Public Works (1898) Department.

RAILWAY BRANCH.

G.O., No. 1343 Rys.

DATED 31st October 1898.

[Despatch Abstract.]

Returns of Accidents on Indian Railways.

Forwg. to the Rly Authorities concerned, Govt of India orders on the note by the Director of Railway Traffic dated 3rd Octr '98, with abstract ——— for the 3 months ending with the 31st March 1898.

[P. W. Ry. 500—13-6-98.]

Indexed. 4/4/98

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Public Works (1898) Department.

Railway

CURRENT No. 1216

Note
Appendix C is not printed with the abstract whence accidents
Read 7.11.98 & Copies distributed 8/11/98

Dat 26/10

From The Govt. of India

Order No. 1343 Ry. dt. 31/10/98.
Communicated to the Railway Administrations for information

No. 603 R. Stat

J.A. 26.10.98.

Dated 11th October 1898
Received } 18-10-98
Registered }
Enclosures Recd 25/10/
Spare copies

SUBJECT.
Returns of accidents on Indian Rys.

To The Agent & Manager M.R. ✓
" " S.I.R. ✓
" " & Chief Engr. N.Gn. Rs
" Consulting Engineer for Rys. ✓

Note by the Director of Railway Traffic dated the 3rd October 1898 on the —— for the three months ending with the 31st March 1898.

Despatched on 1/11/98

Rec'd. 28/10/1898.

26.10.98

G.O.

BACK PAPERS.

No.	Date.

FURTHER PAPERS.

No.	Date.

JOINT SECRETARIAT
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18 OCT. 1898
GOVT. OF MADRAS

No. 603 R. Stat.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

RAILWAY STATISTICS.

Simla, the 11th October 1898.

Returns of accidents on Indian Railways for the three months ending with the 31st March 1898.

Read again—

Government of India order No. 10 R. Stat., dated the 16th January 1896.
Government of India order No. 469 R. Stat., dated the 25th November 1896.
Government of India order No. 419 R. Stat., dated the 24th September 1897.

Read also—

The following note by the Director of Railway Traffic dated the 3rd October 1898, with abstract returns of accidents to trains, etc., on the open lines of railway in India for the three months ending with the 31st March 1898.

I.—Accidents to trains, rolling stock, permanent-way, etc.

Accidents to trains rolling stock, permanent-way, etc., during the three months ending with the 31st March 1898, as shown under abstract No. 4 on pages 16 and 17 of the accompanying returns, caused the death of 13 and injury to 24 persons. The table below shows that the number of deaths was in excess and the number injured below the average of the corresponding periods of the three previous years. The increase in the number killed was mainly due to the collision on the Bengal Central railway on the 4th January 1898, in which five servants were killed and one passenger and two servants were injured; and to the accident on the Bhávnagar-Gondal Junágad-Porbandar railway on the 14th January 1898, in which three children of coolies were killed and two coolies injured. The total number of accidents was also above the average:

	Number.			Number of passengers and others.		Number of servants.		Total all classes.	
	Accidents reported to Local Governments under section 83 of the Indian Railways Act (IX of 1890).	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Standard gauge.									
Three months ending with the 31st March 1898 . . .	18	657	675	(a) 3	6	6	14	9	20
Average of the corresponding periods of the three previous years	21	570	591	2	(a)25	3	11	5	36
Metre gauge.									
Three months ending with the 31st March 1898 . . .	40	436	476	(b) 1	...	3	4	4	4
Average of the corresponding periods of the three previous years	24	445	469	(b) 1	(c) 2	...	1	1	3
Special gauges.									
Three months ending with the 31st March 1898 . . .	2	17	19	...	...	...	...	...	...
Average of the corresponding periods of the three previous years	3	19	22	...	...	...	...	...	...
Total all gauges for the three months ending with the 31st March 1898	60	1,110	1,170	(d) 4	6	9	18	13	24
Average of the corresponding periods of the three previous years	48	1,034	1,082	(c) 3	(d)27	3	12	6	39

(a) Out of these, two were not passengers.
(b) Not a passenger.
(c) Out of these, one was not a passenger.
(d) Out of these, three were not passengers.

2. The following table compares the variations in the mean mileage worked, the train-mileage run and the number of accidents with the average, and shows that, with an increase of 7·16 per cent. in the mean mileage worked and of 5·24 per cent. in the train-mileage run during the three months ending with the 31st March 1898, the number of accidents increased by 88 or 8·13 per cent. as compared with the average of the corresponding periods of the three previous years:

	INCREASE OR DECREASE AS COMPARED WITH THE AVERAGE OF THE THREE PREVIOUS YEARS.					
	ACCIDENTS.		MEAN MILEAGE.		TRAIN-MILEAGE.	
	Number.	Per cent.	Miles.	Per cent.	Miles.	Per cent.
Standard . . .	+84	+14·21	+902	+7·97	+678,814	+5·68
Metre . . .	+7	+1·49	+472	+5·91	+219,506	+4·22
Special . . .	—3	—13·64	+27	+10·11	+6,903	+5·79
TOTAL .	+88	+8·13	+1,401	+7·16	+905,223	+5·24

3. The following table, shows the principal increases in the number of accidents of different classes on the standard gauge lines, as compared with the average of the corresponding periods of the three previous years. No noticeable decreases occurred in the number of accidents during the quarter on the standard gauge lines and there were no large variations on the metre and special gauge railways:

GAUGE AND CLASSIFICATION.	INCREASE.			Percentage of increase.
	Serious.	Minor.	Total.	
Standard gauge.				
Trains running over cattle on the line . .	...	+28	+28	+13·73
The bursting of tubes, etc., of engines . .	...	+21	+21	+53·85
The failure of machinery, springs, etc., of engines	...	+21	+21	+25·30
The failure of couplings	...	+28	+28	+140·00
Under the head "Other accidents" . .	...	+24	+24	+55·81

It will be observed from the foregoing that the increases on the standard gauge lines occurred under "Trains running over cattle on the line," 28 accidents or 13·73 per cent; under "The bursting of tubes, etc., of engines," 21 accidents or 53·85 per cent.; under "The failure of machinery, springs, etc., of engines," 21 accidents or 25·30 per cent.; under "The failure of couplings," 28 accidents or 140·00 per cent.; and under the head "Other accidents," 24 accidents or 55·81 per cent.

4. Under the head "The bursting of tubes, etc., of engines," the largest number, *viz.*, 20, occurred on the North Western State railway and on the Madras railway; under the head. "The failure of machinery, springs, etc., of engines," the largest number, *viz.*, 36, occurred on the North Western State railway, next to that line come the East Indian with 22, the Great Indian Peninsula and the Madras railways with 16 accidents on each; under the head "The failure of couplings," the largest number, *viz.*, 22, occurred on the Bombay, Baroda and Central India railway; and under the head "Other accidents," the largest number, *viz.*, 27, occurred on the East Indian railway, next to that line come the North Western State and the Great Indian Peninsula railways with 14 and 12 accidents on each, respectively.

5. The number of cattle accidents was largest on the South Indian railway, *viz.*, 58; next comes the Eastern Bengal State railway (standard gauge section) with 50, then the Madras and Southern Mahratta railways with 40 accidents on each, the East Indian railway with 34, the Eastern Bengal State railway (metre gauge section) with 25, and the North Western and East Coast State railways with 24 accidents on each.

In relation to the train-mileage run, the highest proportion was on the Cooch Behar railway, which gave an average of 1 accident in 2,559 train-miles run; the Jorhát State railway coming next with an average of 1 in 4,535; then the Assam-Bengal, the Bengal Dooars, the Dibru-Sadiya and the Morvi railways with averages of 1 in 4,554, 1 in 4,931, 1 in 7,975 and 1 in 14,340, respectively. The lowest proportion was on the Great Indian Peninsula railway, *viz.*, 1 in 426,142 train-miles run, the Bombay, Baroda and Central India railway coming next with 1 in 311,468, then the North Western State railway with 1 in 109,027, the East Indian railway with 1 in 102,327, the Indian Midland railway with 1 in 89,148 and the Bengal and North-Western railway with 1 in 78,434.

6. Taking the total number of accidents to trains, rolling stock, permanent-way, etc., on each railway as given in abstract No. 3, the proportion of accidents to train-mileage run was highest on the Cooch Behar railway, on which 1 accident occurred on an average in 1,279 train-miles; next comes the Assam-Bengal railway with 1 accident in 2,732 train-miles; then the Jorhát State, the Bengal Dooars, the Dibru Sadiya and the Rohilkhund and Kumaon (including the Lucknow-Bareilly section) railways with averages of 1 in 3,023, 1 in 3,698, 1 in 3,988, and 1 in 4,055, respectively. The lowest proportion was on the Jodhpore-Bickaneer railway, *viz.*, 1 in 31,449, the Great Indian Peninsula railway coming next with 1 in 30,805, then the Oudh and Rohilkhand State railway with 1 in 29,498, the East Indian railway with 1 in 28,286, the Indian Midland railway with 1 in 26,744 and the North Western State railway with 1 in 20,933.

II.—Accidents from other causes not involving accidents to trains, etc.

7. The casualties to passengers, servants in the employ of railways or of contractors, and to others, from causes not involving accidents to trains (which are detailed in abstract No. 2) are compared separately, for each gauge, with the average of the corresponding periods of the three previous years in the table below:

	THREE MONTHS ENDING WITH THE 31ST MARCH 1898.								AVERAGE OF THE CORRESPONDING PERIODS OF THE THREE PREVIOUS YEARS.							
	PASSENGERS.		SERVANTS.		OTHERS.		TOTAL.		PASSENGERS.		SERVANTS.		OTHERS.		TOTAL.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Standard	17	33	31	47	82	24	130	104	13	32	28	55	84	18	125	105
Metre	5	18	7	15	35	10	47	43	4	11	13	17	27	11	44	39
Special	...	...	...	1	1	...	1	1	...	...	...	1	...	1	...	2
TOTAL .	22	51	38	63	118	34	178	148	17	43	41	73	111	30	169	146

It will be seen from the foregoing table that the number of persons killed and injured, excepting in the case of servants, compares unfavourably with the average of the corresponding periods of the three previous years. The increase is attributable, to some extent, to the opening of new lines.

III. Accidents in which the movement of vehicles used exclusively upon railways was not concerned.

8. The following table shows, for the several gauges, the number of persons reported to have been killed or injured by accidents, in which the movement of vehicles used exclusively upon railways was not concerned.

Comparative average figures of the corresponding periods of the two previous years are also given :

	Three months ending with the 31st March 1898.		Average of the corresponding periods of the two previous years.	
	Killed.	Injured.	Killed.	Injured.
Standard	16	47	11	35
Metre	2	5	5	10
Special	...	1	...	1
Total	18	53	16	46

IV—Statistical results.

9. The following table gives certain statistical results for the period under review, comparing the number of passengers killed and injured by accidents to trains and from all causes with the number carried and the number of passenger-units carried one mile. Comparative results, based on the average figures of the corresponding periods of the three previous years, are also given :

Particulars.	Three months ending with the 31st March 1898.				Average of the corresponding periods of the three previous years.			
	Standard.	Metre.	Special.	Total.	Standard.	Metre.	Special.	Total.
Mean mileage worked . . . Miles	12,219	8,463	294	20,976	11,317	7,991	267	19,575
Train-mileage run . . . . Miles	12,629,459	5,419,910	126,175	18,175,544	11,950,645	5,200,404	119,272	17,270,321
Number of passengers carried . . No.	19,827,338	13,417,427	129,318	32,374,083	21,698,538	13,577,181	227,127	35,502,846
Number of passenger-units carried one mile . . . . No.	934,815,572	441,633,846	3,380,812	1,379,830,230	1,056,398,228	525,298,537	5,941,411	1,587,638,176
Number of accidents . . . No.	675	476	19	1,170	591	469	22	1,082
Do. do. per 100,000 train-miles run . . . . No.	5·34	8·78	15·06	6·44	4·95	9·02	18·45	6·27
Number of passengers killed by accidents to trains . . . . No.	1	...	...	1	2	...	...	2
Proportion of above to number carried . . . . . No.	1 in 19,827,338	...	...	1 in 32,374,083	1 in 10,849,269	...	...	1 in 17,751,423
Number of passengers injured by accidents to trains . . . No.	6	...	...	6	23	1	...	24
Proportion of above to number carried . . . . . No.	1 in 3,304,556	...	...	1 in 5,395,681	1 in 943,415	1 in 13,577,181	...	1 in 1,479,385
Number of passengers killed from all causes . . . . . No.	18	5	...	23	15	4	...	19
Proportion of above to number carried . . . . . No.	1 in 1,101,519	1 in 2,683,485	...	1 in 1,407,569	1 in 1,446,569	1 in 3,394,295	...	1 in 1,868,571
Number of passengers injured from all causes . . . . . No.	39	18	...	57	55	12	...	67
Proportion of above to number carried . . . . . No.	1 in 508,393	1 in 689,857	...	1 in 567,966	1 in 394,519	1 in 1,131,432	...	1 in 529,893
Number of passengers killed and injured from all causes . . No.	57	23	...	80	70	16	...	86
Proportion of above to number carried . . . . . No.	1 in 347,848	1 in 539,888	...	1 in 404,676	1 in 309,979	1 in 848,574	...	1 in 412,824
Proportion of passengers killed and injured from all causes to number of passenger-units carried one mile . . . . . No.	1 in 16,400,273	1 in 19,201,472	...	1 in 17,247,878	1 in 15,091,403	1 in 32,831,159	...	1 in 18,460,909

It will be seen that the comparison is generally favourable.

V.—Number of persons killed and injured by accidents to trains, rolling stock, etc., during the first quarter of 1898.

10. The following table gives the number of accidents, as classified in abstract No. 4 of the returns, which resulted in loss of life or injury to persons, and shows the railways on which they occurred :

Railway.	Number of accidents reported during the first quarter of 1898.	Passengers and others.		Servants.		Total.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Standard gauge.							
East Indian	2	...	...	...	3	...	3
Bengal Central	1	...	1	5	2	5	3
North Western State . . .	5	2	5	1	4	3	9
East Coast State	1	1	...	...	...	1	...
Great Indian Peninsula . . .	2	...	...	...	5	...	5
Metre gauge.							
Rajputana-Malwa	1	...	...	...	1	...	1
Assam-Bengal	1	...	...	...	1	...	1
Burma	1	1	...	...	...	1	...
Bhávnagar-Gondal-Junágad-Porbandar	1	...	...	3	2	3	2
Total .	15	4	6	9	18	13	24
Average of the three corresponding quarters of 1895, 1896 and 1897 .	16	3	27	3	12	6	39

The increase in the total number of persons killed during the first quarter of 1898, as compared with the average of the corresponding quarters of the three previous years, was mainly due to the accidents of the 4th and 14th January 1898 on the Bengal Central and Bhávnagar-Gondal-Junágad-Porbandar railways, respectively. Particulars of these accidents are briefly given in paragraph 11.

11. A brief description of some of the accidents which resulted in loss of life, or injury to persons, is given below :

East Indian Railway.—On the 22nd January 1898, while a down goods train was standing on the down main line at Memári station, it was run into by another down goods train, owing to the assistant station master of Rasulpur having allowed the latter train to run through his station before receiving the "in report" of the former train. A railway servant was injured.

On the 24th January 1898, while a down goods train was leaving Saktighar station, it was run into by another down goods train, owing to the latter train having been brought into the station against signals and at too high a speed. Two railway servants were injured.

Bengal Central Railway.—On the 4th January 1898, a down mixed train collided with an up goods special train at mile 65, between Jhikargacha and Nábharan stations, owing to the former train having been allowed to leave

Jhikargacha station on a false line clear and the latter train to leave Nábharan on a proceed order. Considerable damage was done to the rolling stock and five railway servants were killed and one passenger and two servants injured. *A detailed report of this accident will be found in appendix* A *to the abstract returns of accidents.*

On the 9th March 1898, an up goods train while entering Phillour station yard, collided with a down stone train already standing in the yard, through the carelessness of the traffic staff. Three railway servants were injured and both the engines and rolling stock were considerably damaged.

Great Indian Peninsula railway.—On the 9th January 1898, owing to heavy load, an up goods train had to be worked in two portions over the Dhudhi diversion between Bankheri and Bábai stations. The first portion, however, could not be worked over, and in running back collided with the rear portion at the end of the incline, through want of discretion on the part of the train staff. Two railway servants were injured.

On the 26th March 1898, an up goods train, which had left Jeúr station, was divided as the driver was unable to take the whole load up an incline, and owing to the brakes of the rear portion not being fully applied, it ran back and collided with an up passenger train standing at the station. Three railway servants were injured.

Assam-Bengal railway.—On the 20th January 1898, the engine and six vehicles of a down mixed train were derailed and considerably damaged when entering Nagalkot station shortly after passing the crossing, due either to the high speed of the train or to the fracture of a rail. A railway servant was injured.

Bhávnagar-Gondal-Junágad-Porbandar railway.—On the 14th January 1898, an up mixed train, while entering Jam Jodhpur station, collided with a ballast train which was shunting off the main line into a siding, with the result that four ballast wagons were derailed, two wagons fell over into a culvert and a third partly hung over it. The accident was due to the fog prevailing at the time. Three children of ballast coolies were killed and two coolies injured. *A detailed report of this accident will be found in appendix* B *to the abstract returns of accidents.*

The Abstract returns do not contain Appendix C.

12. *In appendix C to the abstract returns of accidents* will be found a report by the Government Inspector of railways, Madras, on the failure of the Mallur bridge on the Mysore section, Southern Mahratta railway, on the morning of the 23rd September 1897.

ORDER.—Ordered that the above note, with the abstract returns and appendices thereto, be communicated, for information, to the Local Governments and Administrations, and to the officers noted in the margin.

The Governments of Madras, Bombay, Bengal, the North-Western Provinces and Oudh, the Punjab and Burma.
The Chief Commissioners of the Central Provinces, Assam and Coorg.
The Resident at Hyderabad.
The Resident in Mysore.
The Agents to the Governor General for Rajputana, Central India, and Baluchistan.
The Consulting Engineers to the Government of India for Railways, Calcutta, Lucknow, and Assam.
The Managers, North Western State, Oudh and Rohilkhand State, Eastern Bengal State, and East Coast State Railways.
The Engineer-in-Chief, Mari Attock, Indus Bridge Works, Bezwada Madras, Hardwar-Dehra and Ghaziabad-Moradabad Railways.

Ordered also, that copies be forwarded for the information of Her Majesty's Government.

Ordered, further, that the above note, with the abstract returns, be published in the Supplement to the *Gazette of India.*

(Space copies will follow)

W. J. McCausland, *Captain, R.E.,*
Offg. Under Secretary.

Documents accompanying.

1. Abstract returns of accidents for the three months ending with the 31st March 1898 with appendices thereto.

(will be sent by Govt Press Calcutta)

G. C. Press, Simla,—No. 1269 P. W. D.—12-10-98—30.

To The Secy to the Govt of Madras. Public Works Dept. Railway Br.

Enclosure to Government of India Order No. 603 R. Stat., dated the 11th October 1898.

INDIAN RAILWAYS.

