GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Railway.

Read the following paper :—

From the Consulting Engineer for Railways, dated Madras, 17th October 1890, No. 688.

Ten copies of the Analysis of Working, Madras Railway, for the half-year ended the 30th June 1890.

Submitted to Government for transmission to the Director-General of Railways with reference to letter from the Government of India, No. 204 R.E., dated 23rd March 1888, embodied in the Proceedings of Government, No. 274 R., dated 6th April 1888.

ORDER—dated 28th October 1890, No. 1621 R., Public Works.

Ordered to be forwarded to the Director-General of Railways and to the Secretary of State.

(Here enter No. 1622 R., dated 28th October 1890.)

(True Extract.)

(Signed) T. GRACEY, Lieut.-Colonel, R.E.,
Offg. Joint Secy. to Govt., P.W.D.,
Railway Branch.

To the Consulting Engineer for Railways.
„ Examiner, Guaranteed Railway Accounts.

ENDORSEMENT—dated 28th October 1890, No. 1622 R., Public Works.

Forwarded.

(By Order.)

Lieut.-Colonel, R.E.,
Offg. Joint Secy. to Govt., P.W.D.,
Railway Branch.

Exd. J. Moses.
Spare Copies

RAILWAY.

Govt. of {1890} Madras

PUBLIC WORKS.

Dated October, 28th.

Recd. *Encl.*

G.O., 28th Oct. 1890, Nos. 1621, 1622 R.

OCTOBER.

Analysis of Working, Madras Railway

Forwarding the — for the first half of 1890.

Form No. 2.

PUBLIC WORKS DEPARTMENT.

OFFICE OF CONSULTING ENGINEER FOR RAILWAYS,

Madras, 17th October 1890.

Ten copies of the Analysis of working Madras Railway, for the half year ended the 30th June 1890.

No. 688

SUBMITTED _____ to _____ Government. for transmission to the Director General of Railways with reference to letter from the Government of India No 204 Rs dated 23rd March 1888, embodied in the Proceedings of Government No 274 R dated 6th April 1888

Sidney Smith
Major RE

For offg: Cons: Engr
for Rys:

RAILWAY.

Govt. of {1890} Madras

PUBLIC WORKS.

Dated October, 28th.

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Sidney Smith
Major RE

For off. Cons. Engr
for Rys.

Form No. 3.

From

THE CONSULTING ENGINEER
FOR RAILWAYS,
MADRAS.

No. 688

Dated 17th October 1890.
Received 17th

No. of Enclosures. 1 & 9 Sc.

Subject.

Submitting Copies of Analysis of working of Madras Railway for first half of 1890.

A 1621/Rl 28-10-90

Ackd 29/10/90 Ordered to be forwarded to the Director General of Railways and to the Secretary of State.-

Ack. No 1622 R R 28 October 1890

Forwarded

To The Comptroller & Auditor General.
Ex Ex Ry Secy.

Ack. No 13/1621 R 28 Octr 90

To
The Right Hon. the Secretary of State
for India

My Lord. Ackd 29/10/90

We have the honour to forward a copy of our Proc. No I dated Octr. 1890, embodying the analysis of working of the Madras Railway for the first half of 1890.-

Dasp 30/10/90 Sd. B. R

Rlwy. 18.x.90 Rao

9876.

Govt. of [18] Madras.

PUBLIC WORKS.

Dated

Rec'd. Encl.

G.O., 28 Oct 1890, No. 1621-22

13/16 7/11

Analysis of working
40/5 4/2/2 Rys:—

Ordered that the — for the first half of 1890. be forwarded to the Govt. Gen. of Ryo and to the Secy: of State.

Do — do

Forwd the — for the first half of 1890.

Forwd: the analysis of working of the M Ry: for the first half of 1890.

Madras Railway Company.

ANALYSIS OF WORKING

FOR THE

Half-Year ending 30th June, 1890.

VEST AND COMPANY, PRINTERS, MOUNT ROAD, MADRAS.

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MADRAS RAILWAY COMPANY.

Analysis of Working for the Half-year ended 30th June, 1890.

