	108,684	76.27	67	428
C'wealth	445.10	15,739,646	149,344,886	50,895,255	567,179,017	5,419,369	4,378,079	80·78	2,287	13,709

The percentage of working expenses on gross revenue for all electric tramways in the Commonwealth was 80.78, the range for the States being 70.73 in the case of South Australia and 88.32 in the case of Western Australia.

In "Transport and Communication Bulletin No. 13," Table No. 20, will be found an analysis of the figures in the foregoing table in respect of revenue, working expenses, etc., for the year 1920-21.

In the following table particulars are shewn as to the operations of electric tramways in the Commonwealth for the period 1912 to 1921 :—

ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1912 TO 1921.

Year.	Mileage open for Traffic (Route).	Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Miles.	£	Kilowatt-hours.	No.	No.
1911-12	322.24	9,669,808	93,897,694	37,256,203	363,959,404
1912-13	345.07	11,147.493	106,967,982	41,258,696	405,480,511
1913-14	365.39	12,365,142	(a)118,894,845	44,147,626	435,058,028
1914-15	386.30	13,018,010	(a)116,567,559	42,811,891	416,798,309
1915-16	404.76	13,753,988	(a)116,569,324	43,262,753	432,327,059
1916-17(a)	421.68	14,197,194	119,352,451	43,820,585	451,586,745
1917-18	426.40	14,441,189	114,798,667	41,454,040	431,389,686
1918-19	430.87	14,581,578	127,094.621	44,075,173	449,782,249
1919-20	443.03	15,110,405	140,011,914	47,909,439	538,683,129
1920-21	445.10	15,239,646	149,344,886	50,895,255	567,179,017

Year.	Gross Revenue.	Working Expenses.	Percentage of Working Expenses on Gross Revenue.	Cars, Motors and Trailers.	Persons Employed.
	£	£	%	No.	No.
1911-12	2,345,428	1,775,927	75.72	1,628	11,063
1912-13	2,635,526	2,092,810	79.41	1,864	12,208
1913-14	2,915,272	2,239,584	76.82	2,071	12,548
1914-15	2,990,481	2,235,806	74.76	2,135	12,193
1915-16	3,076,982	2,256,130	73.32	2,162	13,181
1916-17(a)	3,214,777	2,479,212	77.12	2,177	13,475
1917-18	3,405,123	2,516,117	73.89	2,203	12,588
1918-19	3,707,307	2,832,168	76.40	2,216	13,171
1919-20	4,652,962	3,696,188	79.44	2,255	13,385
1920-21	5,419,369	4,378,079	80.78	2,287	13,709

(a) Exclusive of Leonora tramway.

During the ten years included in the last table the percentage of working expenses on the gross revenue of all electric tramways in the Commonwealth had a maximum of 80.78 in 1920-21 and a minimum of 73.32 in 1915-16, the average over the whole period being 76.76.