ABSTRACT RETURNS OF ACCIDENTS DURING THE THREE MONTHS ENDING WITH THE 31ST MARCH 1898.

G. I. C. P. O.—No. 177 P. W. D.—13-10-98.—610.—J. S. D. M.

ABSTRACT No. 1.

General Total.

NUMBER of PERSONS reported, during the THREE MONTHS ending with the 31st March 1898, as KILLED or INJURED on ALL RAILWAYS open for TRAFFIC in INDIA, distinguishing between PASSENGERS, RAILWAY SERVANTS and OTHER PERSONS; and distinguishing also, in the case of the two former classes, between ACCIDENTS caused by ACCIDENTS to TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., and ACCIDENTS happening otherwise.

	Standard gauge lines.		Metre gauge lines.		Special gauge lines.		Total all gauges.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
PASSENGERS :—								
From accidents to trains, rolling-stock, permanent-way, etc.	1	6	...	...	...	...	1	6
By accidents from other causes, including accidents from their own want of caution or misconduct	17	33	5	18	...	...	22	51
SERVANTS :—								
From accidents to trains, rolling-stock, permanent-way, etc.	6	14	3	4	...	...	9	18
By accidents from other causes, including accidents from their own want of caution or misconduct	31	47	7	15	...	1	38	63
OTHER PERSONS :—								
Whilst passing over railways at level-crossings	7	...	3	...	...	...	10	...
Trespassers	61	21	29	8	1	...	91	29
Suicides	16	2	4	...	...	...	20	2
Miscellaneous, not included in either of the above	...	1	...	2	...	...	...	3
TOTAL	139	124	51	47	1	1	191	172

ABSTRACT

NUMBER of PERSONS reported, during the THREE MONTHS ending with the 31st March 1898, as KILLED or INJURED in INDIA by the TRAVELLING of TRAINS or the MOVEMENT of VEHICLES used exclusively upon RAILWAYS, distinguishing between PASSENGERS, RAILWAY SERVANTS, and OTHER PERSONS, and classifying, as far as practicable, the nature and causes of the ACCIDENTS occasioning the DEATH or INJURY.

No. 2.

PASSENGERS.

Classification Number.	RAILWAY.	From accidents to trains, etc.—See Abstracts Nos. 3 and 4.		From causes other than accidents to trains, etc.																		Total Passengers.	
				1.—From falling between trains and platforms.		2.—Falling on to the platform, ballast, etc., when getting into or out of trains.		3.—Whilst crossing the line at stations.		4.—By closing of carriage doors.		5.—Falling out of carriages during the travelling of trains.		6.—Other accidents.		Total.							
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.					Killed.	Injured.
	Standard gauge.																						
	State lines worked by companies.																						
I	East Indian (*a*)	...	...	2	...	7	3	...	1	..	..	2	2	1	1	12	7	12	7				
II	Bengal Central (*b*)	..	1	..	..	...	...	...	...	...	...	...	...	...	...	...	...	...	1				
III	Bengal-Nágpur	..	...	...	...	...	...	...	...	...	...	1	..	...	...	1	...	1	...				
IV	Indian Midland (*c*)	..	..	1	...	...	..	...	1	..	...	...	...	...	...	1	1	1	1				
	State lines worked by the State.																						
XI	North Western (*d*)	1	5	1	1	...	...	...	...	...	..	1	11	...	...	2	12	3	17				
XIII	Oudh and Rohilkhand	..		...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1				
XIV	Eastern Bengal	...	...	...	...	...	3	...	...	...	...	...	1	...	...	...	4	...	4				
XVI	East Coast	...	...	...	...	1	1	...	...	...	...	...	...	..	...	1	1	1	1				
	Lines worked by guaranteed companies.																						
XVIII	Great Indian Peninsula (*e*)	..	...	..	...	...	...	...	...	...	...	3	...	...	...	3	...	3					
XIX	Bombay, Baroda and Central India (*f*)	..	...	...	1	...	...	...	...	...	...	1	...	...	..	2	...	2					
XX	Madras (*g*)	..	...	...	...	...	2	...	...	...	..	..	...	...	..	...	2	...	2				
	Line owned by native state and worked by company.																						
XXXII	The Nizam's Guaranteed State (*h*)	..	...	..	...	...	...	...	...	...	...	...	..	..	..	...	...	...					
	TOTAL	1	6	4	2	8	9	...	2	...	..	4	19	1	1	17	33	18	39				
	Average of the three previous corresponding periods	2	23	3	3	3	6	...	1	...	1	6	20	1	1	13	32	15	55				
	Metre gauge.																						
	State lines worked by companies.																						
XXXIX	Bengal and North-Western—																						
	Tirhoot section. } Company's „ . }	...	...	...	...	...	...	...	...	...	...	1	...	...	..	1	...	1					
XLI	Rajputana-Malwa (*i*)		...	1	..	...	...	...	...	...	...	4	1	...	2	4	2	4					
XLIII	Southern Mahratta (*j*)	...	...	...	...	...	1	...	...	...	...	4	..	...	...	5	..	5					
XLVI	South Indian (*k*)	...	...	...	...	1	...	...	...	...	...	1	..	...	1	1	1	1					
XLVIII	Assam-Bengal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...					
XLIX	Burma		...	...	...	...	...	...	...	...	...	2		...	...	2	..	2					
	Carried over	..	..	1	...	1	1	..	...	...	...	12	1	...	3	13	2	13					

SERVANTS.

From accidents to trains, etc.—See Abstracts Nos. 3 and 4.		From causes other than accidents to trains, etc.																						Total Servants.		Classification Number.
		1.—Whilst coupling or uncoupling vehicles.		2.—By coming in contact, whilst riding on vehicles, during shunting, with other vehicles, etc., standing on adjacent lines.		3.—Whilst passing over or standing upon buffers during shunting.		4.—When getting on or off, or falling off, engines, wagons, etc., during shunting.		5.—Whilst braking, spragging, or chocking wheels.		6.—Whilst attending to ground points, marshalling trains, etc.		7.—Whilst moving vehicles by capstans, turntables, props, etc., during shunting.		8.—By other accidents during shunting operations not included in the preceding.		9.—From falling off engines, etc., during the travelling of trains.		10.—By coming in contact with overbridges, or erections on the sides of the line during the travelling of trains.					
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.			
...	...	3	...	...	...	...	1	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...			I
...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			II
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			III
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			IV
1	4	...	1	...	...	1	...	...	...	1	...	...	...	...	...	1	2	...	...	...	...	...	...			XI
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			XIII
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	1	...	...	...	...			XIV
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...			XVI
...	...	1	1	...	...	1	...	...	1	...	1	...	...	...	...	2	...	...	...	...	1	...	4			XVIII
...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	2	...	...	...	...	1	...	3			XIX
...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	3			XX
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	4			XXXII
...	...	6	2	1	5	2	1	1	5	...	2	2	1	2	...	7	12	1	1	1	1	1	4	5	31	47
...	..	2	8	2	3	1	...	2	11	...	1	1	2	2	..	9	5	2	1	1	1	2	...	2	8	28
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			XXXIX
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			XLI
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...			XLIII
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			XLVI
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...			XLVIII
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			XLIX
...	...	1	1	...	...	1	...	...	1	...	1	...	...	...	...	2	...	...	...	...	1	...	4			

OTHERS.

Whilst passing over the railway at level-crossings.		Trespassers.		Suicides.		Miscellaneous.		Total Others.		Total All Classes.		Classification Number.
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
1	..	29	4	6	..	...	1	36	5	55	27	I
...	...	...	...	1	...	...	...	1	...	6	3	II
...	...	2	2	2	...	..	...	4	2	6	6	III
...	...	4	2	3	...	..	...	7	2	9	4	IV
2	...	7	5	1	...	...	...	10	5	22	35	XI
...	...	3	2	1	2	...	..	4	4	4	5	XIII
2	..	6	4	1	...	...	...	9	4	14	12	XIV
1	...	1	...	...	...	...	...	2	...	5	1	XVI
...	...	5	...	1	...	...	...	6	..	10	13	XVIII
1	...	1	1	...	...	...	...	2	1	5	8	XIX
...	...	2	...	...	...	...	...	2	...	2	5	XX
...	...	1	1	...	...	...	...	1	1	1	5	XXXII
7	...	61	21	16	2	...	1	84	24	139	124	
2	3	55	13	23	2	4	2	84	20	130	141	
...	...	6	3	4	..	...	...	11	3	12	5	XXXIX
...	...	4	...	...	...	...	1	4	1	6	9	XLI
...	...	1	...	...	...	..	1	1	1	4	9	XLIII
...	...	2	1	...	...	...	...	3	1	4	2	XLVI
...	...	...	...	...	...	...	...	...	..	...	3	XLVIII
1	...	5	1	...	...	..	..	6	1	6	5	XLIX
3	...	18	5	4	...	...	2	25	7	32	33	

(*a*) Including the Delhi-Umballa-Kalka and the Tarkessur railways.
(*b*) Although for convenience classed amongst state railways, this line is the property of the Bengal Central Railway Company.
(*c*) Including the Bhopal-Itársi, the Bina-Goona and the Bhopal-Ujjain railways.
(*d*) „ the Hyderabad-Shadipalli, the Southern Punjab (Delhi-Samasta), the Rájpura-Bhátinda, and the Jammu and Kashmir railways.
(*e*) Including the Wardha Coal, the Dhond-Manmád, the Khámgaon, and the Amráoti railways.
(*f*) „ the Godhra-Ratlam-Nagda, the Nágda-Ujjain and the Gaekwar's Petlád railways.
(*g*) „ the Madras-Ennur section of the Bezwada-Madras railway and the Kolar Gold-fields railway.
(*h*) Including the Bezwada Extension (East Coast state railway.)
(*i*) „ the Pálanpur-Deesa, the Ahmedabad-Párantij, and the Gaekwar's Mehsána railways.
(*j*) „ the Guntakal-Mysore frontier, the Mysore section (Southern Mahratta), the Kolhapur, the Yesvantpur-Mysore frontier, and the Mysore-Nanjangúd railways.
(*k*) „ the Máyavaram-Mutupet railway.

ABSTRACT No. 2—*concluded*.

NUMBER of PERSONS reported, during the THREE MONTHS ending with the 31st March 1898, as KILLED OR INJURED in INDIA by the TRAVELLING of TRAINS or the MOVEMENT of VEHICLES used exclusively upon RAILWAYS, distinguishing between PASSENGERS, RAILWAY SERVANTS and OTHER PERSONS, and classifying, as far as practicable the nature and causes of the ACCIDENTS occasioning the DEATH or INJURY—*concluded*.

Classification Number.	RAILWAY.	PASSENGERS. From accidents to trains, etc.—See Abstracts Nos. 3 and 4. Killed.	Injured.	From causes other than accidents to trains, etc. 1.—From falling between trains and platforms. Killed.	Injured.	2.—Falling on to the platform, ballast, etc., when getting into or out of trains. Killed.	Injured.	3.—Whilst crossing the line at stations. Killed.	Injured.	4.—By closing of carriage doors. Killed.	Injured.	5.—Falling out of carriages during the travelling of trains. Killed.	Injured.	6.—Other accidents. Killed.	Injured.	Total. Killed.	Injured.	TOTAL PASSENGERS. Killed.	Injured.	SERVANTS. From accidents to trains, etc.—See Abstracts Nos. 3 and 4. Killed.	Injured.	From causes other than accidents to trains, etc. 1.—Whilst coupling or uncoupling vehicles. Killed.	Injured.	2.—By coming in contact, whilst riding on vehicles during shunting, with other vehicles, etc., standing on adjacent lines. Killed.	Injured.	3.—Whilst passing over or standing upon buffers during shunting. Killed.	Injured.	4.—When getting on or off, or falling off, engines, wagons, etc., during shunting. Killed.	Injured.	5.—Whilst braking, spragging, or chocking wheels. Killed.	Injured.	6.—Whilst attending to ground points, marshalling trains, etc. Killed.	Injured.
	Brought forward	...	...	1	...	1	1	...	...	...	...	...	12	1	...	3	13	3	13	...	2	1	2	...	...	...	...	1	3	...	...	...	...
	Metre gauge—concld.																																
	State lines worked by the State.																																
L	Eastern Bengal (a)		...			...	...	...	...		...	...	2	...	...	...	2	...	2	...	...	...	...		...	...	1	...	1	...	...	...	...
LI	Cawnpore-Burhwal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Assisted companies.																																
LIII	Deoghur	...	...	...		...	...	...			...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
LIV	Rohilkund and Kumaon (Company's section) (b)		...		1	1		...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
LV	Bengal Dooars		...			...	...	...	...	...	...	...	...	...	...	1	1	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...
LVI	Dibru-Sadiya		...	...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Lines owned and worked by native states.																																
LXIX	Jodhpore-Bickaneer—Jodhpore section, Bickaneer „	...	...	...		...	1	...	...	...	...	...	...		...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
LXX	Oodeypore-Chitor	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
LXXI	Bhávnagar-Gondal-Junágad-Porbandar (c)	...	...	1	...	...	...	...	...	...	...	...	1	...	...	1	1	1	1	3	2	...	...	...	...	...	...	...	...	...	1	...	...
	TOTAL	...	...	2	1	2	2	...	...	...	...	...	15	1	...	5	18	5	18	3	4	1	2	...	...	...	1	2	4	...	1	...	...
	Average of the three previous corresponding periods	...	1	...	1	1	1	...	...	...	...	2	9	1	...	4	11	4	12	...	1	2	2	...	...	...	...	2	1	...	...	...	...
	Special gauges. State line worked by the state.																																
LXXX	Jorhát (2′ 0″)		...	...	...	...	...	...	...	...	...	...	...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Assisted company.																																
LXXXI	Darjeeling-Himalayan (2′ 0″)	...	...	...		...	...	...	...	...	...	...	...		...	...	...	...	...	...		...	...	...	...	...	...	...	...	...	...	...	...
	Line owned by native state and worked by company.																																
LXXXIII	The Gaekwar's Dabhoi (2′ 6″)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
LXXXIV	Rajpipla (2′ 6″)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Line owned by native state and worked by state railway agency.																																
LXXXVI	Cooch Behar (2′ 6″)	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Line owned and worked by native state.																																
LXXXVII	Morvi (2′ 6″)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Average of the three previous corresponding periods	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL	1	6	6	3	10	11	...	2	...	...	4	34	2	1	22	51	23	57	9	18	2	5	...	...	2	1	2	8	...	2	...	3
	Average of the three previous corresponding periods	2	24	3	4	4	7	...	1	...	1	8	29	2	1	17	43	19	67	3	12	3	10	1	1	...	...	2	5	...	2	...	...

(a) Including the Kaunia-Dharlla (2′ 6″ gauge) branch.
(b) „ the Lucknow-Bareilly section (Rohilkund and Kumaon.)
(c) „ the Jetalsar-Rájkot and Jamnagar railways,

SERVANTS (concluded). 7.—Whilst moving vehicles by capstans, turntables, props, etc., during shunting. Killed.	Injured.	8.—By other accidents during shunting operations not included in the preceding. Killed.	Injured.	9.—From falling off engines, etc., during the travelling of trains. Killed.	Injured.	10.—By coming in contact with over-bridges or erections on the sides of the line during the travelling of trains. Killed.	Injured.	11.—When getting on or off engines, vans, etc., during the travelling of trains. Killed.	Injured.	12.—Whilst attending to or by the failure of machinery, etc., of engines in steam. Killed.	Injured.	13.—Whilst working on the permanent-way, sidings, etc. Killed.	Injured.	14.—Whilst attending to gates at level-crossings. Killed.	Injured.	15.—Whilst walking, crossing, or standing on the line on duty. Killed.	Injured.	16.—From being caught between vehicles. Killed.	Injured.	17.—From falling or being caught between trains and platforms, walls, etc. Killed.	Injured.	18.—Whilst walking, etc., on the line on the way home or to work. Killed.	Injured.	19.—Miscellaneous. Killed.	Injured.	TOTAL. Killed.	Injured.	TOTAL SERVANTS. Killed.	Injured.	OTHERS. Whilst passing over the railway at level-crossings. Killed.	Injured.	Trespassers. Killed.	Injured.	Suicides. Killed.	Injured.	Miscellaneous. Killed.	Injured.	TOTAL OTHERS. Killed.	Injured.	TOTAL ALL CLASSES. Killed.	Injured.	Classification Number.
...	...	1	1	...	1	...	...	...	1	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	2	4	11	4	13	3	...	18	5	4	...	...	2	25	7	32	33	
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	2	2	2	...	...	8	1	...	...	...	...	8	1	10	5	L.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	1	LI.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	LIII.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	2	1			...	...	2	1	4	2	LIV.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	LV.
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...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	LXIX.
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...	...	1	1	...	1	...	...	1	1	...	...	...	...	...	...	1	1	...	1	...	...	...	...	1	2	7	15	10	19	3	...	29	8	4	...	...	2	36	10	51	47	
...	...	1	...	...	3	...	1	3	2	1	1	1	...	...	...	1	1	1	1	...	...	...	1	1	2	13	17	13	18	3	1	20	9	5	1	...	1	28	12	45	42	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	LXXX.
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...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	1	...	LXXXIII
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	LXXXIV
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...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	1	...	...	...	...	...	1	...	2	
...	...	7	3	1	6	2	1	2	7	...	2	2	1	2	...	8	13	1	2	1	1	1	1	5	7	58	63	47	81	16	...	91	29	20	2	...	3	121	34	191	172	
...	...	3	10	2	6	1	1	5	14	1	2	2	2	2	...	10	6	3	2	1	1	2	1	3	10	41	73	44	85	5	4	75	23	28	3	4	3	12	33	175	185	

of the Bengal Central Railway Company.
(e) Including the Bhopal-Itársi, the Bína-Goona and the Bhopal-Ujjain railways.
(d) „ the Hyderabad-Shadipalli, the Southern Punjab (Delhi-Samasata), the Rájpura-Bhátinda, and the Jammu and Kashmir railways.
Petlád railways.
(g) „ the Madras-Ennur section of the Bezwada-Madras railway and the Kolar Gold-fields railway.

ABSTRACT No. 3.

ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT-WAY, etc., reported during the THREE MONTHS ending with the 31st March 1898, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS AND OTHERS and of RAILWAY SERVANTS KILLED or INJURED in each class of accident.

STANDARD GAUGE.