Progressive Number.	Headings.			Remarks.
	No. I.			
	DESCRIPTION OF RAILWAY WORKED.			
1	Gauge of Railway		Ft. In. 5 6	
2	Mean mileage worked	*Miles*	839·298	
3	Number of Stations	*No.*	129	
4	Total length of the following gradients:—			
	(*a*) $\frac{1}{80}$ and less	*Miles*	*Nil.*	
	(*b*) $\frac{1}{81}$ to $\frac{1}{80}$	„	17·99	
	(*c*) $\frac{1}{81}$ to $\frac{1}{100}$	„	48·09	
	(*d*) $\frac{1}{101}$ to $\frac{1}{200}$	„	197·14	
	(*e*) $\frac{1}{201}$ to $\frac{1}{300}$	„	123·86	
5	Steepest gradient worked—			
	(*a*) Length	*Miles*	·80	
	(*b*) Inclination		1 in 60	
	No. II.			
	FINANCIAL RESULTS.			
6	Percentage of net earnings (including Steam-boat traffic) on Capital outlay	*Per cent.*	1·89	
7	Percentage of net earnings on paid up capital ...	„	1·87	Excluding £12,014-1-4. Capital not bearing interest.
	No. III.			
	OUTLAY, EARNINGS AND EXPENSES.			
	(*Exclusive of Steam-boat Service.*)			
8	Capital outlay per mile open	*Rs.*	1,36,567	
9	Total earnings per mile open per week	„	216·43	
10	Total working expenses per mile per week ...	„	114·79	
11	Total earnings per train-mile	„	3·977	
12	Total working expenses per train-mile	„	2·109	
13	Net earnings per train-mile	„	1·868	
14	Cost per 1,000 gross ton-miles moved (freight and dead weight)	„	6·73	
15	Percentage of total working expenses upon total earnings	*Per cent.*	53·04	
16	Percentage of total working expenses upon total earnings, excluding from both sides of the account the charges for carriage of revenue stores... ...	„	52·20	
	(*Inclusive of Steam-boat Service.*)			
17	Percentage of total working expenses on total earnings (for details, see Table No. VII)	„	53·04	
	No. IV.			
	DIVISION OF EXPENDITURE BETWEEN COACHING AND GOODS TRAFFIC.			
18	Total Working Expenses for both coaching and goods traffic, excluding Steam-boat expenses, and after deducting telegraph and sundry receipts and leaving only the balance of payments to other lines for mileage, &c.	*Rs.*	22,23,855	
	Proportions, *dividing expenditure in ratio of gross ton-mileage (freight and dead load.)*			
19	Coaching	„	8,68,725	
20	Goods	„	13,55,130	

ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

Progressive Number.	Headings.		Remarks.
	No. V.		
	COACHING TRAFFIC.		
	GROSS RECEIPTS AND TRAIN-MILEAGE—		
21	Receipts from coaching traffic ... ... *Rs.*	18,65,830	
22	Coaching train-miles run ... ... *No.*	542,994	
23	Average coaching receipts per train-mile ... ... *Rs.*	3·44	
	UNITS AND UNIT MILEAGE—		
	Number of units carried one mile—		
24	1st Class ... ... *Unit miles*		
25	2nd „ ... ... „	1,362,136	
26	3rd or Intermediate class ... ... „	3,723,581	
27	4th or Lowest „ ... ... „	.....	
28	Total passenger unit mileage ... ... „	161,837,582	
29	Other coaching traffic ... ... *Ton-miles*	166,923,299	
		1,320,004	
	Average sum received for carrying a unit one mile—		
30	1st Class ... ... *Pies*		
31	2nd „ ... ... „	11·66	
32	3rd or Intermediate class ... ... „	5·33	
33	4th or Lowest „ ... ... „	.....	
34	Average for all classes ... ... „	1·68	
35	Other coaching traffic per ton-mile ... ... „	1·84	
		38·60	
	Average number of units in a train—		
36	1st Class ... ... *No.*		
37	2nd „ ... ... „	2·51	
38	3rd or Intermediate class ... ... „	6·86	
39	4th or Lowest „ ... ... „	.....	
40	Total passenger units ... ... „	298·04	
41	Other coaching traffic ... ... *Tons*	307·41	
		2·43	
	VEHICLES AND VEHICLE MILEAGE—		
	Number of coaching vehicles hauled one mile—		
42	1st Class ... . *Vehicle miles*		
43	2nd „ ... . „	881,992	
44	3rd or Intermediate class ... ... „	1,027,218	
45	4th or Lowest „ ... ... „	.....	
46	Other vehicles ... ... „	6,004,698	
47	Brake Vans ... ... „	870,618	
48	Total ... ... „	1,199,980	
		9,984,506	
	Average number of vehicles in a coaching train—		
49	1st Class ... ... *No.*		
50	2nd „ ... ... „	1·63	
51	3rd or Intermediate class ... ... „	1·89	
52	4th or Lowest „ ... ... „	.....	
53	Other vehicles ... ... „	11·06	
54	Brake Vans... ... ... „	1·60	
55	Total ... ... „	2·21	
		18·39	
	Average earnings per coaching vehicle per mile—		
56	1st Class ... ... *Pies*		
57	2nd „ ... ... „	18·01	
58	3rd or Intermediate class ... ... „	19·32	
59	4th or Lowest „ ... .. „	.....	
60	Other vehicles ... ... „	45·22	
		58·52	

ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

Progressive Number.	Headings.		Remarks.
	No. V.		
	COACHING TRAFFIC—(*Contd.*)		
	Carrying capacity hauled one mile (excluding brakes)—		
61	1st Class ... ... *Seats*	10,616,687	
62	2nd „ ... ... „	34,096,376	
63	3rd or Intermediate class ... ... „	.....	
64	4th or Lowest „ ... ... „	329,656,957	
65	Other vehicles ... ... *Tons.*	4,460,661	
	Percentage of freight upon capacity hauled—		
66	1st Class ... ... *Per cent.*	12·83	
67	2nd „ ... ... „	10·92	
68	3rd or Intermediate class... ... ... „	.....	
69	4th or Lowest „ ... ... „	49·09	
70	Other vehicles ... ... „	29·59	
	WEIGHT OF TRAIN AND TON-MILEAGE—		
	Gross ton-mileage of all coaching trains—		
71	Freight ... ... *Ton-miles.*	11,464,359	
72	Dead weight ... ... „	117,512,679	
73	Total ... ... „	128,977,038	
	Average weight of a coaching train—		
74	Freight ... ... *Tons.*	21·11	
75	Dead weight ... ... „	216·42	
76	Total ... ... „	237·53	
	COST OF WORKING AND PROFITS—		
77	Average cost of hauling a coaching train one mile ... *Rs.*	1·60	
78	Average cost of hauling a coaching vehicle with its load one mile ... ... *Pies.*	18·99	
	Average cost of hauling a coaching unit one mile—		
79	Per passenger unit ... ... *Pies.*	·90	
80	Other traffic per ton ... ... „	12·17	
81	Average profit on working a coaching train one mile... *Rs.*	1·84	
	Average profit on working a coaching vehicle one mile—		
82	1st Class ... ... *Pies.*	*Minus* ·98	
83	2nd „ ... ... „	·33	
84	3rd or Intermediate class ... ... „	.....	
85	4th or Lowest „ ... ... „	26·23	
86	Other vehicles ... ... „	39·53	
	Average profit on working a coaching unit one mile—		
87	Per passenger unit ... ... *Pies.*	·94	
88	Other traffic per ton ... ... „	26·43	

ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

Progressive Number.	Headings.			Remarks.
	No. VI.			
	GOODS TRAFFIC.			
	GROSS RECEIPTS AND TRAIN-MILEAGE—			
89	Receipts from goods traffic	*Rs.*	25,65,458	
90	Goods train-miles run	*No.*	644,564	
91	Average goods receipts per train-mile	*Rs.*	3·98	
	UNITS AND UNIT MILEAGE—			
92	Tons of goods carried one mile	*Ton-miles*	62,929,247	
93	Average sum received for carrying a ton one mile ...	*Pies.*	7·83	
94	Average number of tons in a train	*Tons.*	97·63	
	VEHICLES AND VEHICLE MILEAGE—			
	Number of goods vehicles hauled one mile—			
95	Loaded	*Vehicle miles*	11,330,734	
96	Empty	,,	2,375,767	
97	Brake Vans	,,	1,270,499	
98	Total	,,	14,977,000	
	Average number of vehicles on a goods train—			
99	Freight vehicles	*No.*	21·26	
100	Brake Vans	,,	1·97	
101	Total	,,	23·23	
102	Average earnings per goods vehicle per mile (excluding brakes)	*Pies.*	35·94	
103	Carrying capacity hauled one mile (excluding brakes)	*Tons.*	126,735,657	
104	Percentage of freight upon capacity hauled.. ...	*Per cent.*	49·65	
105	Average load of a goods vehicle (including both loaded and empty)	*Tons.*	4·59	
106	Average load of a loaded goods vehicle	,,	5·55	
	WEIGHT OF TRAIN AND TON-MILEAGE—			
	Gross ton-mileage of all goods trains—			
107	Freight	*Tons.*	62,929,247	
108	Dead weight	,,	138,262,827	
109	Total	,,	201,192,074	
	Average weight of a goods train—			
110	Freight	*Tons.*	97·63	
111	Dead weight	,,	214·51	
112	Total	,,	312·14	
	COST OF WORKING AND PROFIT—			
113	Average cost of hauling a goods train one mile ...	*Rs.*	2·10	
114	Average cost of hauling a goods vehicle with its load one mile	*Pies.*	18·98	
115	Average cost of hauling a goods unit (*viz.*, one ton) one mile	,,	4·13	
115A	Do. do. do. do. including interest on capital expended on open line, &c. ...	,,	9·58	
116	Average profit on working a goods train one mile ...	*Rs.*	1·88	
117	Average profit on working a goods vehicle with its load one mile	*Pies.*	16·96	
118	Average profit on working a goods unit (*viz.*, one ton) one mile	,,	3·70	

ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

Progressive Number.	Headings.		Remarks.
	No. VII.		
	DETAILED PERCENTAGES OF EARNINGS AND EXPENDITURE.		
	Percentage to Total Earnings—		
119	Coaching Traffic	*Per cent.*	39·51
120	Goods Traffic	,,	54·32
121	Sundries, including telegraph	,,	6·17
122	Steam-boat Earnings	,,	...
	Total Earnings	,,	100·00
	Percentage of Working Expenses upon Total Earnings—		
123	Maintenance	*Per cent.*	14·86
124	Locomotive Expenses	,,	18·48
125	Carriage and Wagon Expenses	,,	4·73
126	Traffic Expenses	,,	8·56
127	General Charges	,,	5·98
128	Miscellaneous Charges	,,	·43
129	Steam-boat Expenses	,,	...
130	Total Working Expenses	,,	53·04

ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

No. VIII.—WORKING EXPENSES.