	East Indian. (a)								Bengal Central. (b)								Bengal-Nágpur.								Indian Midland. (c)							
	Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Number of headings.
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2. Collisions between passenger trains and goods or mineral trains, engines and vehicles standing foul of the line																																1
3. Collisions between goods trains or parts of goods trains		1	1	...	...	...	...	...	...	1	...	1	...	1	5	2	5	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
4. Collisions between light engines		3	4	7	...	...	...	3	...	3	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	3
5. Passenger trains or parts of passenger trains leaving the rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
6. Goods trains or parts of goods trains, engines, etc., leaving the rails		1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
7. Trains or engines travelling in the wrong direction through points	...	7	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	6
8. Trains running into stations or sidings at too high a speed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
9. Trains running over cattle on the line	...	34	34	...	...	...	...	...	...	...	5	5	...	...	...	...	...	...	...	19	19	...	...	...	...	...	...	...	6	6	...	...	...	8
10. Ditto over obstructions on the line	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	9
11. Trains running through gates at level-crossings	...	8	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	11
12(a). Ditto of tubes, etc., of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
13. The failure of machinery, springs, etc., of engines	...	22	22	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	6	6	...	...	...	12(a)
14. The failure of tyres	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	4	...	...	...	13
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
16. Ditto of axles	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
18. Ditto of couplings	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	18
20. Broken rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
21. The flooding of portions of permanent-way	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	20
22. Slips in cuttings or embankments	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
23. Fire in trains	...	6	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
24. Fire at stations, or involving injury to bridges or viaducts	...	2	2	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
25. Other accidents	...	27	27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	24
																													2	2	...	...	...	25
TOTAL ALL CLASSES	5	118	123	...	...	...	3	...	3	1	10	11	...	1	5	2	5	3	...	26	26	...	...	...	...	...	...	...	20	20	...	...	...	1

(a) Including the Delhi-Umballa-Kalka and the Tarkessur railways.
(b) Although for convenience classed amongst state railways, this line is the property of the Bengal Central Railway Company.
(c) Including the Bhopal-Itársi, the Bina-Guna and the Bhopal-Ujjain railways.

ABSTRACT No. 3.—ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT-WAY, etc., reported during the THREE MONTHS ending with the 31st March 1898 as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS AND OTHERS and of RAILWAY SERVANTS KILLED or INJURED in each class of accident—*contd.*

STANDARD GAUGE—*contd.*

	North Western (a).								Oudh and Rohilkhand.								Eastern Bengal.								East Coast.							
	Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Number of headings.
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2. Collisions between passenger trains and goods or mineral trains, engines and vehicles standing foul of the line		1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
3. Collisions between goods trains or parts of goods trains	1	2	3	...	...	...	3	...	3	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	2
4. Collisions between light engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	3
5. Passenger trains or parts of passenger trains leaving the rails	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	1	..	1	...	...	...	4
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	10	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
7. Trains or engines travelling in the wrong direction through points	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	3	...	...	...	6
8. Trains running into stations or sidings at too high a speed	...	24	24	...	...	...	...	...	...	...	12	12	...	...	...	...	...	...	2	3	5	...	...	...	...	...	...	...	2	2	...	...	...	7
9. Trains running over cattle on the line	1	1	2	(b)1	...	1	...	2	...	...	...	...	...	...	...	...	...	...	1	49	50	...	...	...	...	...	...	...	24	24	...	...	...	8
10. Ditto over obstructions on the line																																		9
11. Trains running through gates at level-crossings	...	20	20	...	...	...	1	...	1	...	...	...	...	...	..	..	...	...	...	3	3	...	...	...	...	...	...	...	1	...	1	(b)1	...	...	...	10
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
12(a). Ditto of tubes, etc., of engines	...	36	36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
13. The failure of machinery, springs, etc., of engines	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	12(a)
14. The failure of tyres	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
15. Ditto of wheels	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
16. Ditto of axles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
18. Ditto of couplings	...	4	4	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	17
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	6	...	...	...	18
20. Broken rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
21. The flooding of portions of permanent-way	...	...	...	...	...	...	...	...	...	...	5	5	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	20
22. Slips in cuttings or embankments	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
23. Fire in trains	1	2	3	1	5	...	...	1	5	...	1	1	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	22
24. Fire at stations, or involving injury to bridges or viaducts	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	23
25. Other accidents	...	14	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	24
																													5	5	...	...	...	25
TOTAL ALL CLASSES	3	122	125	(c)2	5	1	4	3	9	...	21	21	...	...	...	...	...	...	4	69	73	...	...	...	...	...	...	...	2	40	42	(b)1	...	...	...	1

Including the Hyderabad-Shadipalli, the Southern Punjab (Delhi-Samasata), the Rájpura-Bhátinda and the Jammu and Kashmir railways.

(b) Not a passenger.

(c) Out of these, one was not a passen er.

ABSTRACT No. 3.—ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT-WAY, etc., reported during the THREE MONTHS ending with the 31st March 1898, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS AND OTHERS and of RAILWAY SERVANTS KILLED or INJURED in each class of accident—*contd.*

STANDARD GAUGE—*concld.*

	GREAT INDIAN PENINSULA. (a)								BOMBAY, BARODA AND CENTRAL INDIA (b).								MADRAS. (c)								THE NIZAM'S GUARANTEED STATE. (d)								
	Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Number of headings.
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
2. Collisions between passenger trains and goods or mineral trains, engines and vehicles standing foul of the line																																			
3. Collisions between goods trains or parts of goods trains	1	...	1	...	...	...	3	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
4. Collisions between light engines	...	3	3	...	...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
5. Passenger trains or parts of passenger trains leaving the rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	6	6	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
7. Trains or engines travelling in the wrong direction through points	...	9	9	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
8. Trains running into stations or sidings at too high a speed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
9. Trains running over cattle on the line	...	6	6	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	40	40	...	...	...	...	...	...	...	10	10	...	...	...	...	...	8
10. Ditto over obstructions on the line	...	5	5	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
11. Trains running through gates at level-crossings	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	11
12(a). Ditto of tubes, etc., of engines	...	6	6	...	...	...	...	...	...	...	8	8	...	...	...	...	...	...	...	20	20	...	...	...	...	...	...	...	...	...	...	...	...	...	12
13. The failure of machinery, springs, etc., of engines	...	16	16	...	...	...	...	...	...	...	6	6	...	...	...	...	...	...	...	16	16	...	...	...	...	...	...	...	...	...	...	...	...	...	12(a)
14. The failure of tyres	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
16. Ditto of axles	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
18. Ditto of couplings	...	2	2	...	...	...	...	...	...	...	22	22	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	17
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
20. Broken rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	19
21. The flooding of portions of permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
22. Slips in cuttings or embankments	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
23. Fire in trains	...	14	14	...	...	...	...	...	...	1	2	3	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
24. Fire at stations, or involving injury to bridges or viaducts	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
25. Other accidents	...	12	12	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	24
TOTAL ALL CLASSES	1	82	83	...	...	...	5	...	5	1	52	53	...	...	...	...	...	...	...	85	85	...	...	...	...	...	...	...	1	12	13	...	...	...	...	...	25

(a) Including the Wardha Coal, the Dhond-Manmád, the Khámgaon, and the Amraoti railways.
(b) Including the Godhra-Rutlam-Nágda, the Nágda-Ujjain and the Gaekwar's Petlad railway.
(c) Including the Madras-Ennur section of the Bezwada-Madras railway and the Kolar Gold-fields railway.
(d) Including the Bezwada extention, East Coast State railway.

ABSTRACT No. 3.—ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT-WAY, etc., reported during the THREE MONTHS ending with the 31st March 1898, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS AND OTHERS, and of RAILWAY SERVANTS KILLED or INJURED in each class of accident—*contd.*

METRE GAUGE.

	BENGAL AND NORTH-WESTERN (TIRHOOT AND COMPANY'S SECTIONS).									RAJPUTANA-MALWA. (a)									SOUTHERN MAHRATTA. (b)									
	Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Number of headings.
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
2. Ditto ditto and goods or mineral trains, engines and vehicles standing foul of the line	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
3. Ditto goods trains or parts of goods trains	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
4. Ditto light engines	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
5. Passenger trains or parts of passenger trains leaving the rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	13	13	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
7. Trains or engines travelling in the wrong direction through points	...	4	4	...	...	...	...	...	...	...	5	5	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	7
8. Trains running into stations or sidings at too high a speed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	8
9. Ditto over cattle on the line	...	7	7	...	...	...	...	...	...	...	20	20	...	...	...	...	...	...	...	40	40	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	2	1	3	...	...	...	...	...	...	...	8	8	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	10
11. Ditto through gates at level-crossings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
12(a). Ditto of tubes, etc., of engines	...	...	...	...	...	...	...	...	...	...	5	5	...	...	...	...	...	...	...	5	5	...	...	...	...	...	...	12(a)
13. The failure of machinery, springs, etc., of engines	...	5	5	...	...	...	...	...	...	...	5	5	...	...	...	...	...	...	...	4	4	...	...	...	...	...	...	13
14. Ditto of tyres	...	...	...	...	...	...	...	...	...	...	4	4	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	14
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
16. Ditto of axles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	8	...	...	...	...	...	...	16
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
18. Ditto of couplings	...	2	2	...	...	...	...	...	...	...	4	4	...	...	...	...	...	...	...	8	8	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
20. Broken rails	...	1	1	...	...	...	...	...	...	...	9	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	21
22. Slips in cuttings or embankments	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
23. Fire in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	23
24. Fire at stations, or involving injury to bridges or viaducts	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	24
25. Other accidents	1	3	4	...	...	...	...	...	...	...	12	12	...	...	...	1	...	1	...	1	1	...	...	...	...	...	...	25
TOTAL ALL CLASSES	5	37	42	...	...	...	...	...	...	2	73	75	...	...	...	1	...	1	1	75	76	...	...	...	...	...	...	

(a) Including the Pálanpur-Deesa, the Ahmedabad-Parantij and the Gaekwar's Mehsána railways.
(b) Including the Guntakal-Mysore frontier, the Mysore section (Southern Mahratta), the Kolhapur, the Yesvantpur-Mysore frontier, and the Mysore-Nanjangúd railways.

ABSTRACT No. 3.—ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT-WAY, etc., reported during the THREE MONTHS ending with the 31st March 1898, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS and OTHERS, and of RAILWAY SERVANTS KILLED or INJURED in each class of accident—*contd.*

METRE GAUGE—*contd.*

	South Indian.(a)								Assam-Bengal.								Burma.							
	Number.			Number of passengers and others.		Number of servants.		Total all classes.	Number.			Number of passengers and others.		Number of servants.		Total all classes.	Number.			Number of passengers and others.		Number of servants.		Total all classes.	
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Number of headings.
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
2. Ditto ditto and goods or mineral trains, engines and vehicles standing foul of the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
3. Ditto goods trains or parts of goods trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
4. Ditto light engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
5. Passenger trains or parts of passenger trains leaving the rails	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	1	...	1	...	3	1	6	...	...	...	...	4
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	4	...	...	...	...	5
7. Trains or engines travelling in the wrong direction through points	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	3	...	...	...	...	6
8. Trains running into stations or sidings at too high a speed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2						7
9. Ditto over cattle on the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
10. Ditto over obstructions on the line	...	58	58	...	...	...	...	...	...	...	21	21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
11. Ditto through gates at level-crossings	...	1	1	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	1	16	17	...	...	...	...	...	10
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	(b)	...	...	...	1	11
12(a). Ditto of tubes, etc., of engines	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
13. The failure of machinery, springs, etc., of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12(a)
14. Ditto of tyres	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2	4	6	..	...	...	...	...	13
16. Ditto of axles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
17. Ditto of brake apparatus	1	3	4	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	15
18. Ditto of couplings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	3	4	...	...	...	...	...	16
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
20. Broken rails	...	...	...	...	...	...	...	...	...	...	...	...	..	..	...	...	...	...	1	1	2	...	...	...	...	...	18
21. The flooding of portions of permanent-way	...	2	2	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
22. Slips in cuttings or embankments	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	20
23. Fire in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
24. Fire at stations, or involving injury to bridges or viaducts	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
25. Other accidents	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	15	15	...	...	...	...	...	23
	...	...	...	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	2	...	2	...	...	...	...	...	24
																			1	...	1	...	...	...	...	...	25
TOTAL ALL CLASSES	1	69	70	...	...	...	...	...	...	3	32	35	...	...	...	...	1	...	1	19	48	67	(b)1	...	...	...	...	

(a) Including the Mayavaram-Mutupet railway. (b) Not a passenger.

ABSTRACT No. 3.—ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT-WAY, etc., reported during the THREE MONTHS ending with the 31st March 1898, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS and OTHERS, and of RAILWAY SERVANTS KILLED or INJURED in each class of accident—*contd.*

METRE GAUGE—*contd.*

	Eastern Bengal (a).								Cawnpore-Burhwal.								Deoghur.							
	Number.			Number of passengers and others.		Number of servants.		Total all classes.	Number.			Number of passengers and others.		Number of servants.		Total all classes.	Number.			Number of passengers and others.		Number of servants.		Total all classes.
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Number of headings.
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
2. Ditto ditto and goods or mineral trains, engines and vehicles standing foul of the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
3. Ditto goods trains or parts of goods trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
4. Ditto light engines	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
5. Passenger trains or parts of passenger trains leaving the rails	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
7. Trains or engines travelling in the wrong direction through points	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
8. Trains running into stations or sidings at too high a speed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
9. Ditto over cattle on the line	...	25	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
10. Ditto over obstructions on the line	...	3	4	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
11. Ditto through gates at level-crossings	1	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
12(a). Ditto of tubes, etc., of engines	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
13. The failure of machinery, springs, etc., of engines	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12(a)
14. Ditto of tyres	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
16. Ditto of axles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
17. Ditto of brake apparatus	2	1	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
18. Ditto of couplings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
20. Broken rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
21. The flooding of portions of permanent-way	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
22. Slips in cuttings or embankments	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
23. Fire in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
24. Fire at stations, or involving injury to bridges or viaducts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
25. Other accidents	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
																											25
TOTAL ALL CLASSES	6	38	44	...	...	...	...	...	...	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	

(a) Including the Kaunia-Dharlia (2' 6" gauge) branch.

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METRE GAUGE—*contd.*

	ROHILKUND AND KUMAON (COMPANY'S SECTION) (a).									BENGAL DOOARS.									DIBRU-SADIYA.									
	Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Number of headings.
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
2. Ditto ditto and goods or mineral trains, engines and vehicles standing foul of the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
3. Ditto goods trains or parts of goods trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
4. Ditto light engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
5. Passenger trains or parts of passenger trains leaving the rails	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	6
7. Trains or engines travelling in the wrong direction through points	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	7
8. Trains running into stations or sidings at too high a speed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
9. Ditto over cattle on the line	...	8	8	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	7	7	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
11. Ditto through gates at level-crossings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
12(a). Ditto of tubes, etc., of engines	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12(a)
13. The failure of machinery, springs, etc., of engines	...	12	12	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
14. Ditto of tyres	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	14
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
16. Ditto of axles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
18. Ditto of couplings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	19
20. Broken rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
22. Slips in cuttings or embankments	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
23. Fire in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
24. Fire at stations, or involving injury to bridges or viaducts	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
25. Other accidents	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
TOTAL ALL CLASSES	1	33	34	...	...	...	...	...	...	...	4	4	...	...	...	...	...	...	2	12	14	...	...	...	...	...	...	

(a) Including the Lucknow-Bareilly section (Rohilkund-Kumaon railway).

ABSTRACT No. 3.—ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT-WAY, etc., reported during the THREE MONTHS ending with the 31st March 1898, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS and OTHERS, and of RAILWAY SERVANTS KILLED or INJURED in each class of accident—*contd.*

METRE GAUGE—*concld*

	JODHPORE-BIKANEER (JODHPORE AND BIKANEER SECTIONS).									ODEYPORE-CHITOR.									BHÁVNAGAR-GONDAL-JUNÁGAD-PORBANDAR.(a)									
	Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number.			Number of passengers and others.		Number of servants.		Total all classes.		
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Number of headings.
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
2. Ditto ditto and goods or mineral trains, engines and vehicles standing foul of the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	3	2	3	2	2
3. Ditto goods trains or parts of goods trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
4. Ditto light engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
5. Passenger trains or parts of passenger trains leaving the rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
7. Trains or engines travelling in the wrong direction through points	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
8. Trains running into stations or sidings at too high a speed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
9. Ditto over cattle on the line	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	4	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
11. Ditto through gates at level-crossings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
12(a). Ditto of tubes, etc., of engines	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	12(a)
13. The failure of machinery, springs, etc., of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
14. Ditto of tyres	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
16. Ditto of axles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	16
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
18. Ditto of couplings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
20. Broken rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
22. Slips in cuttings or embankments	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
23. Fire in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
24. Fire at stations, or involving injury to bridges or viaducts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
25. Other accidents	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
TOTAL ALL CLASSES	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	8	...	...	3	2	3	2	

(a) Including the Jetalsar-Rájkot and the Jamnagar railways.

(b) Not passengers.

ABSTRACT No. 3.—ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT-WAY, etc., reported during the THREE MONTHS ending with the 31st March 1898, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS AND OTHERS, and of RAILWAY SERVANTS KILLED OR INJURED in each class of accident—*contd.*

SPECIAL GAUGES.