TABLE A.

Maintenance of Way, Works and Stations.

If done departmentally.

Reference to Revenue Account. Table and main head.	Sub-head.	Progressive number in analysis.	Details.	Per mile of line maintained.	Per mile of track, including sidings.	Per total train-mile.	Per 1,000 gross ton-miles.
				(839·30)	(997·96)	(1,187,558)	(330,169,112)
IX (A)	...		*General Superintendence—*	Rs.	Rs.	As.	Rs.
1	1 & 2		Engineers' salaries and allowances ...	68·16	57·33	·77	·17
1	3 to 5		Subordinate Superintendents' salaries and allowances, including overtime ...	44·59	37·50	·50	·12
1	6		Office expenses	40·26	33·86	·46	·10
		131	Total...	153·01	128·69	1·73	·39
			Maintenance and Renewal of Permanent-way—				
2	1		Wages	178·76	150·34	2·02	·45
2	2		Materials	204·45	171·94	2·31	·52
		132	Total...	383·21	322·28	4·33	·97
			Repairs of Bridges, &c.—				
			Wages and Materials—				
3	1		Bridges and tunnels	199·08	167·43	2·25	·51
3	2		Miscellaneous	35·56	29·90	·40	·09
		133	Total...	234·64	197·33	2·65	·60
3(A)	...	134	*Conservancy of Rivers*	...	...	...	...
			Repairs of Stations and Buildings—Wages and Materials—				
4	1		Repairs of all, except staff quarters ...	58·37	49·09	·66	·15
4	2		Repairs of staff quarters	20·78	17·48	·24	·05
		135	Total...	79·15	66·57	·90	·20
			Maintenance by Contract—				
5	1		Amount paid to contractors ...	...	...	...	...
5	2		Materials supplied by the Railway ...	...	...	...	...
			Total...	...	...	...	...
6	...		*New Minor Works*	8·26	6·95	·10	·02
			Unclassified Expenditure—				
7	1		Plantations ...				
7	2		Tools and Plant	1·63	1·37	·02	...
7	3		Loss by exchange	5·08	4·27	·06	·01
7	4		Loss on stores, &c.	21·48	18·07	·24	·06
7	5		Freight on stores	...	...	...	...
			Total...	49·00	41·21	·55	·13
			Total, Heads 5, 6 and 7 ...	77·19	64·92	·87	·20
			Less Credits	85·45	71·87	·97	·22
				99·19	**83·42**	**1·12**	**·25**
		136	*Net Total, other charges*	**13·74**	**11·55**	**·15**	**·03**
		137	*Total Maintenance...*	836·27	703·32	9·46	2·13

ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890

No. VIII.—WORKING EXPENSES.

TABLE B.

Locomotive Expenses.

Reference to Revenue Account. Table and main-head.	Sub-head.	Progressive number in analysis.	Details.	Per Total train-mile.	Per engine mile.	Per 1,000 gross ton-miles.
				(1,187,558)	(1,404,108)	(330,169,112)
			General Superintendence—	As.	As.	Rs.
IX (B) 1	1 & 2		Salaries of superintendents and assistants, including allowances	·14	·12	·03
IX (B) 1	3 to 5		Do. of subordinate do. including do. ...	·31	·26	·07
IX (B) 1	6		Office expenses	·25	·22	·06
		138	Total...	·70	·60	·16
			Running Expenses—			
2	1 & 2		Wages of drivers and firemen, including overtime...	1·85	1·56	·41
2	3		Fuelling, cleaning and looking after engines ...	·34	·29	·08
2	4		Contingent expenses	...	...	...
		139	Total...	2·19	1·85	·49
				lbs.	lbs.	lbs.
3	1 to 4		*Fuel*—(In terms of wood.) Average quantity consumed	111·71	94·48	401·79
				As.	As.	Rs.
		140	Average price per ton Rs. 5·27. Do. cost	4·20	3·56	·95
4	...	141	*Water*—(including wages and stores.)	·16	·13	·03
5	...	142	*Oil, Tallow and other Stores*	·27	·23	·06
			Maintenance and Renewals—			
6	1 & 2		Wages, including overtime	2·04	1·72	·46
6	3		Materials	1·24	1·05	·28
		143	Total...	3·28	2·77	·74
7	...		*New Minor Works—*	...	...	...
8	...		*Payments to other Lines—*	...	...	...
			Unclassified Expenditure—			
9	1		Loss by exchange	·43	·36	·09
9	2		Loss on stores, &c.	...	...	...
9	3		Freight on stores	·53	·45	·12
			Total...	·96	·81	·21
			Total, Heads 7, 8 and 9	·96	·81	·21
			Less Credits	...	...	...
		144	*Net Total, other charges*	·96	·81	·21
		145	*Total Locomotive Expenses*	11·76	9·95	2·64

ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

No. VIII.—WORKING EXPENSES.

TABLE C.

Carriage and Wagon Expenses.

Reference to Revenue Account. Table and main-head.	Sub-head.	Progressive number in analysis.	Details.		Per total train-mile. (1,187,558)	Per 1,000 vehicle miles run by home vehicles. (24,773,377)
			General Superintendence—		As.	Rs.
IX (C) 1	1 & 2		Salaries of superintendents, including allowances		·04	·12
	3 to 5		Do. of subordinate do. including do.		·08	·25
	6	146	Office expenses		·07	·21
				Total...	·19	·58
			Repairs and renewals of vehicles and machinery—			
2	1 to 3	147	Coaching vehicles ... Wages, including overtime ...		·57	4·21
			Materials		·51	3·81
				Total...	1·08	*(a)* 8·02
	1 to 3	148	Goods vehicles ... Wages, including overtime ...		·63	3·18
			Materials		·60	3·00
				Total...	1·23	*(b)* 6·18
3	1		*Cleaning and oiling—* Labour, including wages of oilers, &c.		·21	·64
	2	149	Stores		·18	·53
				Total...	·39	1·17
4			*New Minor Works*		...	...
			Unclassified Expenditure—			
5	1		Loss by exchange		·15	·46
	2		Loss on stores, &c.		...	...
	3		Freight on stores		·01	·02
				Total...	·16	·48
			Total, Heads 4 and 5		·16	·48
			Less Credits		·04	·13
		150	*Net Total, other charges*		·12	·35
		151	*Total Carriage and Wagon Expenses*		3·01	9·02

(*a*.) Per 1,000 Coaching Vehicle Miles.
(*b*.) Per 1,000 Goods Vehicle Miles.

ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

No. VIII.—WORKING EXPENSES.

TABLE D.

Traffic Expenses.

Reference to Revenue Account. Table and main-head.	Sub-head.	Progressive number in analysis.	Details.	Per total train-mile. (1,187,558)	Per cent. of traffic earnings. Abstracts H and I. (44,31,288)
				As.	Per cent.
			General Superintendence—		
IX (D) 1	(*a*) 1 & 3		Traffic Manager, Assistants, &c., including travelling allowances	·44	·74
	(*a*) 2 & 4		Office establishment and contingencies	·36	·61
		152	Total ...	·80	1·35
	(*b*)	153	*Station Staff*	2·57	4·30
	(*c*)	154	*Train Staff*	·64	1·07
2	1 to 3	155	*Fuel, Lighting, Water and General Stores*	·71	1·19
3	...	156	*Clothing*	·07	·11
4	...	157	*Printing, Stationery and Tickets*	·47	·79
5	...	158	*Charges for Delivery and Collection of Goods, &c.*	·02	·03
6	...	159	*Miscellaneous Expenses*	·04	·07
			Payments to other Lines—		
7	1	160	Expenses at joint stations	...	...
			Unclassified Expenditure—		
8	1		Loss by exchange	·10	·18
	2		Loss on stores, &c.	...	...
	3		Freight on stores	·02	·03
			Total, Head 8 ...	·12	·21
			Less Credits	...	...
		161	*Net Total, other charges*	·12	·21
		162	*Total Traffic Expenses*	5·44	9·12

ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

No. VIII.—WORKING EXPENSES.

TABLE E.

General Charges.

Reference to Revenue Account. Table and main-head.	Sub-head.	Progressive number in analysis.	Details.	Per total train-mile. (1,187,558)	Per cent. on total earnings. (47,22,838)
IX (E) 1	1 to 4	163	*Home Expenditure*	As. ·45	Per cent. ·71
			Indian Management—		
	1	164	Agent's Office, including travelling allowances and contingencies	·40	·63
	2		Auditor's Office ditto ditto		
	3		Account's Office ditto ditto		
2	4		Paymaster's Office ditto ditto	1·00	1·57
		165	Total 2 to 4 ...	1·00	1·57
	5	166	Store Department, ditto ditto	·14	·22
	6	167	Medical Department, ditto ditto	·25	·39
	7		Rents	...	·01
	8 to 10		Miscellaneous expenses, including printing, stationery, medicine and contributions to Hospitals	·17	·27
		168	Total 7 to 10 ...	·17	·28
3	1 to 3	169	*Police*	·31	·49
4	...	170	*Advertising*	·03	·05
			Electric Telegraph—		
	1 to 4		Salaries, &c.	·66	1·03
5	5		Maintenance (wages and stores)	·21	·34
	6		Government Telegraph Department for rent, maintenance and inspection	·01	·01
		171	Total ...	·88	1·38
6	...		*Clearing accounts with other Lines*	...	...
			Unclassified Expenditure—		
	1		Loss on stores, &c.		
7	2		Expenses connected with Fire-engines	...	...
	3		Loss by exchange	·09	·14
	4		Freight on stores	·16	·25
				·01	·01
			Total...	·26	·40
			Total, Heads 6 and 7	·26	·40
			Less Credits	**·09**	**·14**
		172	*Net Total, other charges*	·17	·26
		173	*Total General Charges*	3·80	5·98

ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

No. VIII.—WORKING EXPENSES.

TABLE F.

Steam Boat Service.

NIL.

TABLE G.

Special and Miscellaneous Expenditure.

Reference to Revenue Account. Table and main-head.	Sub-head.	Progressive number in analysis.	Details.	Per cent. on total earnings. (47,22,838)
				Per cent.
IX (G) 1	...	174	*Law Charges*	·02
			Compensation—	
2	1		For goods lost or damaged	·04
	2		„ personal injury	...
	3		„ other claims	...
		175	Total...	·04
3	...	176	*Rates and Taxes*...	·15
			Payments to other Lines—	
4	1	...	Hire of locomotives	...
	2	...	„ of vehicles	...
	3	...	Mileage of foreign stock	·05
	4	...	Rent of stations, &c., jointly occupied	...
		177	Total...	·05
5	...	...	*Contributions to Special Funds (in detail)*...	...
6 to 8	...	...	*Miscellaneous*	·17
			Total, Heads 5 to 8	·17
			Less Credits	...
		178	*Net Total, other charges*	·17
		179	*Total Special and Miscellaneous Expenses*	·43

MADRAS RAILWAY,
CHIEF AUDITOR'S OFFICE,
3rd October, 1890.

FRED. DUNSTERVILLE,
Ag. Chief Auditor.

F. H. TREVITHICK,
Ag. Agent and Manager.

APPENDICES.

APPENDICES TO ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

APPENDIX I.

Working of Locomotives.

Reference to Revenue Account.			Passenger.	Goods.	Tank.	Total.
Table and main-head.	Sub-head.					
		Locomotives — 1.—Wheels coupled ...	Single driving wheels.	4 and 6 wheels coupled.	Single driving wheels 4 wheels coupled.	
		Locomotives — 2.—Weight on driving axle ...	Tons. 13·25	Tons. 12·16	Tons. 14·00	
		Locomotives — 3.—Weight of engine in steam ...	32·30	32·38	38·45	
		Locomotives — 4.—Weight of tender loaded ...	25·15	26·09	...	
XII	5	1.—Number of locomotives erected and made over to Locomotive Department ...	2	131	18	151
	11	2.—Average number of locomotives constantly under repairs and renewals	...	39	3	42
		3.—Number of locomotives laid by as spare ...	...	...	...	...
		4.—Ditto lent or hired out to other lines ...	...	...	...	...
		5.—Average number of locomotives 1—(3+4)...	2	131	18	151
		6.—Total mileage of locomotives (5) ...	29,162	1,262,540	112,406	1,404,108
		7.—Average miles run by a locomotive of each class 6÷5	14,581	9,638	6,245	9,299
		Per diem...	80·56	53·25	34·50	51·38
			lbs.	lbs.	lbs.	lbs.
		8.—Weight of Coal, &c., used per engine-mile } *To be separated, if possible, among the classes of locomotives.*	69·02	96·31	80·51	94·48
		9.—Weight of wood used per engine-mile ... } *To be separated, if possible, among the classes of locomotives.*				
			Passenger trains.	Goods trains.	Mixed trains.	
		10.—Average gross weight of trains hauled. *Tons.*	145·91	279·36	251·07	224·85
		11.—Average speed between stations... *Miles per hour.*	23·95	15·88	17·32	
		12.—Average through speed... *Miles per hour.*	19·04	11·76	12·98	
		13.—Average consumption of fuel per engine mile, lbs..	...	...	...	94·48

APPENDICES TO ANALYSIS OF WORKING
For the Half-year ended 30th June, 1890.

APPENDIX II.

Working of Vehicles.