	JORHAT (2′ 0″). Number. Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	JORHAT (2′ 0″). Number. Other accidents.	JORHAT (2′ 0″). Number. Total.	JORHAT (2′ 0″). Number of passengers and others. Killed.	JORHAT (2′ 0″). Number of passengers and others. Injured.	JORHAT (2′ 0″). Number of servants. Killed.	JORHAT (2′ 0″). Number of servants. Injured.	JORHAT (2′ 0″). Total all classes. Killed.	JORHAT (2′ 0″). Total all classes. Injured.	DARJEELING-HIMALAYAN (2′ 0″). Number. Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	DARJEELING-HIMALAYAN (2′ 0″). Number. Other accidents.	DARJEELING-HIMALAYAN (2′ 0″). Number. Total.	DARJEELING-HIMALAYAN (2′ 0″). Number of passengers and others. Killed.	DARJEELING-HIMALAYAN (2′ 0″). Number of passengers and others. Injured.	DARJEELING-HIMALAYAN (2′ 0″). Number of servants. Killed.	DARJEELING-HIMALAYAN (2′ 0″). Number of servants. Injured.	DARJEELING-HIMALAYAN (2′ 0″). Total all classes. Killed.	DARJEELING-HIMALAYAN (2′ 0″). Total all classes. Injured.	THE GAEKWAR'S DABHOI (2′ 6″). Number. Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	THE GAEKWAR'S DABHOI (2′ 6″). Number. Other accidents.	THE GAEKWAR'S DABHOI (2′ 6″). Number. Total.	THE GAEKWAR'S DABHOI (2′ 6″). Number of passengers and others. Killed.	THE GAEKWAR'S DABHOI (2′ 6″). Number of passengers and others. Injured.	THE GAEKWAR'S DABHOI (2′ 6″). Number of servants. Killed.	THE GAEKWAR'S DABHOI (2′ 6″). Number of servants. Injured.	THE GAEKWAR'S DABHOI (2′ 6″). Total all classes. Killed.	THE GAEKWAR'S DABHOI (2′ 6″). Total all classes. Injured.	Number of headings.
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2. Ditto ditto and goods or mineral trains, engines and vehicles standing foul of the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
3. Ditto goods trains or parts of goods trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
4. Ditto light engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
5. Passenger trains or parts of passenger trains leaving the rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	1	1	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	5
																												6
7. Trains or engines travelling in the wrong direction through points																												
8. Trains running into stations or sidings at too high a speed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9. Ditto over cattle on the line	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
10. Ditto over obstructions on the line	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
11. Ditto through gates at level-crossings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
12(*a*). Ditto of tubes, etc., of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
																												12
13. The failure of machinery, springs, etc., of engines																												12(*a*)
14. Ditto of tyres	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
16. Ditto of axles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	13
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
18. Ditto of couplings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	18
																												19
20. Broken rails																												
21. The flooding of portions of permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
22. Slips in cuttings or embankments	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
23. Fire in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
24. Fire at stations, or involving injury to bridges or viaducts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
25. Other accidents	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
																												25
TOTAL ALL CLASSES	1	2	3	...	...	...	...	...	...	1	2	3	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	

ABSTRACT No. 3.—ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT-WAY, etc., reported during the THREE MONTHS ending with the 31st March 1898, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS AND OTHERS, and of RAILWAY SERVANTS KILLED OR INJURED in each class of accident—*concld.*

SPECIAL GAUGES—*concld.*

	RAJPIPLA. Number. Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	RAJPIPLA. Number. Other accidents.	RAJPIPLA. Number. Total.	RAJPIPLA. Number of passengers and others. Killed.	RAJPIPLA. Number of passengers and others. Injured.	RAJPIPLA. Number of servants. Killed.	RAJPIPLA. Number of servants. Injured.	RAJPIPLA. Total all classes. Killed.	RAJPIPLA. Total all classes. Injured.	COOCH BEHAR (2′ 6″). Number. Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	COOCH BEHAR (2′ 6″). Number. Other accidents.	COOCH BEHAR (2′ 6″). Number. Total.	COOCH BEHAR (2′ 6″). Number of passengers and others. Killed.	COOCH BEHAR (2′ 6″). Number of passengers and others. Injured.	COOCH BEHAR (2′ 6″). Number of servants. Killed.	COOCH BEHAR (2′ 6″). Number of servants. Injured.	COOCH BEHAR (2′ 6″). Total all classes. Killed.	COOCH BEHAR (2′ 6″). Total all classes. Injured.	MORVI (2′ 6″). Number. Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	MORVI (2′ 6″). Number. Other accidents.	MORVI (2′ 6″). Number. Total.	MORVI (2′ 6″). Number of passengers and others. Killed.	MORVI (2′ 6″). Number of passengers and others. Injured.	MORVI (2′ 6″). Number of servants. Killed.	MORVI (2′ 6″). Number of servants. Injured.	MORVI (2′ 6″). Total all classes. Killed.	MORVI (2′ 6″). Total all classes. Injured.	Number of headings.
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2. Ditto ditto and goods or mineral trains, engines and vehicles standing foul of the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
3. Ditto goods trains or parts of goods trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
4. Ditto light engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
5. Passenger trains or parts of passenger trains leaving the rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	5
																												6
7. Trains or engines travelling in the wrong direction through points																												
8. Trains running into stations or sidings at too high a speed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9. Ditto over cattle on the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
10. Ditto over obstructions on the line	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
11. Ditto through gates at level-crossings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	3	...	...	...	...	9
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	10
12(*a*). Ditto of tubes, etc., of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
																												12
13. The failure of machinery, springs, etc., of engines																												12(*a*)
14. Ditto of tyres	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
16. Ditto of axles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
18. Ditto of couplings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
																												19
20. Broken rails																												
21. The flooding of portions of permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
22. Slips in cuttings or embankments	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
23. Fire in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
24. Fire at stations, or involving injury to bridges or viaducts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
25. Other accidents	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
																												25
TOTAL ALL CLASSES	...	...	...	...	...	...	...	...	...	...	4	4	...	...	...	...	...	...	...	...	7	7	...	...	...	...	...	

(*a*) Including the Bhopal-Itarsi, the Itma-Goorgi and the Bhopal-Ujjain railways.

ABSTRACT

No. 4.

ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT-WAY, etc., reported during the THREE MONTHS ending with the 31st March 1898, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA and of RAILWAY SERVANTS KILLED or INJURED in each class of accident.

distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS AND OTHERS

	STANDARD GAUGE LINES.														METRE GAUGE LINES.											
	Average number of accidents during the three previous corresponding periods of 1895, 1896 and 1897.			THREE MONTHS ENDING WITH THE 31st MARCH 1898.											Average number of accidents during the three previous corresponding periods of 1895, 1896 and 1897.			THREE MONTHS ENDING WITH THE 31st MARCH 1898.							
				Number.			Number of passengers and others.		Number of servants.		Total all classes.							Number.			Number of passenger and others.					
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.			Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.								
																		Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
1. Collisions between passenger trains or parts of passenger trains	1	1	2	...	1	1	...	...	...	...	...	...			1	1	2	...	...	...	...	...	...	...	...	...
2. Collisions between passenger trains and goods or mineral trains, engines, and vehicles standing foul of the line	3	2	5		1	5	...	1	5	5	5	6			3	2	5		1	1	2	...	...			
3. Collisions between goods trains or parts of goods trains	1	17	18	4	13	17	...	...	...	8	...	8			1	4	5	7	2	9	...	...				
4. Collisions between light engines	...	4	4	1	1	2	...	..	...	...	...	..			...	1	1	2	4	6	...	...				
5. Passenger trains or parts of passenger trains leaving the rails	4	4	8	1	2	3	...	..	...	...	...	...			5	6	11	5	2	7	...	...				
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	2	32	34	...	28	28	...	...	...	...	...	...			1	23	24	2	18	20	...	...				
7. Trains or engines travelling in the wrong directions through points	1	21	22	2	16	18	...	...	...	...	...	...			3	9	12	3	13	16	...	...				
8. Trains running into stations or sidings at too high a speed	2	4	6	...	...	...	...	...	...	...	...	...			...	3	3	...	2	2	...	...				
9. Trains running over cattle on the line	1	203	204	1	231	232	...	...	...	...	...	...			1	215	216	1	213	214	...	..				
10. Trains running over obstructions on the line	3	20	23	2	18	20	2 (a)	...	1	3	...	...			4	13	17	4	16	20	1 (c)	...				
11. Trains running through gates at level-crossings	1	9	10	...	12	12	...	...	...	...	...	...			...	5	5	...	1	1	...	...				
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...			...	...	...	...	17	17	...	...				
12(a). The bursting of tubes, etc., of engines	...	39	39	...	60	60	...	...	...	1	...	1			...	43	43	2	35	37	...	...				
13. The failure of machinery, springs, etc., of engines	...	83	83	...	104	104	...	...	...	...	...	...			...	2	2	1	5	6	...	...				
14. The failure of tyres	...	2	2	...	2	2	...	...	...	...	...	...			2	10	12	1	...	1	...	...				
15. Ditto of wheels	1	1	2	...	1	1	...	...	...	...	...	...			...	...	...	...	...	...	...	...				
16. Ditto of axles	...	4	4	...	2	2	...	...	...	...	...	...			1	10	11	4	17	21	...	...				
17. Ditto of brake apparatus	...	1	1	...	48	48	...	...	...	...	...	...			...	1	1	...	...	...	...	...				
18. Ditto of couplings	...	20	20	...	...	...	...	...	...	...	...	...			1	30	31	1	23	24	...	...				
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...																							
20. Broken rails	...	14	14	...	9	9	...	...	...	...	...	...			...	12	12	1	...	...	...	...				
21. The flooding of portions of permanent-way	...	1	1	...	1	1	...	...	...	...	...	...			...	...	...	...	15	16	...	...				
22. Slips in cuttings or embankments	...	3	3	...	1	1	...	...	...	...	...	...			...	...	...	1	2	3	...	...				
23. Fire in trains	...	33	33	2	29	31	1	5	...	...	1	5			...	21	21	...	19	19	...	...				
24. Fire at stations, or involving injury to bridges or viaducts	...	10	10	1	10	11	...	...	...	...	...	...			...	6	6	2	6	8	...	...				
25. Other accidents	1	42		...	67	67	...	...	...	...	...	...			2	21	23	2	25	27	...	...				
TOTAL FOR THE THREE MONTHS ENDING WITH THE 31ST MARCH 1898	...	...	...	18	657	675	3 (b)	6	6	14	9	20			...	...	...	40	436	476	1 (c)	...				
Average of the three previous corresponding periods of 1895, 1896 and 1897	...	...	...	21	570	591	2	25 (b)	3	11	5	36			...	...	...	24	445	469	1 (c)	2 (e)				
Mean mileage worked					12,219												294									
Number of servants employed					131,091												1,679									
Train-mileage of all descriptions					12,629,459												129,175									
Number of passengers carried					19,827,338												129,318									
Passenger-mileage					234,815,572												3,380,812									
Per mile open—																										
Train-mileage of all descriptions					1,034												429									
Number of passengers carried					1,623												440									
Passenger-mileage					76,505												11,499									
Total passengers—																										
Killed per million of passengers					0·050												.....									
Injured per million of passengers					0·303												.....									
Killed per million of passenger-miles					0·001												.....									
Injured per million of passenger-miles					0·006												.....									

(a) Not passengers.
(b) Out of these, two were not passengers.
(c) Not a passenger.
(d) Out of these, three were not passengers.
(e) Out of these, one was not a passenger.

	TOTAL ALL GAUGES.											
	Average number of accidents during the three previous corresponding periods of 1895, 1896 and 1897.			THREE MONTHS ENDING WITH THE 31st MARCH 1898.								
				Number.			Number of passengers and others.		Number of servants.		Total all classes.	
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
1. Collisions between passenger trains or parts of passenger trains	2	2	4	...	1	1	...	...	...	...	...	...
2. Collisions between passenger trains and goods or mineral trains, engines, and vehicles standing foul of the line	6	4	10	5	2	7	...	1	8	7	8	8
3. Collisions between goods trains or parts of goods trains	2	21	23	11	15	26	...	...	...	8	...	8
4. Collisions between light engines	...	5	5	3	5	8	...	...	...	..	..	...
5. Passenger trains or parts of passenger trains leaving the rails	10	10	20	8	5	13	...	...	...	1	...	1
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	4	60	64	2	48	50	...	...	...	..	..	...
7. Trains or engines travelling in the wrong directions through points	4	30	34	5	30	35	...	...	...	..	..	...
8. Trains running into stations or sidings at too high a speed	2	7	9	...	2	2	...	...	...	..	..	...
9. Trains running over cattle on the line	2	423	425	2	451	453	..	..	..	..	..	...
10. Trains running over obstructions on the line	7	34	41	6	36	42	3 (a)	...	1	...	4	...
11. Trains running through gates at level-crossings	1	14	15	...	13	13	...	..	...	..	...	...
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...
12(a). The bursting of tubes, etc., of engines	...	56	56	...	77	77	...	...	...	1	...	1
13. The failure of machinery, springs, etc., of engines	...	130	130	2	139	141	...	...	...	...	...	...
14. The failure of tyres	...	4	4	1	8	9	...	...	...	...	...	...
15. Ditto of wheels	...	2	3	1	1	2	...	...	...	...	...	...
16. Ditto of axles	3	17	20	4	19	23	...	...	...	...	...	...
17. Ditto of brake apparatus	...	2	2	...	...	...	...	...	...	...	...	...
18. Ditto of couplings	1	50	51	1	73	74	...	...	...	...	...	...
19. Ditto of tunnels, bridges, viaducts, culverts, etc.												
20. Broken rails	...	26	26	1	24	25	...	...	...	...	...	...
21. The flooding of portions of permanent-way	...	1	1	1	3	4	..	..	...	...	...	...
22. Slips in cuttings or embankments	...	3	3	...	1	1	...	...	...	...	...	..
23. Fire in trains	...	54	54	2	48	50	1	5	...	...	1	5
24. Fire at stations, or involving injury to bridges or viaducts	...	16	16	3	16	19	...	..	...	...	...	...
25. Other accidents	3	63	66	2	93	95	...	...	...	1	..	1
TOTAL FOR THE THREE MONTHS ENDING WITH THE 31ST MARCH 1898	...	...	...	60	1,110	1,170	(d) 4	6	9	18	13	24
Average of the three previous corresponding periods of 1895, 1896 and 1897	...	...	...	48	1,034	1,082	(e) 3	(d) 27	3	12	6	39
Mean mileage worked					20,976							
Number of servants employed					192,572							
Train-mileage of all descriptions					18,175,544							
Number of passengers carried					32,374,083							
Passenger-mileage					1,379,830,230							
Per mile open—												
Train-mileage of all descriptions					867							
Number of passengers carried					1,543							
Passenger-mileage					65,781							
Total passengers—												
Killed per million of passengers					0·031							
Injured per million of passengers					0·185							
Killed per million of passenger-miles					0·001							
Injured per million of passenger-miles					0·004							

(e) Out of these, one was not a passenger.

(c) Including the Bhopal-Itarsi, the Bina-Goona and the Bhopal-Ujjain Railways.

Appendix A to the abstract returns of accidents on Indian Railways for the three months ending with the 31st March 1898.

To

THE GOVERNMENT OF INDIA,

(*through the* Senior Government Inspector of Railways, Calcutta.)

In compliance with the orders contained in Public Works Department Circular No. 7 Railway of 19th April 1895, I have the honour to submit, for the information of the Government of India, a report of the proceedings of a joint committee of enquiry (at which I was present) which assembled at Jhikargacha on the 7th January 1898 to investigate the causes of an accident which occurred at mile 65 on the Bengal Central Railway on the 4th January 1898.

The Committee was constituted as follows :—

E. W. STAPLES, *Agent and Chief Engineer, President.*
A. C. GANGOOLY, *Resident Engineer.*
J. ROBB, *Assistant Locomotive Superintendent.*
G. W. TAIT, *Assistant Traffic Superintendent.*

ALSO PRESENT:

L. G. MORSHEAD, C.S., *Magistrate and Collector, Jessore.*
T. C. DAS, *Inspector, Government Railway Police.*

DESCRIPTION OF ACCIDENT.

An Up special goods train arrived at Nábharan station at 4-0 hours, and after some shunting the Assistant Station Master, Kristo Dhon Mookerjee, receiving no response from Jhikargacha sent the train on to that station at 4-10 hours, under a proceed order acting on General Rule 22 and Eastern Bengal State Railway Subsidiary Rule 22 (*a*), although No. 6 Down mixed train was due out at 4-42 hours. The distance between the two stations is $8\frac{1}{2}$ miles, and at ordinary goods train speed there should have been 32 minutes allowed for the run, but under Eastern Bengal State Railway Subsidiary Rule 22 (*a*) (2) at least an hour should have been allowed.

No. 6 Down (engine No. 78, driver Abdul Hakim, guard Kebbie) arrived at Jhikargacha at about 4-32 and was due out at 4-42. The Assistant Station Master, Jogendro Nath Audhicary, was very negligent throughout with the receipt and despatch of the train, and started it on a line clear purported to have been obtained from Nábharan, but which he acknowledges he did not receive and which he cannot say who received.

The Up goods is said to have left Nábharan station ($58\frac{3}{4}$ miles from Calcutta) at 4-10, and No. 6 Down mixed to have left Jhikargacha ($67\frac{1}{4}$ miles) at 4-42, the engine of the latter being tender foremost. The two trains collided at the 65th mile, the line being on a curve. The engine of the Up goods train was derailed and interlocked with the rear of the engine of No. 6 Down mixed. Seven empty wagons were completely smashed up and interlocked with each other. The tender of the engine of No. 6 Down mixed was thrown on to the engine. The front vehicle (a composite brakevan and third class) was telescoped into the second vehicle, a third class carriage, and both derailed, the remaining carriages, although not suffering so severely, were so damaged as to require rebuilding.

The loss of life and injury to limb was as follows :—

Staff of No. 6 Down.

Driver Abdul Hakim	Killed.
1st Fireman Menaj	,,
2nd ,, Becaur	,,
Brakesman Roshan Ali	Seriously injured and died shortly after arrival at the Campbell Hospital, Calcutta.

Staff of Up Special Goods train.

Driver Abdul	Injured.
1st Fireman Jopru	Seriously injured.
2nd ,, Mohamad	Killed.

A man named Soti Bhuson Sen, travelling without a ticket from Jessore with the connivance of the brakesman, was also severely injured and is lying at the Jessore Civil Hospital.

The line at the scene of the accident is level and on a curve. Owing to trees and the gangmen's huts the two drivers could not see each others trains until they were quite close together.

A plan of the site of the collision is appended.

Evidence.

Jogendra Nath Audhicary, Assistant Station Master at Jhikargacha for 1½ months.—I joined the Bengal Central Railway on the 4th March last and was at Phultala as Assistant Station Master and on the relieving list, pay Rs. 20. I have served seven years on the Eastern Bengal State, Bengal Dooars, and Assam Bengal Railways, as Signaller, Booking Clerk, and Assistant Station Master and Relieving Station Master. My last service on the Eastern Bengal State Railway was at Arranghata as Assistant Station Master on Rs. 23. I have a clear record on all the railways and resigned on my own accord. I left the Eastern Bengal State Railway for the Bengal Dooars Railway on Rs. 25. I left the Bengal Dooars Railway for the Assam Bengal Railway on Rs. 25. After leaving the Assam Bengal Railway I was six or eight months out of employment. My age is 24 years. I came on duty at 18 hours on the 3rd. The signaller is on duty day and night. I was on duty for No. 1 Up mail on the morning of the 4th. The signaller was on duty with me. After the up mail left I went home to see my wife who was ill. Before I left I told the signaller to call me at the time of enquiry for line clear message for No. 6 Down. I did not give the signaller any private number for 6 Down. I gave the line clear for No. 1 Up. I wrote, signed and despatched it all myself. I see the private number 28. It is in my writing, No. 1 Up is the first train on the 4th, No. 7 ought to have been the private number which I admit from inspection of the private number sheet. I was upset about the illness of my wife. I was not called for 6 Down, I came to the station on hearing the engine of 6 Down whistling as she came in. I did not give line clear for No. 6 Down from Jessore, I thought it came on a proceed order, I made no enquiries. The private numbers were with me, and I know I am responsible for the line clear being given for 6 Down. I know the signaller should not have given it. I do not remember now whether I made any enquiries why 6 Down arrived without my having given the line clear. I passed 6 Down, but I do not remember how it passed. I found the line clear book on the table with both foils written up. The private number was on the inner foil. The signaller was selling tickets when I found the line clear book. The line clear certificate shewn me is the one I gave. It is entirely in my hand-writing. In the counterfoil all is written by me except 39 (private No.), 4-15 (time of receipt) and the signaller's initials are not mine. The signature is mine. In the line clear certificate, I now remember the time 4-15 is not mine. When I looked at the line clear message book the other things specified above had already been written, and I filled in the rest. I did not compare the private number in the line clear certificate counterfoil with the entry in the train message book. I forgot to copy the private number in the line clear certificate from the counterfoil. I gave the line clear to the guard I think. The initials P. C. B. in the counterfoil of the line clear book are the signaller's. Looking through the train message books I cannot find any more like them.

(*Note.*—The private number supplied by Jhikargacha to Jessore and Nábharan agrees with those in private number slip up to 20-40 hours on the 3rd). I do not remember whether I gave the line clear to the guard or the driver. When 6 Down arrived I did not see whether the in-report was given to Jessore or not. I do not remember if any in-report was given at all. When I came from my house and saw 6 Down coming in, it was in motion. I came straight from my house round by the waiting hall into the office. I received the train, woke up my staff and then came to the office. I came to the office 5 or 7 minutes after the train arrived. After starting the train, *i.e.*, 8 or 10 minutes after, I heard a crash and a whistle, and suspecting something, I sent for the Station Master. I did not ask the Station Master for any leave on account of my wife's illness. I did not say anything. My wife is pregnant for about six months. I received no advice regarding the running of Up special goods. When I came to the station at about 4-35 I heard no enquiries on the telegraph instrument from Nábharan. I did not give line clear for the Up special. There was no interruption in telegraph communication with Nábharan up to time of 1 Up, and there was complete communication after the accident. I did not give the out-report of 6 Down, I told the Signaller to give it. I did not write in the book nor did I sign it. When I heard the collision I did not look at the clock.

Probash Chunder Biswas, Booking Clerk and Signaller, Jhikargacha, age 22 years, son of Dino Nath Biswas, caste Kaybutto.—I have been at this station for more than one month. I have been on the Eastern Bengal State Railway for more than three years as Signaller. I was on duty at the time of 1 Up mail on the morning of the 4th January 1898. No. 1 Up arrived at 2-2 and left at 2-5. I then closed my cash. At 2-30 I closed my cash and the Assistant Station Master told me that he was going to his quarters. He instructed me to the effect that when 6 Down was leaving I was to give a certain private number No. 26 (*Note.*—There is no such number in the private number slip). The line clear for No. 6 Down given to Jessore in the train message book is in my handwriting and was despatched by me. The private number slip is not in my possession, and I took the verbal statement of the Assistant Station Master who gave me the number. The line clear entry in the Train Message Book is in my handwriting and is not signed by the Assistant Station Master. When the train left Jessore, I was issuing tickets. I was on duty from the time 1 Up left till 6 Down arrived. There were only two 3rd class passengers booked from this station by me by 6 Down to Calcutta. When 6 Down left Jessore I sent the watchman Brijbhan to call the Assistant Station Master, when the train was in sight, the bell was rung as usual and the Assistant Station Master came from his quarters into the office and I went to collect tickets, I collected four tickets, 3rd class. Seeing no more passengers alighting, I returned to the office. The Assistant Station Master told me to give the out-report and after rolling 2 or 3 minutes I got Nábharan. On giving the out-report Nábharan asked "what train," I said "6 Down." He said "Up special" goods has left, I did not give the in-report of 6 Down (*Note.*—Entry not complete and not signed by Assistant Station Master). When the Assistant Station Master went off duty at the time of 1 Up he told me not to ask for line clear from Nábharan till he returned. I did not make the enquiry, I was collecting tickets. The enquiry for 6 Down, incomplete, is in my handwriting, and is not signed by the Assistant Station Master. The entry was written before I received

the out-report from Jessore. I have seen the entry in the Train Message Book as follows :—

From Nábharan station to Jhikargacha station, 5th January 1898, No. 4 your 3, line is clear for 6 Down mixed. Private number.

P. C. B.

It is in my handwriting ; I wrote it before 6 Down left Jessore. I never received it.

I have seen the entry in the Down line clear book.

From Station Master, Nábharan.

To Station Master, Jhikargacha.

Message No.—, dated 4th January 1898.

Line clear for 6 Down.

Private number 39.

Time received 4-15.

J. N. Audhicary.

Station Master's initials.

P. C. B.

Signaller's signature.

The entry is not in my handwriting nor are the initials mine, although they are intended to look like mine. I know of no other case in which my initials are forged. These initials are forged. When the train left and the Assistant Station Master was in the office the out-report of 6 Down was given to Nábharan. When Nábharan said that the Up special had left, I informed the Assistant Station Master, Nábharan, and said at the same time "How can you start 6 Down, where have you got the line clear for it." I told the Assistant Station Master. The Assistant Station Master then sat down to the instrument and said to Nábharan "why you gave the line clear," then the Assistant Station Master, Jhikargacha asked Nábharan, where he had got the line clear for the Up special. Then we heard a crash, and we heard two whistles, I did not look at the clock when the crash was heard. I gave the out-report of 6 Down as 4-42. I did not look at the clock. It took me 2 or 3 minutes to collect tickets after the train left. The train left almost immediately after the tickets were collected. The train was here about 2 minutes. I do not know who gave the line clear to the guard. I did not see the guard or driver of the train at all. I did not see the guard of the train. There were the watchmen Brijbhan and Khalesi Ganga present on the platform when the train left. I received no notice of the Up special goods train leaving Dum Dum Cantonment. The Station Master was sent for by the Assistant Station Master through Ganga, and he arrived. The Station Master sent Ganga to see what was the matter. Ganga returned with the guards of 6 Down and the Up special. The Up special guard said in Bengali "*Sabinash hoiche.*" The Station Master looked up some rule books and wrote out some telegrams. The goods clerk sent some messages. This was at about 5-15 or 5-30. I went home at 21-32 on the 3rd instant, and came back in half an hour. I came on duty before this for 3 Up. I do not remember how long I had been on duty. After 11 Up leaves at 7-27 I go home. I return for 4 Down at about 10 hours. If there is no weighment of fish, I rest till 3 Up, at about 14 hours. I sleep then at home till about 17 hours. I then stay here for the line clear message of 12 Down about 18 or 19 hours. Then I have my evening meal and after 5 Up at about 21 hours I sleep. I am called for 2 Down at 23 or 23-30. I remain on duty then till 1 Up leaves at 2 or 2-30. I sleep again after 1 Up, until 4 or 4-30 till the enquiry for line clear message for 6 Down. I work then till 11 Up leaves. I weigh fish for about 20 days.

Guard J. P. Kebbie in charge of No. 6 Down mixed, age 20.—Worked on East Coast Railway as Construction Guard. Joined Bengal Central Railway as guard on 30th October 1897. Pay Rs. 45. Has passed guard's examination, passed by Mr. Macdonald, Traffic Inspector.

By Government Inspector of Railways.—I left Jessore at 4-10, arrived at Jhikargacha 4-33. I do not know exactly what time I left Jhikargacha. I was about 4 minutes at Jhikargacha. I did not get the line clear. I do not know who got it. I was in the brakevan waiting for the Station Master to attend the brakevan. I had no packages for Jhikargacha.

By Agent.—I was not asleep in the brakevan.

By Government Inspector of Railways.—I always get the line clear at other stations and send it through the brakesman. I heard the bell being rung, I do not know who rung it. I did not give the starting signal. I do not know who gave it. I did not give the all-right signal. I was looking out for the driver and brakes man for signals. When I found the driver would not stop, I applied the brake and showed danger signals. I reversed the side lamps even, to attract the driver's attention.

By Agent.—I did not know that there was a special running.

By Magistrate.—I waited in the brakevan for 3 or 4 minutes waiting for the Station Master as I was allowed 10 minutes at the station, I got past the bridge while exhibiting signals and applying the brake. I tried to stop the train as I had not seen the line clear message or given the starting signal. I saw the brakesman at Jessore, and not after leaving Jessore.

After leaving the bridge I was leaning against the windows and looking out when I heard a noise, and was thrown down through the collision.

To Assistant Locomotive Superintendent.—The fog was so thick, I could not see my driver even if he gave me a signal. So I think the driver did not sound his whistle for the signals.

By Inspector, Government Railway Police and Government Inspector of Railways.—There were no fog signals laid for me outside Jhikargacha. I could not see the signals until I was quite close up to them. I got up after I was thrown down, and found myself in great pain. My stomach and chest were paining. I was quite dizzy and tried to get the door open. This took some time as it was jammed by the collision. When I eventually got down, I went to see what was the matter and saw I had collided with a goods train. I shouted to see if my driver, etc., was hurt. Some passengers called out to me, but I was hurt and could not open the doors, and called out for passengers, who helped me. The lamps were thrown off the brakevan when I came to the station. I informed the Station Master and Assistant Station Master of the accident. I did not tell the Station Master or Assistant Station Master that my train had started without my giving a line clear. I did not think it was my duty to report this, regarding the line clear to the Station Master. I did not do so as I felt afraid he would be prepared to trump up a charge against me.

Magistrate.—I was questioned by the police. I at first refused to reply to the police, but I afterwards did.

Kristo Dhon Mookerjee, Assistant Station Master, Nábharan, age 43.—In Bengal Central Railway service since 1st October on Relieving list and then posted at Nábharan as Assistant Station Master. was on East Indian Railway as Station Master, extra Relieving Clerk, Booking Clerk, Signaller, for about nine or ten years.

By Magistrate.—I left the East Indian Railway the first time on account of ill-health. I was four or five years Station Master on the East Indian Railway. On rejoining, I was appointed as clerk, and could not get promotion as there were more pressing claims for promotion. I am getting R20 at Nábharan. I was getting R25 and 40 on the East Indian Railway. I joined Bengal Central Railway soon after leaving the East Indian Railway. I received the usual advice regarding the running of the Up special goods at about 23 o'clock on the night of the 3rd January. The telegram came through Benapol. The Up special goods arrived at Nábharan at 4 hours. After arrival I detached six empties, from the time the train left Benapol I had been rolling Jhikargacha for line clear message, *i.e.*, from 3-30 to 4-10 hours. When I failed to get Jhikargacha and wishing to save a detention to the goods train, I started her on a proceed order. I considered Subsidiary Rule 22 (*a*) (*i*) applied to the Up special.

By Government Inspector of Railways.—I allowed 26 minutes, less even than the running time, as the train was a light one I knew that No. 6 Down was due out at 4-42. I gave the proceed order not because there was a failure of telegraph, but because the man was not present at the other end, and I could not get an answer. I have issued proceed order

five or six times at Nábharan since I have joined the line.

By Magistrate.—I have reported them all to the Assistant Traffic Superintendent's office.

By Magistrate.—The rule is that if there is no answer in an hour we report the failure to the Government Telegraph Department. On another occasion I gave a proceed order to 2 Down mail to the Traffic Inspector. No. 1 Up mail is due to leave Benapol at 0-59. No. 2 Down was running late. No. 1 Up mail was late also. There is a circular to the effect that a passenger train be detained 5 or 6 minutes for a goods train, there is no harm, and the goods train may be pushed on.

To Assistant Traffic Superintendent.—I have now seen that the Eastern Bengal State Railway rules under which we are working allow this.

Bijoy Krishna Mookerjee, acting as guard of Up special goods Ex Dum-Dum Cantonment, age 23.—On Bengal Central Railway since opening as trains clerk, two or three months on Eastern Bengal State Railway as tally clerk. I have run in charge of a train three or four times, I have not passed the guard's examination, I was ordered by the Station Master, Dum-Dum Cantonment, to go in charge of the train. Pay Rs. 15. I do not know guard's rules. I have not received a copy of the General Rules. I have seen guard's work done at stations both signalling and shunting. I call this a line clear book (shown a caution message). If the distant signals are not lowered, and if any driver does not stop in time I put on my brake, and on other occasions where there is a necessity, (admitted by Assistant Traffic Superintendent that he is not a passed guard) shown proceed order counterfoil. It was given to me, I signed the counterfoil. I did not take it to the driver. The Station Master told me there is no answer from Jhikargacha, take this line clear.

Satu Lall Mojumder, Station Master, Jhikargacha, age 37.—Joined Eastern Bengal State Railway in 1883. Pay Rs. 35 and a profit of Rs. 15 to Rs. 20 handling money. The Assistant Station Master works from 18 hours to 6 hours. The man called signaller is a general assistant. He has to attend every passenger train. Attends telegraph duties from 6 or 8 hours and again from 10-30 to 14 hours, and after this he is relieved from telegraph duties. After attending a passenger train he can go to sleep. After 14-30 he has nothing to do with telegraph duties. I have sent two or three trains under proceed orders, I make a note in the station daily report in the column for general occurrences. I sometimes report specially. I get other stations' replies in such cases to be verified. I give proceed orders when I cannot get answers. In the case of say no response from say Jessore I send the enquiry through Nábharan. In such cases I have received replies from other stations. I recollect having once got a line clear from other stations and before that on several occasions.

Finding.

We are unanimously of opinion that Jogendro Nath Audhicary, Assistant Station Master, Jhikargacha and Kristo Dhon Mookerjee, Assistant Station Master, Nábharan, were responsible for the accident. The former gave a false line clear for No. 6 Down mixed to proceed to Nábharan knowing that the same had not been received from Nábharan, and the latter allowed the Up goods special train to proceed to Jhikargacha contrary to Eastern Bengal State Railway Subsidiary Rule 22 (*a*) (2). Guard J. P. Kebbie, of No. 6 Down mixed, neglected his duty, and the collision might have been averted if he had done it.

Conclusion.

I agree with the finding in so far as to fix responsibility for the accident on the Station Masters on duty at Nábharan and Jhikargacha, but I also consider that signaller P. C. Biswas was greatly to blame in having written out and initialled in the train message book a line clear message for No. 6 Down before it was actually received, and also that Guard Kebbie did not endeavour, as he should have done, to stop the train when he found it starting without his having received the line clear.

2. The main feature brought to light by the evidence seems to consist in the gross and apparently habitual disregard of rules by the staff concerned.

* * * * * * * *

Calcutta; *The 12th January 1898.*

R. C. DYSON, *F. C. H., Assoc. Mem. Inst. C.E.,*
Government Inspector of Railways, Calcutta.

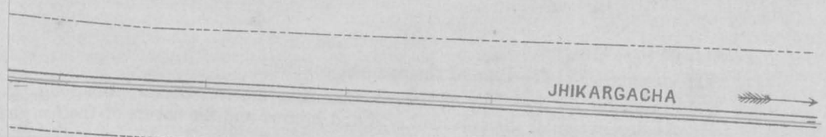
Documents accompanying—

(1) *Annexure No. 1.*—Plan of the scene of collision.

(2) *Annexure No. 2.*—Copy of Report from the Native Doctor, Bongong, giving the description of the persons killed and injured and the nature of their injuries.

(3) *Annexure No. 3.*—List of damage done to the rolling stock with approximate cost of repairing it.

(4) *Annexure No. 4.*—List of damage done to the permanent-way with approximate cost of repairing it.



Litho., S. T. O., Calcutta.

ANNEXURE No. 2 IN APPENDIX A TO THE ABSTRACT RETURNS OF ACCIDENTS ON INDIAN RAILWAYS FOR THE THREE MONTHS ENDING WITH THE 31ST MARCH 1898.

Copy of a Report No. 3, dated 5th January 1898, from the Native Doctor, Bongong, to the Agent and Chief Engineer, Bengal Central Railway, Calcutta.

I beg to submit the following accident report for your information.

That on the 4th instant at about 6-30 hours I received an all-concerned message that the Up goods special train and 6 Down local train collided together at the 65th mile, between Nábharan and Jhikargacha stations and persons were injured. Just after receiving the telegram I and Native Doctor Hari Churn Singha started for the place of accident by special train with relief van at 7-58 hours. On our arrival there we found four persons were run over and killed and four persons were injured, whose description of injuries is noted below.

I gave the injured persons necessary medicines, dressing and diet, etc., and picked them up in brakevan and took them at Bongong by special train. Driver Abdul, one of the wounded persons would not like to go to the Hospital and he went at his home on his own accord. The guard, Mr. J. P. Kebbie, had slight shock and sprain, so he was allowed to go home. The other two persons, brakesman Roshenally and fireman Jopru, were taken to the Campbell Hospital by my special train, leaving Bongong at 15-20 hours under our care.

Description of injuries.

(1) Mr. J. P. Kebbie, aged about 22 years, European male, had slight shock and sprain on abdomen.

(2) Roshenally, aged about 23 years, Mahommadan male, brakesman of No. 6 Down train, had fractured the left humeros bone, face cut, lacerated wound of the skull, an abrasion and contusion all over the body and head.

(3) Abdul, aged about 46 years, Mahommadan male, driver of the Up goods special train, had lacerated wound of the skull and face, fracture of the nasal bone, and slight abrasion and contusion all over the body.

(4) Jopru, aged about 36 years, Mahommadan male, fireman of Up goods special train, had lacerated wound of the skull and slight contusion and abrasion all over the body and head.

Description of bodies.

(1) Abdul Hakim, aged about 30 years, Mahommadan male, driver of No. 6 Down train, run over and killed. His right thigh cut off from the hepatie joint, left thigh cut off from its middle part, and skull fractured.

(2) Meenaj, aged about 37 years, Mahommadan male, fireman of No. 6 Down, run over and killed and separated lower extremity from hepatie region and skull fractured.

(3) Becaur, aged about 20 years, Mahommadan male, 2nd fireman of No. 6 Down, run over and killed. His both ankle joints and left hand cut off.

(4) Mohamud, aged 24 years, Mahommadan male, 2nd fireman of Up goods special train, had no mark all over the body, most probably died from shock or internal injury.

ANNEXURE No. 3 IN APPENDIX A TO THE ABSTRACT RETURNS OF ACCIDENTS ON INDIAN RAILWAYS FOR THE THREE MONTHS ENDING WITH THE 31ST MARCH 1898.

List of damages to Engine No. 78 of No. 6 Down passenger train in collision at mile 65.

Name of damaged parts.	Remarks.
Framing	Both frames broken at trailing end slightly.
Steam brake	Piston damaged.
„ „ shafts	Broken 1, bent 2.
„ „ rods	„ 2, and bent 2.
„ „ shaft brackets	„ 1.
Safety valves	Column broken, valves, spring, and lever broken.
Whistle	1 broken.
„ rods	2 „
Pressure gauge	Broken.
Gauge column cocks	1 broken and another slightly damaged.
Side rods	Both bent.
Smokebox door	Slightly damaged.
Lamp brackets	Broken.
Front buffer beam	Bent.
Guard irons	Broken.
Awning and cab	Completely smashed and broken.
Stanchions	Broken.
Reversing lever	Bent.
Cylinder lubricator	Broken.
Valve „	Damaged.
	This engine was working the No. 6 Down passenger train and running tender first, and through this escaped all heavy damages at the expense of its tender.

Approximate cost, Rs. 4,000.

Damage to Tender of No. 78 Engine.

Name of damaged parts.	Remarks.
Framing	Both outside frames bent and cracked.
Longitudinal stays	Bent and broken.
Diagonal „	„ „ „
Transverse „	„ „ „
Drag box front	„ „ „
„ „ foot plate	Broken.
„ „ spring	„
„ „ buffers	1 „ 1 bent.
„ „ guides	Both broken.
„ „ draw bar	Broken.
„ „ pins	Bent.
„ safety links	1 broken and 1 bent.
„ pins	Broken.
„ trailing	„ completely.
„ „ spring	„
„ „ pins	„
„ „ draghook	„ and rod bent.
Buffer plates	„
Buffers	„
Foot steps	„
„ boards	„

Damage to Tender of No. 78 Engine—contd.