DESCRIPTION OF VEHICLES.	Total number on the list at end of the half-year.	Average Weight in Tons.		Average Carrying Capacity.		Average number laid by as spare.	Average number lent or hired out.	Average number working.
		Of each description of vehicles.	Of each group.	Of each description of vehicles.	Of each group.			
Coaching Stock.						*f.*		
State Saloon Carriages	2	10·16	...	3	...	...	...	2
First Class Sleeping Carriages ...	} 5	7·55	...	8	} ...	...	...	5
Do do Day do ...				12		...	...	4
Reserved Saloons	4	11·14	...	3	...	...	...	26
Double Saloon 1st Class Night Carriages.	26	9·66	...	8	...	...	...	70
Second Class Carriages	70	10·50	...	39	...	...	...	
Third Class Carriages	} 342	8·42	} 8·39	56	} 55	...	...	342
Do do do with Post Office Compartments		10·23		...		...	...	
Do do do with Brakes ...		6·37		40				
Composite Carriages Sleeping ...	32	8·75	} 8·68	20	...	...	...	} 31
Do do Day ...	2	7·55		20	...	3	...	
Engineers' Inspection Carriage ...	1	9·50	...	2	...	...	...	1
Consulting Engineers' do ...	1	10·15	...	3	...	...	...	1
Telegraph do do ...	1	7·50	...	2	...	...	...	2
Invalid Carriages	2	8·80	...	10	...	...	...	9
Post Office Vans	9	10·56	...	3·25	...	...	...	21
Carriage Trucks	21	5·15	...	6·00	...	...	...	24
Baggage Vans	24	6·35	...	6·00	...	...	...	46
Horse Boxes	46	7·81	...	6·00	...	...	...	159
Brake Vans	159	9·62	...	4·50	...	...	...	
Total...	747	8·76	8·76	Nil.	Nil.	3	...	744
Goods Stock.								
Open Goods Wagons, 15 Tons. ...	50	7·45	} 5·94	15·00	} 9·11	97	...	{ 50
Do do do 10 Tons. ...	810	6·29		10·00				{ 810
Do do do 8 Tons. ...	915	5·55		8·00				{ 794
Ballast Wagons 8 Tons. ...	217	5·07	...	8·00	...	17	...	200
Stone do ... 16 Tons. ...	50	8·00	...	16·00	...	...	...	50
Fuel do	130	5·67	...	6·00	...	1	...	129
Cattle do	50	6·45	...	6·00	...	...	...	50
Covered Goods Wagons, Wood ...	260	7·09	} 7·73	10·00	} 9·77	2	...	258
Do do Iron ...	400	6·37		6·00				
Timber Trucks	150	8·22		10·00				
Water do	4	5·20	...	6·00	...	...	...	400
Platform do	3	5·41	...	4·50	...	...	...	150
Powder Vans	4	7·22	...	10·00	} 13·33	...	...	4
Travelling Cranes	6	8·88	...	20·00		...	...	3
Brake Vans	...	14·29	...	6·00	...	...	...	4
		...	...	3·00	} 5·33	...	...	6
			...	10·00		...	...	...
Total...	3,049	6·28	6·28	8·94	8·94	...	...	2,908
Grand Total...	3,796	Nil.	Nil.	Nil.	Nil.	...	Nil.	3,652

Column *f*.—We have no Vehicles laid by as spare, but in this column has been entered the number of Vehicles broken up awaiting renewal.

Average Mileage per diem run on home line by Coaching Vehicles (including brakes) 55,152·67.
Do. do. Goods do. do. 82,857·29.

Mileage of						Ton-mileage of vehicle dead weight hauled on Home Line.
Foreign vehicles on Home Line.		Home vehicles on Home Line.		Home vehicles on foreign lines.	Carrying capacity hauled on Home Line.	
Loaded.	Empty.	Loaded.	Empty.			
...	...	2,369	26	...	7,185	24,333
70,820	744	37,514	19,236	...	1,539,768	968,771
...	...	3,851	233	...	12,252	45,496
...	...	433,309	24,419	...	3,661,824	4,421,652
70,354	2,325	534,257	128,348	...	28,676,076	7,720,482
6,084	3,991	5,802,152	156,111	...	328,258,590	50,074,356
1,747	186	569,635	23,914	...	11,909,640	5,168,784
...	...	16,734	1,564	...	36,596	173,831
...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	1,504	960	...	24,640	21,683
65,286	...	212,346	...	...	902,304	2,931,794
1,930	1,930	50,603	41,294	...	574,542	493,148
...	...	125,721	35,892	...	969,678	1,026,242
25,848	25,848	183,159	100,410	...	2,011,590	2,618,420
...	2,562	...	1,197,418	...	...	11,543,808
242,069	37,586	7,973,154	1,729,825	319,810	Nil.	87,232,800
296,011	296,011	6,503,556	1,452,283	...	78,575,519	51,046,625
...	...	15,598	53,528	...	553,008	350,469
...	...	...	...	...	...	...
...	...	26,726	37,244	...	383,820	362,710
93	93	72,771	55,982	...	774,434	831,647
...	...	4,242,990	295,939	...	44,345,336	35,085,921
...	...	160,198	172,195	...	1,994.358	1,728,444
...	...	2,982	2,311	...	23,819	28,635
...	...	1,811	3,765	...	74,328	40,259
...	...	23,312	6,172	...	176,904	261,818
...	...	4,856	244	...	27,183	72,879
...	...	...	1,270,499	...	...	12,222,200
296,104	296,104	11,054,800	3,350,162	345,626	Nil.	102,031,607
538,173	333,690	19,027,954	5,079,987	665,436	Nil.	189,264,407

APPENDICES TO ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

APPENDIX III.