Name of damaged parts.	Remarks.
Foot boards brackets	Broken.
Horn check blocks	4 „
„ „ stays	3 „ 3 bent.
„ „ studs	„
Wheels, leading	Axle bent, useless.
„ middle	„ „ slightly.
„ trailing	„ „ useless.
Axle boxes, trailing	Both broken.
„ „ middle	1 „
„ „ trailing	1 „
„ „ covers	2 „
Springs, leading	Slightly damaged.
„ middle	1 broken, 1 damaged.
„ trailing	Slightly damaged.
„ guide brackets	2 Broken.
Hand rails	Broken.
Brakes, screw	„
„ handle	Bent.
„ shafts	Broken.
„ connecting rods	„
„ stay rods	„
Tank side plates	Bent and cracked.
„ bottom plates	Broken.
„ back plates	Smashed completely.
„ top plate	Broken.
Coal space coping	„ and bent.
Water manhole	„ up.
Feed valves	„
„ rods and handles	„
„ pipes	„
„ „ hanger and stays	„
Rubber pipes	Torn, useless.
Lamp brackets	Broken.
Tool boxes	Smashed up.
Awning	„
„ stanchions	Broken.
Fuel fence	„

Approximate cost, Rs. 6,000.

List of damage to No. 84 Engine of Up Special Goods on 4th January in collision at mile 65.

Name of damaged parts.	Remarks.
Framing	Both sides broken in front of cylinders.
Buffer beam	Front completely smashed.
Smoke box	Door badly damaged and front plate damaged, side bent and broken.
Chimney	Slightly damaged.
Cylinder	Both broken.
„ cover	„ „
„ grease cocks	„ „
„ lubricators	2 damaged.
„ dummy glands	1 broken.
Piston rod	Slightly bent.
Bogie	Both frames broken off by the leading check blocks.
„ wheels	Both axles bent.
„ guard irons	„ broken.
Steam brake gear	Shaft broken and rods bent.
Hand rails	Bent.
Stanchions	Of cab bent and broken.
	This engine was running the Up special goods and ran into the tender of the down passenger's engine, and as the collision occurred on a curve, it is quite possible that the engine may be knocked out of the square and will require to be cut to pieces and squared up again.

Approximate cost, Rs. 6,000.

List of damages to tender of Engine No. 84, working Up Special Goods.

Name of damaged parts.	Remarks.
Framing	Both sides bent and knocked out of the square about 14" or 15".
„ longitudinal stays	Bent and out of square.
„ diagonal „	„ „
„ transverse „	„ „
Drag box leading	Damaged badly.
„ foot plate	Broken.
„ spring	„
„ buffers	Bent.
„ „ sockets	Broken.
„ draw bar	„
„ safety links	„
„ „ „ pin	„
Buffer plates	Bent and cracked.
Buffers	1 broken and bent.
Foot steps	1 „ and 1 bent.
„ boards	2 „
„ „ brackets	4 „ and 2 bent.
Horn check blocks	3 „
„ „ stays	2 „
Wheels leading	Axle bent.
Hand rails	Bent and broken.
Brake screw	Broken and pillar broken.
„ handle	Bent.
„ „ shafts	2 bent.
„ rods	Both broken.
„ hangers	3 broken.
Tank side plates	Slightly damaged.
„ end „	Back plate broken.
„ bottom plate	Hole in bottom.
„ top plate	Broken.
Fuel coping	„ and bent.
Feed pipes	„
Rubber pipes	Destroyed.
Feed valve rods	Broken.
„ „ brackets	„
„ „ cocks	„
Tool boxes	„
Awning	Smashed.
„ stanchions	Broken.

Approximate cost, Rs. 4,000.

Damage done to Coaching Vehicle No. 120, composite brake van, next Engine No. 78.

Name of damaged parts.	Remarks.
End partition (front)	Completely smashed in.
Compartments	2 broken up into firewood.
Buffers	1 smashed.
Head stock	1 broken.
Sale box	1 „
Axle boxes	3 „
„ „ guards	4 bent and twisted.
Foot boards	2 broken.
Roof rails	1 „
Brake gear	Broken and bent.
„ screw	Bent.
„ hangers	Broken.
	Floor at brake end which was in front is partially broken and torn up.
	Roof slightly damaged and six window glasses smashed, three frames of window joints broken.
	This brakevan was next to the engine.

Approximate cost, Rs. 800.

Damage to Coaching Vehicle No. 37, 3rd class carriage (old stock).

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
„ „ guards	4 „
Foot boards	4 „
„ „ hangers	12 „
Connecting rods	4 „
Head stock	1 bent.
Sole bar	1 „
Draw „	1 broken.
Buffers	Broken.
	This carriage is a complete wreck and all the wood work more or less damaged.
	This vehicle was in the front portion of the train and 2nd from the engine.

Approximate cost, Rs. 1,000.

Damage to Coaching Vehicle No. 27, 3rd class carriage (old stock).

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
„ „ guards	4 bent.
	All doors, frames, side pillar, window frames all broken, the wood work above the framing started, and all joints opened up.
	This vehicle was in the front portion of the train and 3rd from the engine.

Approximate cost, Rs. 800.

Damage to Coaching Vehicle No. 19, 3rd class carriage, fitted with retiring accommodation for native females.

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
„ „ guards	4 bent.
„ „ rods	1 broken.
Partitions (cast iron)	2 „
„ wooden	1 „
Bathroom door	1 „
	The wood work of this carriage above the framing is a complete wreck. Door frames, side pillar, window frames and the native female retiring accommodation is broken down and smashed.
	This vehicle was in the front portion of the train and 4th from the engine.

Approximate cost, Rs. 900.

Damage to Coaching Vehicle No. 7, intermediate class carriage (old stock).

Name of damaged parts.	Remarks.
Axle bxes	4 broken.
„ „ guards	1 „ 3 bent.
Partitions (cast iron)	3 „
Benches	5 „

11th from

Damage to Coaching Vehicle No. 7, intermediate class carriage (old stock)—contd.

Name of damaged parts.	Remarks.
Pillars, end	4 Broken. The whole of the upper wood work above the frame is a complete wreck; door frames, side pillar and window frame all broken. The body lies at an angle of about 7″ forward out of the perpendicular. This vehicle was in the front portion of the train and 5th from the engine.

Approximate cost, Rs. 800.

Damage to Coaching Vehicle No. 32, 2nd class carriage (new stock).

Name of damaged parts.	Remarks.
Axle boxes	2 broken.
Head stock	1 bent.
Sole bar	1 ,,
Side panel	1 broken.
Foot board	1 ,,
Centre pillar	1 ,,
	The internal fittings all slightly damaged; one sleeping bunk broken down; one bathroom partition broken; eight window glasses broken; one looking glass broken and the wood work of the flooring started. This vehicle was in the middle of the train and 6th from the engine.

Approximate cost, Rs. 350.

Damage to Coaching Vehicle No. 7, 1st class carriage (new stock).

Name of damaged parts.	Remarks.
Axle boxes	2 broken.
,, ,, ...	2 slightly bent.
Head stock	1 bent.
Sole bar	1 ,,
Window glasses	10 smashed.
Looking ,, ...	1 broken.
	All the interior fittings all more or less damaged. Wash-hand basin broken; bathroom door broken; sleeping bunks, brackets, all bent. Seats, wood work, started off the joints. Body shifted on the frame. This vehicle was in the middle of the train and 7th from the engine.

Approximate cost, Rs. 450.

Damage to Coaching Vehicle No. 16, 3rd class carriage (old stock).

Name of damaged parts.	Remarks.
[illegible]	
Roof rails .	
Brake gear	4 broken.
,, screw ards	2 ,, 2 bent.
,, hangers et	1 ,,
cast iron) . . .	2 ,,
. . . .	3 ,,

Damage to Coaching Vehicle No. 16, 3rd class carriage (old stock)—contd.

Name of damaged parts.	Remarks.
Ends of body	2 Broken. All the wood work above the framing completely wrecked, door frames, window frames, window glasses and pillars of the body wood work broken at the top of the panel plating. The body lies forward at an angle about 6 inches out of the perpendicular. This vehicle was in the middle portion of the train and 8th from the engine.

Approximate cost, Rs. 900.

Damage to Coaching Vehicle No. 32, 3rd class carriage (old stock).

Name of damaged parts.	Remarks.
Axle boxes	3 broken.
,, ,, guards	4 bent.
Benches	1 broken and smashed.
	All the wood work above the framing is more or less damaged. Door frames, window frames, window glasses and pillars of body wood work all broken at the top of panel plates. The body lying at an angle of about 4½ inches out of the perpendicular. This carriage was almost in the middle of the train and 9th from the engine.

Approximate cost, Rs. 850.

Damage to Coaching Vehicle No. 12, 3rd class carriage (old stock).

Name of damaged parts.	Remarks.
Axle boxes	4 Broken.
,, ,, guards	4 ,,
Sole bars	2 slightly bent.
Partitions (cast iron) . . .	3 broken.
	All the wood work above the framing in damaged, all the windows, door frames and the pillars of body all broken just at the top of panel plates and lying forward at an angle of more than 6 inches from the perpendicular. The carriage was in the rear portion of the train and 10th from the engine.

Approximate cost, Rs. 900.

Damage to Coaching Vehicle No. 143, Milk Van (old goods stock converted).

Name of damaged parts.	Remarks.
Axle boxes	4 Broken.
,, ,, guards	4 ,,
Head stocks	2 bent.
Sole bars	2 ,,
End doors	2 broken and iron work of doors bent.
	This van was in the rear portion of train and 11th from the engine.

Approximate cost, Rs. 250.

Damage to Coaching Vehicle No. 149. Milk Van (old goods stock converted).

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
,, ,, guards	4 ,, and bent.
Head stock	1 badly bent.
Sole bars	2 ,, ,,
Shelves	3 broken.
Stanchions	3 ,,
End doors	2 ,, and iron work bent.
	This van was in the rear portion of train and 12th vehicle from the engine.

Approximate cost, Rs. 300.

Damage to Coaching Vehicle No. 119, Composite Brakevan.

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
,, ,, guards	4 bent.
Roof railing	1 broken.
	Partition of brake compartment broken. Body of carriage shifted and pillars broken.
	This van was in the rear and 13th from the engine.

Approximate cost, Rs. 475.

Damage to Goods Vehicle No. 555, Low-sided truck (new stock).

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
,, ,, guards	4 ,,
Buffers	2 ,, 1 bent.
Brake gear	Broken and parts bent.
Draw bars	1 broken.
Wheels	1 wheel tyre had a piece about 10 inches in length cut completely out and the remaining portion of the tyre left on the wheel.
	The underframe of the vehicle is doubled up and badly damaged, sides, ends and doors smashed.
	The position of this vehicle is not known, but conjectured to have been next the engine.

Approximate cost, Rs. 650.

Damage to Goods Vehicle No. 824, Iron covered goods (new stock).

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
,, ,, guards	4 ,,
Springs, bearing	1 ,,
Brake gear	Hanger links broken, rods broken and bucket bent.
Draw bar	1 broken.
Buffers	1 ,,
	This vehicle is a complete wreck, underframe sides, roof and ends smashed.
	The position of the vehicle is unknown, but must have been in front.

Approximate cost, Rs. 900.

Damage of Goods Vehicle No. 869, Iron covered goods (new stock).

Name of damaged parts.	Remarks.
Axle boxes	2 broken.
,, ,, guards	4 ,,
Brake gear	2 hangers broken, rod bent.
Buffers	1 broken, 1 head bent.
Side chains	1 ,,
	This vehicle has underframe bent and twisted, head stock bent and sole bars bent, sides, roof and ends all smashed.
	This vehicle's position is unknown, but must have been close to the front of the train.

Approximate cost, Rs. 800.

Damage of Goods Vehicle No. 184, Iron covered goods, trunk pattern (old stock).

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
,, ,, guards	2 ,, 2 bent.
Springs, bearing	2 ,,
Wheels	2 axles bent.
Brake gear	Brake rod broken and hangers bent.
Head stocks	Broken.
Sole bars	Bent and underframe broken.
	This vehicle is a complete wreck, sides, ends, roof and floor all more or less damaged.

Approximate cost, Rs. 950.

Damage to Goods Vehicle No. 755, Iron covered goods (new stock).

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
,, ,, guard iron	4 ,,
Buffers	2 ,,
Sole bar	1 bent.
Wheels	1 axle bent.
Brake gear	Bent and broken in parts.
	The roof broken and smashed, both ends smashed in and broken, one side very much damaged.
	This vehicle was on the goods train and its exact position in the train unknown, but I am inclined to think was about 3rd from the engine.

Approximate cost, Rs. 750.

Damage to Goods Vehicle No. 142, Iron coveed goods, trunk pattern (old stock).

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
,, ,, guards	4 ,,
Buffers	1 ,, 2 bent.
Draw bars	1 ,,
Head stocks	2 ,,
Sole bars	Bent.

Damage to Goods Vehicle No. 142, Iron covered goods, trunk pattern (old stock)—contd.

Name of damaged parts.	Remarks.
Brake gear	Partly broken and rods bent.
	This vehicle has one end smashed completely, one end partly broken. Roof partly broken, flooring partly broken and torn up.
	The position of this vehicle is not known, but must have been about 4th from the engine.

Approximate cost, Rs. 800.

Damage to Goods Vehicle No. 752, Iron covered goods (new stock).

Name of damaged parts.	Remarks.
Axle boxes	4 broken.
„ „ guards	4 bent.
Brake gear	Broken rods, hanger broken and braket bent.
Ends	2 smashed in.
Draw bars	1 broken.
Side chains	3 „
Coupling	Broken.
	This vehicle has both ends smashed in, roof badly damaged and sides slightly bent in, underframe damaged and bent.
	The position of this vehicle is unknown, but had a place in the first 7.

Approximate cost, Rs. 750.

ANNEXURE NO. 4 IN APPENDIX A TO THE ABSTRACT RETURNS OF ACCIDENTS ON INDIAN RAILWAYS FOR THE THREE MONTHS ENDING WITH THE 31ST MARCH 1898.

List of damage done to the permanent way in the accident (collision) at the 65th mile on the 4th January 1898 with approximate cost of repairing it.

	Approximate cost of replacing.
	Rs.
8 Rails, Bengal Central Railway, 30 feet, badly bent . . .	224
2 „ „ „ „ 30 „ slightly bent . . .	56
370 Spikes (dog) bent and broken	25
4 Fish-plates badly bent	2
108 „ bolts broken	15
100 Creosoted sleepers damaged	428
	750
Less estimated cost of returned stores	250
Net cost	500

G. I. C. P. O—No. 138 P. W. D.—27-8-98.—613—J. T. C.

Appendix B to the abstract returns of accidents on Indian Railways for the three months ending with the 31st March 1898.

FROM

THE SENIOR GOVERNMENT INSPECTOR OF RAILWAYS,

Bombay,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,

Public Works Department.

SIR,

I have the honour, in accordance with the instructions contained in Government of India Circular No. 7 (Railway) of 19th April 1895, to report, for the information of the Government of India, the proceedings of a Committee of Joint Enquiry held at Jám Jodhpur on the 14th January 1898 to investigate the causes of an accident which happened at that place on the same date, in which No. 8 Up Mixed train came into collision with a ballast train.

No Government Inspector attended the inquiry, as one was not available at the time.

The Committee was constituted as follows :—

MR. C. CARROLL, *Traffic Superintendent.*
MR. H. S. DAVIES, *District Engineer.*
MR. JOHN BLAGRAVE, *Locomotive and Carriage Superintendent.*

DESCRIPTION.

Jám Jodhpur is a station at mile 122 from Dhola Junction of the Bhavnagar-Gondal-Junagad-Porbandar Railway, which is on the metre gauge ; the arrangement of the station will be understood from the plan annexed.

On the date named the ballast train consisting of an engine, 32 ballast trucks, one truck of coal and two brakes, which was working on the section, arrived from Páneli Moti at Jám Jodhpur at 7-38 and was to cross No. 8 Mixed Train there. The mixed train left Bálwa, 4 miles distant, with a load of 18 vehicles at 7-28, two minutes behind its time ; according to running time it was due at Jám Jodhpur at 7-42, and would, therefore, approach the distant signal there at about 7-37. The ballast train, which came in on the straight or platform line, moved forward almost immediately after arrival, under the orders of the Station Master, beyond the up points to back into the loop siding ; the reason for bringing the ballast train in on the platform line being that there were two covered goods wagons and two third class carriages on the loop, at the Páneli Moti end, ready to be attached to the mixed train. The train was in the act of backing into the siding, into which a few wagons had entered, when No. 8 arrived and ran into the ballast engine (which was tender first). The collision appears to have occurred at about 7-41, at a distance of about 135 yards on the Balwa side of the culvert (2 spans of 12 feet girders), which is 1,300 feet from the centre of the station building and about 217 feet from the points. The weather is reported to have been somewhat foggy at this time.

The effect of the collision was serious ; three coolies' children aged about four to six years were killed and two coolies injured ; four ballast trucks, 3rd, 4th, 5th and 6th from the engine, were derailed ; two—7th and 8th—were thrown over the culvert, and one, the 9th, from the engine, was partly derailed on the culvert ; this latter had to be thrown over into the bed of the nullah to clear the line. The buffer beam of the engine of No. 8 Mixed Train was completely knocked out of shape, and the cow-catcher knocked off and smashed. Lists are appended showing details of damage to rolling stock, permanent-way, etc.

EVIDENCE.

Driver Adie.—I was driver of 8 Up Mixed. I left Bálwa two minutes late on account of shunting. I did not make up any time on the road. After I came to the place for whistling, I blew my whistle after I had passed the gangmen's huts. It was very foggy and I could not see from a distance, but when I came near the signal I found it lowered and began put[illegible]rdered the brakes as I got to the signal. I saw an o[illegible] same Rule of me which I could not make out on acc[illegible] so disregarded I reversed my engine and put on all b[illegible] with a ballast engine. I could not engine was doing, whether backing

or coming towards me. I did not pass over any fog signals on the line, and when I collided with the ballast engine I was going at 6 or 7 miles an hour. There was no lamp in the signal, and I did not see the signal arm until I got within 30 feet of it. The distant signal gives me permission to go as far as the points. Mile 154 to 155·56 was the point at which I collided with the ballast engine. I got off the train and examined the telegraph post 154. I reversed my engine when going 6 miles an hour as I considered it necessary to do so. I asked the Station Master why he lowered the signal and he replied "I did not lower the signal." I asked the driver of the ballast train why he was at the point of collision when he knew the mixed was coming in and he replied that he *was* there shunting by the Station Master's orders. I consider that the damage to my engine would have occurred while I was going 6 miles an hour as my load was 18. I exercised all the caution necessary in approaching a station in a heavy fog. After the collision I looked at the position of the ballast rake and found that the main line of the station yard was clear, but some wagons were in the siding, and when I made the ballast engine out she was about 40 feet from me. When I got to the bridge I whistled for the signal. I whistled for the distant signal when I reached the gangmen's quarters. I could not see the quarters, but knew their position by the fact of my reaching the bridge. My fireman and khalasi were with me, and myself and my khalasi were on the look out.

It is not usually foggy, but was so this morning.

Fireman Taga Becha.—I was fireman of 8 Up Mixed. When I came on the down grade, my driver shut off steam and I commenced cleaning fires. The driver reversed the engine and opened the throttle valve. I was engaged in my work and did not notice the state of the distant signal. I could see the ballast engine about two posts off, but could not say whether she was moving or not, but appeared to me to be standing still. The air was very foggy. Some days it is foggy and some days clear, but this morning was very foggy. My train was going very slowly before the collision.

Teja Jewathi (khalasi).—I could not see the signal till within two or three posts of it, but when I saw it the signal was down. When I came inside the signal by a post's length the arm was raised. I don't know what speed the train was going at, but it was moving slowly. When the collision occurred I was handling one brake; the other brake was attended to by the fireman. I could see the ballast engine four posts before we reached it. I cannot say whether the ballast engine was moving or not when the collision occurred. I was hit by the pinch bar when the collision occurred. I could not say whether the engine was puffing or not.

Driver C. Andrade of Ballast Train.—I was driver of ballast train. When I came from Páneli Moti the Station Master took me on the platform and told me to run down and go into the siding as the line was blocked. As I was backing my train into the siding I heard 8 Up Mixed coming and did not see her till she got in five yards of me, on account of the fog. I could not see the distant signal. When I passed the home signal it was at danger, but when I was backing I could not see it through the fog. I asked the Station Master where 8 Up Mixed was and he informed me that it was late. Upon the Station Master's telling me to go ahead, I obeyed his instructions without delay. When I came from Páneli Moti and arrived at the distant signal, I came to a stand. When I drew up on coming into the station I could see the pointsman standing at the points. The fog kept lifting and clearing which will account for my being able to see the pointsman from where I drew up and yet not being able to see the engine of 8 Up Mixed till she got within five yards of me. I had moved about five or six wagons into the siding when the collision occurred. I did not examine the telegraph post to see the mileage when the accident occurred. After the collision occurred my train was moved back three or four wagon lengths. While shunting back I could see the red lamp held by guard of my rear van through the fog although the distance was about 700 feet away. I did not hear the engine of the Mixed whistle at all, as the whistle lamp of engine was not lighted. The lamp of my tender was not lighted. I am aware that foggy weather lamps should be exhibited on the distant and home signals posts. It was not foggy at Páneli Moti and I did not run into the fog, till half-way between Páneli Moti and Jám Jodhpur.

Fireman Hurry Govind.—I was fireman of the ballast train for (?) the mixed. When we arrived the Station Master said the mixed was late and we were to go ahead and the signal was not lowered, and I could see the signal arms when I got outside the points about four posts length off. The fog was not so bad as to prevent my seeing objects two or three posts length away. My attention was not directed towards where the up mixed would come, but towards the station where we were backing. I did not hear up mixed whistle at all. I could see the guard of my train from the engine; he had no lamp but signalled with flags which I could see as it was not dark enough to prevent my seeing. The fog was not very heavy and kept lifting and thickening. When the collision occurred I could see the three trucks as they were thrown off the culvert.

Kessar Lalla, Khalasi, Ballast Train.—We came into the station on the signal being lowered. The Station Master told us to go into the siding. When we were backing into the siding we were collided with. The fog was so thick that I could not see half a post's length. The home signal was not lowered for the mixed train, and I could not see the distant signal. I did not hear the mixed train whistle.

Manishanker D.—I was guard of 8 Up Mixed. When I arrived near the distant signal the driver whistled, but on account of fog could not see whether signal was given or not. When my brake reached the signal, I found it was not lowered, so I put my brake on. I could not see the signal at all until my brake was opposite to it. I was in front brake and was looking in backward direction on the collision occurring. I experienced a heavy shock, and when the trains stopped I asked a ballast Muccadam near the culvert what had happened and he told me we had collided with a ballast train, and he also informed me that three persons had been killed and two injured. I could not see the home signal, and neither home nor distant signal lamps were lighted, but my lamp *was* lighted. I had eight wagons in front of my brake, and at the time of the collision I was looking to the tail of my train.

Byramji D., Brakesman of Up Mixed.—When we left Bálwa it was foggy and when the driver neared the Jám Jodhpur distant signal he whistled for it, but whether it was lowered or not I cannot say and five minutes after the whistle had been given the collision occurred. When my brake-van passed the signal it was at danger (*i.e.*, not lowered). I could only see two or three carriage lengths ahead; it was so foggy. My train must have been going at least ten miles an hour. On the collision occurring I was thrown against the door of the brake-van. The distant signal was not lighted and I could not see the home signal. I could not see the guard in the front brake, and I did not see the ballast train before the collision occurred.

Cawasjee D., Guard of the Ballast Train.—When the ballast train arrived at Jám Jodhpur the Station Master ordered us to proceed further in order to run round, stating 8 Up Mixed was late, and we went beyond the trailing points. After reversing the points I was backing the train into the siding and after about ten wagons and brake had gone into the siding I felt a sudden bump and fell off the foot-board of the rear brake. Upon getting up I went towards my engine to enquire what had happened and found some of my wagons separated and the coolies began to jump off the trucks shouting that the mixed train had collided with us and I was further informed that the engines had collided. The fog was heavy and I could not see 50 yards ahead. I was signalling the shunting with my lamp which was lighted. I could not see the distant signal when coming into Jám Jodhpur till I got within ten wagons length. Neither home nor distant signal lamps were lighted.

Time-keeper Javerilal.—

from Páneli Moti on the ballast train arrived [illegible] main line and the Station Master wanted to take the ballast train into the siding. The ballast train passed the trailing points, and whilst backing got a bump and I fell down in the front brake from the collision. After leaving Páneli Moti the weather became very foggy and I could only see one telegraph post length. I did not hear the mixed train whistle, but my engine whistled twice. I saw that the home signal was not lowered, but cannot say whether the distant signal was lowered or not. I cannot say at what

speed the mixed train was running, and I did [illegible] it coming, and until the collision occurred I did not know of its arrival.

Chaganlal B, Station Master, Jám Jodhpur.—On arrival of the ballast train I arranged to put it into the siding. I had to run it ahead and back it into the siding as the other end of my yard was blocked. There were four vehicles which had to be attached to the forepart of the mixed; when about ten vehicles were shunted into the siding I came to know that a collision with the mixed engine had occurred. The ballast train arrived at *7-38* and I received the mixed departure at *7-35* from Bálwa. The out report received of departure was *7-28*, but I received the message at *7-35*. The booked departure is *7-26*. I allowed the ballast train to shunt into the siding as I considered there was sufficient time to carry it out, having received the departure of the mixed at *7-35* as having left at *7-28* and I did my shunting, keeping the signals against the train. I kept the signals at danger and the collision occurred while they were so set. The fog was changeable and attime I could see the signal and at times could not do so. I intended to light the signal lamps on account of the fog, but put it off as the fog kept clearing and I thought it would not be necessary. I did not hear the mixed engine whistle for the signal. I never lower the signal until I hear trains whistle for it. I did not see the collision, but upon being told of its occurrence I enquired into the cause.

Signaller Gordhandas.—I received the out report of 8 Up Mixed from Bálwa at 7-35, the train having 7-28. I made no enquiries why this report was given late.

Pointsman Kala.—When the ballast train arrived the Station Master told me that the train would go ahead and back through my points. I carried out the instructions and when the brake and two wagons had passed into the siding the collision with 8 Up Mixed occurred. It was foggy, but not so much as to prevent view of both signals, and the Station Master told me that when the home signal was lowered I was to give the distant signal as the home was not given. I did not lower the distant signal. The mixed train did not whistle for the signal and until the home signal is lowered I never lower distant signals. I have been 18 months in the service. I was at the up facing points, one man at the down and the third man at the home. When the ballast train was backing into the siding I held the points. When holding the points handle I could not let the distant signal down, as to do the latter I should have to hold the lever down and to do which I could not hold the points.

Pointsman Bolansingh.—I was at the home signal when the ballast train arrived and did not leave it. The Station Master told me to go there and handle the signals as occasion requires for ballast and mixed. I never lower the signals unless ordered by the Station Master.

Pointsman Bhugwan.—I was at the down facing points and remained there and did not leave them. No signals were lowered for the mixed. I never lower my signal unless ordered by the Station Master, and this is done when the home signal is lowered on train whistling.

Finding.

The deposition of all the staff concerned and who were cross-examined is attached. The statement of all show there was a fog prevailing, but in regard to the density of it the evidence is most conflicting. The driver, Adie, of the mixed train states he could not see the distant signal until he was within 30 feet of it, and that he did not see the ballast engine until he was within 40 feet of it. All the other witnesses give varying distance of clear view. Driver Adie's own fireman and khalasi, who were on the engine with him, state they had a clear view, the former 200 yards, the latter 200 to 300 yards. The driver of the ballast train states he could not see clearly more than five yards. He at the same time stated he could see his guard's lighted lamp about 700 feet off. This contradiction he explains by stating the fog kept clearing and lifting. The brakesman of the mixed states he could not see clearly a greater distance than 40 to 60 feet. Guard Cawasjee of ballast states he could see clearly for about fifty yards. Ballast train time-keeper 100 yards. The Station Master and pointsman Kaloo, who backed the ballast into siding, state they could see the distant signal at both sides.

Driver Adie's evidence is not supported by his fireman and khalasi who were on the engine with him. His fireman cannot say anything as to state of distant signal arm, but asserts that he could see 200 yards ahead of him. The khalasi, although he supports him by asserting the signal arm was lowered, contradicts him as to the fog by asserting he could see from 200 to 300 yards ahead. Although driver Adie and his khalasi state the signal was lowered and put up again, we are not prepared to accept the statements as reliable. There are three pointsmen at the station. One "Kaloo" was at the up facing points backing ballast into siding. Another at the down facing points, and the third at the main signal. Driver Adie states he whistled for signals, but none of the station staff or ballast train staff support this. They all say a whistle was not heard. Summing up the whole of the evidence, we are of opinion that driver Adie of the 8 Up Mixed ran into the station against signals which were kept at danger to keep him outside until the ballast train had finished backing into the siding, and that to this rash act on his part the collision with its fatal result was due. The pull-over lever for the distant signal is close to the points and has to be held down to keep the signal at caution. While the ballast train was being shunted into the siding "Kaloo" was holding down the points lever, and while so engaged it was impossible for him to work the signal. We examined the up facing points and signal lever and were satisfied that the pointsman was correct in stating he could not work both. Adie's own statement and statements of others also show that he disregarded Rule 96 (2), page 58 of Rules Book as to exercise of caution when a signal cannot be seen due to fog, or other obstruction. He also disregarded Rule 109 (1) (*a*), page 63, as to head light which was absent on the foggy morning in question.

In the same way the Station Master is to blame for not having his main and distant signals lighted as laid down in Rule 90 (3), page 54 of Rule Book. He also disregarded Rule 79, page 59, which lays down that in foggy weather two detonators must be placed ten yards apart 100 yards outside distant signal. By Rule 187 (*d*), page 161 of Rule Book, no shunting is to be done ten minutes before train is due. On the date in question the Station Master ordered the shunting of the ballast train as a matter of urgency, and such is allowed for in the same Rule 187 (*d*) by the signals being kept at danger. The driver of the ballast train also disregarded rule quoted above as to head light.

According to the telegraph train book at Jám Jodhpur the out report of 8 Up from Bálwa was not received until 7-38 or seven minutes after the train had left there. It should have been received at 7-29. This matter is receiving the Traffic Superintendent's attention.

(Signed) C. CARROLL,
Traffic Superintendent.
(„) H. S. DAVIES,
District Engineer.
(„) JOHN BLAGRAVE,
Locomotive and Carriage Superintendent.

Note by the Senior Government Inspector.

The conflicting statements regarding the density of the fog go to show the correctness of the description of the weather given by the driver of the ballast train; the fog evidently was not "set," but "kept lifting and clearing." All the evidence, however, agrees in stating the weather to have been "foggy," a condition which renders operative the working regulations in connection with "fog" independent of the degree of obscurity which prevailed. The evidence, however, might well have been more complete regarding the duration of the foggy weather.

2. *The conduct of the Station Master—*

I.—The Station Master states that he put off lighting the signal lamps, "*as the fog kept clearing and he thought it would not be necessary.*" He makes no mention of his omission to place detonators on the line. Rules 78 (*a*) and (*b*), 79 and 90 (3) leave no discretion such as was assumed by the Station Master. By these rules signal lamps are to be lit and detonators placed outside the distant signal in *thick, foggy or tempestuous weather.* It was not, therefore, open to the Station Master to decide whether the fog was dense enough or sufficiently lasting to justify these precautions; it sufficed that the weather was foggy, and it was his bounden duty to take these precautions provided there was time to do so.

II.—The driver of the ballast train states that he ran into the fog half way between Páneli Moti and Jám Jodhpur: the distance between the two stations is 9 miles, and he reached the last named station at 7-38. He, therefore, probably met the fog at about 7-12. The Up Mixed, it is stated, left Bálwa in fog at 7-28. Apparently, then, foggy weather would have begun at Jám Jodhpur some time between 7-12 and 7-28, and as the Station Master did not expect the Up Mixed until 7-49 (it should have been expected about 7-37, but the out report from Bálwa was received at Jám Jodhpur at 7-35, and that time was taken at about the time of the train's departure), he had, according to his own calculation, ample time at least to light his lamps after giving line clear (given before 7-28); while if fog commenced before he gave line clear, he should have deferred the giving of line clear for so long as was necessary to ensure the lighting of lamps and placing of detonators being carried out before the arrival of the Up Mixed.

III.—The Station Master's omission to attend to these duties appears to have arisen either from an imperfect appreciation of the compulsory nature of the orders in the rules named in para. 2 (1) above, or from the dangerous inclination to run a certain amount of risk—fortified perhaps by the recollection of similar risks run in the past without evil results—rather than have to explain detention to trains.

IV.—The Station Master showed grave want of judgment in allowing shunting over facing points under the prevailing circumstances. To attempt a back shunt in the face of an approaching train in such weather, and under the sole protection of an unlighted distant signal, was to court disaster. The Up Mixed is timed to leave

Jám Jodhpur at 7-55, but little delay therefore (and delay counts for nothing when there is any question as to "safety") would have resulted had the ballast train been kept outside the station until the mixed had been received and had picked up the vehicles waiting for it on the loop, thus clearing a road for the reception of the ballast train.

V.—For reasons given in the following paragraphs, I consider the evidence to absolve the Station Master from blame in connection with the position of his signals.

3. *The conduct of the Driver of the Up Mixed—*

I.—The driver of the Up Mixed is not supported in his statement that the distant signal was "off" for his entrance. Evidence is most strong in the contrary direction. All agree that the home signal—the precursor of the distant—was not taken off; the driver's own guard, riding in the front brake, states that he could not see the distant signal until his brake was opposite it, and that then it was "on." The brakesman of the train makes a similar statement, and there is the further evidence given by the Committee of Enquiry after actual trial, that it was impossible for the pointsman, who was manning the facing points for the shunting, to work the signal lever while so employed.

II.—The driver's own evidence alone serves to convict him of most rash and negligent action in contravention of the rules for working. He states:—

(*a*) "*I whistled for the distant signal when I got to the gangmen's quarters. I could not see the quarters, but knew their position by the fact of my reaching the bridge.*"

(*b*) "*I did not see the signal arm until I was within 30 feet of it.*"

(*c*) "*When I came near the distant signal*" (i.e., 30 feet from it) "*I found it lowered and began putting on my brakes.*"

(*d*) "*The distant signal gives me permission to go as far as the points.*"

III.—From the first of these statements, it is clear that he knew his whereabouts and that he was approaching the distant signal; from the second it is evident that he could not have known whether the signal was 'on' or 'off' until he was practically abreast of it; from the third it is clear that he entirely ignored the caution prescribed in Rule 96 (2) and the possibility of the distant signal being against him, when under Rule 101 he would have had to stop his train before reaching it. And from the last of these statements, it seems evident that he took it for granted that the distant signal would be off.

Finally, having put it out of his power to attend to any conditional permission to run as far as the points which the position of the distant signal arm might indicate, he ran down for the points at a speed which with greasy rails must in my opinion have taken him well over them since, when the collision occurred 217 yards outside the points, he was travelling at a speed which, judging from the results of the accident, could not, it seems, have been much less than 10 miles an hour.

IV.—The Up Mixed, it is stated, left "Bálwa" in foggy weather; there was therefore no excuse for the driver neglecting to light his head lights [Rule 109 (1)] before he left the station.

4. *The conduct of the Driver and Guard of the Ballast Train and of the Guard of the Up Mixed—*

All three were guilty of a breach of Rule 109. Even if the staff of the ballast train are excused for not lighting their lamps on the road when they entered the fog half-way between Páneli Moti and Jám Jodhpur, on the grounds that the rules do not make it clear that a stop should be made on the road for lighting when foggy weather commences, there is no excuse for not lighting

lamps when shunting in the yard—Rule 109 (2). The Up Mixed, as already stated, left Bálwa in foggy weather, so there was no excuse for the guard of that train neglecting Rule 109 (1).

5. The above remarks show that I concur with the finding that the Station Master disregarded Rules 79 and 90 (3). I also consider that his grave error of judgment in allowing shunting operations under prevailing conditions is largely responsible for the collision.

But Driver Adie is to my mind by far the most guilty party. I concur with the Committee of Enquiry in finding him guilty of disregarding Rules 96 (2) and 109 (1), but his complete disregard of these rules coupled with his disregard for such an important rule as 101 and resulting in such extraordinarily rash conduct as is shown in para. 3 (III) above—these facts, taken in connection with his apparently previous good character and long service—are, in my opinion, of very grave significance, leading as they do to the inference that if such conduct is possible for a driver of good repute, the stringency of the railway rules and the absolute necessity for obeying them to the letter is not clearly appreciated by the staff generally—an inference, it may be added, which is supported by the conduct of the Station Master, the Guard and the ballast train staff touched upon in previous paragraphs.

6. Driver Adie and the Station Master C. Bhavanishankar were tried in the Court of the Deputy Assistant Political Agent, Sorath Prant, and both the accused were discharged, the conclusion being that the collision was brought about by no rashness, negligence or disregard of any rules on either of their parts, but by some mistake committed by the pointsman at the Balwa facing points, on account of unforeseen and climatic influences. The men have, however, been departmentally dealt with.

* * *

7. I consider that this report should be published as being generally instructive in the following particulars—

I.—The misunderstanding or worse of the general rules concerning the precautions to be taken by Station Masters and Railway staff in thick, foggy or tempestuous weather. I think it cannot be made too plain that these rules are absolute and allow the staff no discretion such as was assumed in this case.

II.—The great importance which attaches to Station Masters thoroughly understanding that the protection of their stations devolves upon them alone, without dependence upon the vigilance and capacity of the Railway staff to avert the consequences of their own inattention to rules and that no single one of the precautions prescribed in the rules can be neglected with impunity.

III.—The ill-judged manner in which shunting was conducted in this instance, when there was no apparent "great urgency" to warrant departure from the general rule that "no shunting should be done ten minutes before a train is due." Too much latitude is, I think, given to the Station Master in Rule 187 (*d*) of the Bhavnagar-Gondal-Junagad-Porbandar Railway; the instructions might be more precise.

IV.—The conduct of a driver of long experience and good character, showing how needful it is for the staff, even the best of them, to be instructed and occasionally examined in the proper meaning and importance of the rules. Their knowledge is, I fear, often taken for granted.

MAHABLESHWAR;
The 8th June 1898.

G. A. ANDERSON,
Senior Government Inspector.

ANNEXURE No. 1 IN APPENDIX B TO THE ABSTRACT RETURNS OF ACCIDENTS ON INDIAN RAILWAYS FOR THE THREE MONTHS ENDING WITH THE 31ST MARCH 1898.