Distribution of Mileage according to the traffic carried, giving total mileage of home and foreign stock on home line.

	DESCRIPTION OF VEHICLES.	Mileage of Vehicles.	Mileage of Carrying capacity.	Mileage of Dead weight.	Remarks.
	Coaching—				
	First Class	881,992	10,616,687	7,972,855	
	Second „	1,027,218	34,096,376	10,254,768	
	Third „	6,004,698	329,656,957	50,370,725	
	Total passenger vehicles	7,913,908	374,370,020	68,598,348	
	Other coaching vehicles	870,618	4,460,661	7,072,018	
	Total paying coaching mileage ...	8,784,526	Nil.	75,670,366	
	Passenger brake-vans	1,199,980	Nil.	11,543,808	
	Total coaching mileage including brakes ...	9,984,506	Nil.	87,214,174	
	Goods—				
	Loaded vehicles	11,330,784	105,444,494	75,007,929	
	Empty vehicles	2,375,767	21,291,163	14,646,273	
	Total paying goods mileage ...	13,706,501	126,735,657	89,654,202	
	Goods brake-vans	1,270,499	Nil.	12,222,200	
	Total goods mileage, including brakes ...	14,977,000	126,735,657	101,876,402	
	Miscellaneous—				
	Free mileage for inspections, &c. ...	18,298	36,596	173,831	
	Grand Total ...	24,979,804	Nil.	189,264,407	

APPENDICES TO ANALYSIS OF WORKING

For the Half-year ended 30th June, 1890.

APPENDIX IV.—*Maintenance of Way-Rails.*

	Details.	Iron. Double headed weighing 65 lbs. per yard.	Iron. Double headed weighing 75 lbs. per yard.	Iron. Double headed weighing 84 lbs. per yard.	Iron. Others.	Iron. Total.	Steel. Steel weighing 75 lbs. per yard.	Steel. Steel flat footed on Bridges weighing 75 lbs. per yd.	Steel. Total.	Total Iron and Steel.
1	Miles of rail in way, including sidings ...	475·8194	850·8806	106·1520	...	1,432·8520	554·4052	8·6740	563·0792	1,995·9312
2	Average age of rails in way at the middle of the half-year	22·691	20·723	25·016	...	21·866	14·839	12·890	12·884	22·420
3	Rails renewed, Miles	12·583	9·939	2·095	...	24·617	·026	...	·026	24·643
4	Proportion renewed per mile of rail	·026	·012	·020	...	·017	·00005	...	·00005	·012
5	Average number of tons hauled over each kind of rail in the half-year	372,126	352,688	477,200	...	367,900	409,310	345,364	408,183	379,450
6	Thousands of tons hauled on an average over each kind of rail during the average age of rail in way	15,208	10,806	25,705	...	...	11,155	6,699	...	13,133

APPENDIX V.—*Maintenance of Way-Sleepers.*

	Details.	Wood. Transverse. Teak. 16′×12″×6″	14′×12″×6″	12′×12″×6″	10′×12″×6″	10′×10″×5″	Jungle. 10′×12″×6″	10′×10″×5″	Total.	Creosoted Pine. 10′×10″×5″	Iron Bowls. Sleepers.
1	Number of sleepers in way, including sidings at the commencement of the half-year	2,540	146	9,255	1,558	7,769	2,124	15,760	39,152	156	3,129,564
2	Average age of sleepers in way at the middle of the half-year. Years...	13·13	18·11	18·01	9·42	9·22	5·38	6·57	9·10	4·85	19·77
3	Number removed	77	...	83	...	97	110	785	*1,152	...	*7,037
4	Number laid	37	...	23	4	52	194	1,010	*1,320	*2	*13,181
5	Percentage of removals on total of each class ...	3·03	...	·90	...	1·25	5·18	4·98	2·94	...	·22
6	Number of sleepers in way, including sidings, at the end of the half-year	2,464	146	7,230	1,562	7,691	2,257	16,392	37,742	158	3,138,864

* Difference used in lieu of Wooden Sleepers.

		Miles.
Increased mileage of sidings,		
South-West Line	2·0202	
North-West Line	·6604	
Total...		2·6806
Less Decreased mileage of sidings,		
Cross over road at Cuddapah ...	·0303	
Sidings removed at Timmencherla..	·6033	
		·6336
Net Increase...		2·0470