Rules which apply to the occurrence. Rules and Regulations.

Rule 78.—Detonators must be placed on the line—

(*a*) in thick or foggy or tempestuous weather, to supplement, when necessary, the ordinary day or night signal, and

(*b*) in accordance with Rule 79, etc.*

Rule 79.—In thick, foggy or tempestuous weather, two detonators must be placed on the line by the signalman or by some other trained railway servant selected by the Station Master ten yards apart, and at least one hundred yards outside the distant signal, or if there is no distant signal, at least seven hundred yards beyond the outside points; or if detonators are not at hand, some other means, prescribed by the authorised officer, must be employed for indicating the position of such signal or points.

Rule 90 (1).—Whenever any train is timed to run, or is expected to run, on any portion of the line between sunset and sunrise, all the signal lamps on that portion of the line must be lighted at sunset, or at such earlier time as shall be prescribed by the authorised officer.

(2) The signal lamps shall not be put out till broad daylight, except in accordance with special instructions.

(3) Notwithstanding anything contained in clause (1) or clause (2) of this rule, the signal lamps shall be lighted and kept burning during thick or foggy or tempestuous weather.

Rule 96 (2).—If in consequence of a fog or storm, or for any other reason, the fixed or permanent signals are not visible, the driver of the engine or the leading engine, as the case may be, must take every possible precaution, especially when approaching a station or a junction, to admit of the train being stopped short of any obstruction in the event of a "danger" signal being shown.

Train Lights to be used.

Rule 109.—Between sunset and sunrise, and in thick or foggy or tempestuous weather—

(1) no train shall be worked outside station limits unless it has—

(*a*) the head lights prescribed by the authorised officer,

* * * * * * * *

Rule 187.—The Station Master must see that the shunting of trains, or the crossing of trains from one line to another, is performed only at such times, and in such a manner as will not involve danger.

Bhavnagar-Gondal-Junagad-Porbandar Railway—Subsidiary Rule 187 (*d*).

As a rule no shunting should be done ten minutes before a train is due, but, should any great urgency which the Station Master will have to explain, necessitate any hand or engine shunting after line clear has been given for a train, and the points have been locked, such shunting, when the points are unlocked for the purpose, must be supervised in all details by the Station Master himself, both main and distant signals being kept at danger against the incoming train. To do any shunting after line clear has been given for a train and facing points have been locked, will rarely be necessary; but should any such necessity arise, and the Station Master neglects the orders herein given, he will render himself liable to prosecution.

The order to lower signals for an incoming train is one of the special duties of a Station Master, and he is responsible that all shunting, liable to foul the lines over which the approaching train is to pass, is absolutely stopped before he permits the signals to be lowered.

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* The remainder of the rule quoted does not apply to the present case.

ANNEXUNE No. 2 IN APPENDIX B TO THE ABSTRACT RETURNS OF ACCIDENTS ON INDIAN RAILWAYS FOR THE THREE MONTHS ENDING WITH THE 31ST MARCH 1898.

List of rolling stock damaged.

Number.	Class.	Particulars of damages.
6	Engine . .	Buffer, buffer beam and cowcatcher damaged.
9	" . .	Tender buffer and intermediate buffing and draw-gear of tender damaged.
138	1st . .	Outside lining boards of end posts cracked.
130	2nd . .	" " " " "
151	3rd . .	2 Rivets of buffer spring box broken.
88	Ballast . .	4 Axle boxes broken, 2 buffers and 1 hook broken, 2 end of flaps broken, brake rack broken, all axle guards bent one side, chain bolt bent, push rod broken.
112	" . .	1 Axle box broken.
117	" . .	1 " "
121	" . .	1 Buffer bent, 4 side chain bolts bent, 3 axle boxes broken, brake rack broken, lever bent, all axle guards bent.
192	" . .	2 Axle boxes broken.
194	" . .	1 Axle box "
345	" . .	2 Axle boxes broken and 1 buffer with hook broken and end flap hinges broken.
359	" . .	2 Axle boxes broken.
360	" . .	2 Buffers broken, 2 side chain bolts bent, 2 end flaps broken, brake rack broken, 3 axle boxes broken, cross-bar broken, all axle guards bent.
362	" . .	2 Axle boxes broken.
364	" . .	1 Axle box "
370	" . .	2 Axle boxes broken and one side flap damaged.
371	" . .	1 Axle box broken.
372	" . .	1 " "
220	Low-sided wagon	1 Buffer bent.
503	" "	1 End flap damaged.

List of damages to permanent-way.

No.	Names of articles and particulars of damages.
5	Teakwood sleepers 6′ × 8″ × 5″ of culvert damaged.
8	Hook bolts of culvert damaged.
3	Coping stones of the centre pillar damaged and coping stones of the up-wing wall 15 feet long dismantled.

G. I. C. P. O.—No. 207 P. W. D.—27-8-98.—613—F. C. C.

Appendix C to the abstract returns of accidents on Indian Railways for the three months ending with the 31st March 1898.

FROM

THE SENIOR GOVERNMENT INSPECTOR OF RAILWAYS,

TO *Madras,*

THE SECRETARY TO THE GOVERNMENT OF INDIA,

No. $\frac{3356}{A}$. *Public Works Department.*

SIR, BANGALORE, *dated 28th October 1897.*

In compliance with the orders contained in Government of India Circular No. 7 Railway, dated the 19th April 1895, I have the honour to submit a report upon the serious accident which occurred at the Mallur bridge, mile 246-12, Mysore State Railway. The Mysore State Railway is worked by the Southern Mahratta Railway Company. At about half-past two o'clock, on the morning of the 23rd of September, part of No. 70 Down Mixed Train, from Bangalore to Mysore, dropped into a gap, where three arches of the Mallur bridge had fallen. At about 8 o'clock, on the night of the 23rd, I received, at Ootacamund, a telegram from Mr. F. D. Fowler, one of the Government Inspectors of Railways in my circle, and recently Chief Inspector, informing me of this accident, as well as of the previous accident at mile 236-12. I may mention that in this telegram the only mention of any casualties to passengers was that a few passengers had been slightly injured in the earlier accident. Mr. F. D. Fowler's telegram concluded by informing me that he was proceeding to attend the joint enquiry. Later on the same night I received a telegram to say that four deaths and ten injuries were known to have occurred. On the 28th, the Agent, Southern Mahratta Railway, wired that the number killed or drowned might be taken as thirty.

2. Meanwhile the Government Inspector, Mr. F. D. Fowler, had presided at an enquiry, which was held at Channapatna, after viewing the scene of the accident, on the afternoon of the 24th September. The evidence taken at this enquiry, as well as the Inspector's conclusion, will be found recorded at pages 2, 3 and 4. Though Mr. Fowler presided at and directed this enquiry, and made his own notes of the evidence taken, he left the actual editing and copying of the evidence to the Southern Mahratta Railway departmental officers, and the consequence was that he did not receive a full copy of the proceedings until the 7th October, and it was then sent to him, not by the Agent but by t[illegible] District Engineer, with his No. 4851, dated the 3rd October 1897. On receip[illegible] and consideration of this report, I decided to myself go deeper into certain m[illegible]ters which did not seem to have been sufficiently thoroughly enquired into, and wired to that effect to the Agent, Southern Mahratta Railway.

3. But meanwhile the Agent, having arrived at a similar opinion, ordered a second departmental enquiry, to be held at Channapatna on the 12th October. The evidence taken at this enquiry and the conclusion arrived at by the departmental committee, will be found recorded at pages 5, 6, 7, 8 and 9.

4. The Mysore Durbar had also made an independent police enquiry and a magisterial enquiry, and between the two Durbar enquiries and the two railway enquiries a great mass of evidence has been taken, and most of this fitted fairly well together, and left little doubt possible about the actual facts of the accident or about the conduct of the railway officials. The question, however, of the actual causes of the failure of the structure itself had been left practically untouched, and it was to this point chiefly that I intended to direct my own enquiries. But, as it turns out, very little further light can be thrown upon this question until the river-bed is dry after the coming monsoon.

5. However, under section 5 of the Railway Act, I called upon the Agent, Southern Mahratta Railway, to meet me with such witnesses and evidence as seemed likely to elucidate this point. We met yesterday, the 27th October, at Bangalore, and proceeded to the site of the bridge. I afterwards had an interview with the Resident of Mysore with reference to certain matters connected with the magisterial enquiry. At this interview I was informed by Colonel Robertson that the Mysore Public Works Department have no information about the details of the construction of the Mysore State Railway on this particular section, all having been made over to the Southern Mahratta Railway Company. The results of my own enquiry on the site of the bridge will be found at pages 9 and 10.

* * * * * *

F. J. E. SPRING,

Senior Govt. Inspector of Rys., Madras.

FROM

F. D. FOWLER, ESQ., GOVERNMENT INSPECTOR OF RAILWAYS,

Madras,

TO

THE SENIOR GOVERNMENT INSPECTOR OF RAILWAYS,

Madras.

In accordance with the orders contained in rule 23 (1) of Government of India Circular No. 7 Railway of 1895, I held an enquiry at Channapatna, Mysore State Railway, on the 24th September, to ascertain the circumstances under which No. 70-down (mixed) from Bangalore was wrecked at the bridge over the Mallur river at mile 246/12 on the morning of 23rd September.

Description.

The bridge at mile 246/12 consists of two spans of 25 feet at each end, and four of 27½ feet in the middle; in all eight spans. It is an arch-bridge of stone masonry on wells, round and square. It is on a skew of 10 degrees. The 5th and 6th piers from the north end were apparently undermined by a scour. The 6th pier, an abutment pier, is 8 feet wide and has been split in two.

* * * * * *

The 5th pier is on square wells 6′ × 6′, and has heeled over sideways into the span. The failure of these piers brought down the arches of the 5th, 6th and 7th spans. Into this gap fell the engine, tender, accident van, three 3rd-class carriages and one 3rd-class brake, all getting smashed up. A double 2nd class hung down the side of pier No. 4, the lower end being submerged in the river, and a double 1st class hung half over the gap. The bridge is 1¼ miles from Channapatna station, and there is a level-crossing gate manned day and night within ¼ mile south of the bridge. The approach to it is on a grade of 1 in 100, up, with level across the bridge. The bridge was built about sixteen years ago. The set of the river is towards the three spans that have given way. Here, the river flows 5 feet below the rest of its bed and is 65 feet wide. The plan shows the two piers that have heeled over to be founded at a considerable depth on rock. The height of the flood on this occasion corresponds exactly with the high flood level shown on the plan, *viz.*, up to springing level. The velocity of the current at flood level is said to be 15 feet per second.

The train left Channapatna on its way to Mudgere at 2-26 on the morning of the 23rd September and fell into the gap caused by the failure of the spans as described above.

The driver and the two firemen were killed, and seven dead bodies in all have been recovered. Endeavours have been made to ascertain the actual number drowned by comparing the number of passengers booked with the number of those who escaped; but owing to the facts that many tickets are taken in the city at Bangalore available for any train, and that a number of the passengers dispersed immediately after the accident, no trustworthy estimate can be framed. It is believed that the number of passengers drowned is between 30 and 40.

Evidence.

Ramasamy Aiyah, Stationmaster, Channapatna.—I was appointed stationmaster in 1887. My pay is Rs. 45. I left Channapatna on the previous day, the 22nd, and went to mile 236/8 by 69-up (mixed) to assist the passengers of No. 70-down (mixed) which was derailed at that mileage on the 21st. I returned by 70-down of the 22nd, arriving at Channapatna at 2-23 on the morning of the 23rd. Assistant Stationmaster being on duty, I told him to start the train and went home. About 15 or 20 minutes after the Permanent-way Inspector called me, and said another accident had happened. I returned to the station and sent the prescribed notices of accident, after which I went to the site of accident with the Permanent-way Inspector and assisted in rescuing the passengers with ropes. We rescued about 20 passengers, and there were about 100 passengers in the other carriages.

Ruthinasamy Pillai, Permanent-way Inspector, Channapatna.—Total service from 1879. Permanent-way Inspector from 1883. Pay Rs. 90. My length extends from 228½ to 268 miles. On the 22nd I was attending to matters at the site of the other accident a

mile 236/8 where No. 70-down of the 21st was derailed. I was there till midnight of the 22nd. I had five gangs with me, *viz.*, 1st to 5th gangs, whose lengths are from mile 228½ to mile 248. I took the mate of each gang. I took 3 to 5 men of each gang. I returned to Channapatna by 70-down of the 22nd, arriving at 2-23 on morning of 23rd; I went to my house in the station yard. Three men of No. 5 gang got down with me at Channapatna; three men of No. 6 gang went on by train to the next station; two of these men from 6th gang, within half an hour, came to me and reported the accident. They were travelling in the last vehicle of the train. I informed Stationmaster and sent for the men of the 5th gang and went to the accident with the Stationmaster of Channapatna. On the day of the 22nd it was drizzling at intervals, but no heavy rain fell when I was at 236-8 mile. The Kauva river rises and falls very rapidly. I have never seen for the last seven years the flood as high as the springing of the arches. I have seen it 2 feet below it. I saw it last about four days back; there was then about one foot of water in it. I have never heard of the bridge being unsafe or cracked. I do not remember to have received any circular instructing me to have the line patrolled at night during the monsoons. On the night of the 21st I sent two gangmen on either side of the station with lamps to see if the line was safe, and I waited at the telegraph office from 8 till their return at 11. They reported all was right. I did this because I expected floods, as it had been raining heavily. I always instruct all the gangs to do this when it rains heavily. I did not give special instruction on the 22nd, as I was at the other accident. It seemed to me, from the marks on the bank left by the flood, that the water must have been up to the crown of the arch; but, when I saw the bridge immediately after the accident, the water was up to springing of arch only. I particularly noticed this. A key man goes daily up the line from 6 to 8 over the gang length. He does not go out again that day, but works with the gang. The men live in villages along their lengths, so that they necessarily travel over the line going and returning from their work. The gang-mates have orders to inspect certain bridges, which have suffered before from floods, every morning and evening, and in the event of a high flood to stop the trains. There are no orders to inspect this bridge.

Narayen Row, Chief Guard, of No. 70-down of the 22nd. Fifteen years' service (seven as Chief Guard). My pay is Rs. 27-8-0 per mensem, staff No. 1895. I was Chief Guard of No. 70-down (mixed) from Bangalore on the 22nd. I left Bangalore city at 21-25 and arrived at Channapatna 2-23 on the 23rd, one hour and 52 minutes late. I left Channapatna at 2-26 with ordinary line clear ticket. I was riding in the rear brake. On arriving at mile 246/12 I felt a shock. The train was then travelling between 12 and 13 miles an hour. I heard no whistle. I put my brakes on hard on leaving Channapatna. My train consisted of engine, tender, accident van, one 3rd-class brake, three 3rd-class carriages, one double 2nd, one double 1st, four 3rd class, one double 2nd, and one heavy brake. All my lamps went out from the shock. I lighted my lamp and found the train in the river. The carriages in rear of the double 1st were on the bridge. I protected the rear of my train according to rules. I sent a memorandum to Stationmaster reporting the accident. I then assisted the passengers.

C. T. Sadananda, Assistant Stationmaster, Channapatna.—Twelve years on the Southern Mahratta Railway. Pay Rs. 25. Three months at Channapatna. I was on duty at Channapatna from 6 P.M. on the 22nd to 6 A.M. on the morning of the 23rd instant. I remember that there was heavy rain from about 7 P.M. which continued up to the time No. 70-down left my station for Mudgere. There was rain all the day, but not heavy. I believe the rainfall the whole day was 2 inches, as the next morning I heard from the State local officials that this was the quantity that fell during 24 hours ending in the morning of the 23rd early. No gangmen or any one else came to say that the bridge was out of order or in any way dangerous. I do not know that the Permanent-way Inspector gave orders on the night or the 21st to any of the permanent-way men. He did not speak to any permanent-way men in my presence. He was the only permanent-way employé that I saw that night. He came to my office to enquire where 70-down was. He slept in my office all night. I happened to ask him why he came, and he said he was going to Maddur that night by 70-down to see the Shimsha bridge, as it was raining very heavy. The 70-down was about 2 hours late that night.

Conclusion.

The evidence shows that for the seven years during which the Permanent-way Inspector has been in charge of the bridge, he has never seen the flood rise to the springing of the arches, but has noticed it 2 feet below it; that there was no indication of danger, from cracks or otherwise, which would cause any apprehension for the safety of the bridge; that the mates of certain bridges which had suffered in former years from severe floods had special instructions given them to watch those bridges during heavy floods; that the local rainfall was not heavy enough to induce exceptional precautions being taken on the day of the accident as regards this particular bridge, even if it had been under suspicion; that the last time the Permanent-way Inspector saw the bridge was four days before the accident, when the river had one foot of water in it; that the gang length in which the bridge lies is daily patrolled by the gangmen and others of the gang when going to and returning from their work. The Assistant Stationmaster on duty deposes to the Permanent-way Inspector coming to the station office, on the night of the 21st, when there was heavy rain, to go by No. 70-down to inspect Shimsha bridge, which shows that while he was anxious about the Shimsha bridge he had no misgivings about the Mallur bridge.

2. The accident was due to the overturning of the upstream well of the 6th pier caused by a scour from an obstruction in the 6th span, and the consequent failure of spans Nos. 5 to 7. This is indicated by the wells of the 5th pier falling sideways into the span towards the 6th pier, whilst the upstream well of the 6th pier has heeled over upstream.

3. Considering the character of the river, its rapid velocity, said to be 15 feet per second, and its sandy bed, I am of opinion that much larger spans would have ensured safety from obstruction by trees sticking in the spans.

4. Although the drawing shows the wells as founded on rock, I think that in all probability they were founded considerably short of it. Levels taken after the accident show that the flood when at its highest did not rise higher than springing of arches. I am informed by the Agent of the Railway that every bridge on the line is examined annually by an officer, and that this bridge had never been reported as cracked or unsafe. Rule 206 of the General Rules issued by the Government of India prescribes that each ganger must immediately collect the men of his gang whenever their services may be required. The ganger, having been called off with his gang under this rule to assist in repairing the washaway at mile 236/8, was not in a position

to take action as provided in Rule 214. The Permanent-way Inspector also acted properly in taking all his available staff to repair the washaway at mile 236/8. The driver who lost his life in this accident is reported to have been a very steady man of nine years' experience, and the guard's evidence goes to show that the train was proceeding at a very moderate speed. Under these circumstances, I consider that no blame can be held to attach to any of the staff of the railway.

5. The Agent of the Railway informs me that no rules have been issued for the Mysore State Railway directing that a system of night patrols should be organised during the monsoon, and the general and subsidiary rules of the Company contain no such rule. It is very probable that had an efficient system of night patrol been in force, the accident might have been avoided; but this cannot be said with certainty, since the bridge may have been standing up to the moment when the train came on to it; and if this were so the patrol, seeing the water no higher than springing, might not have seen cause to show a caution signal to the train. I consider therefore that, while the railway administration cannot be held guilty of neglecting to observe the rules laid down by Government for their guidance, they are to blame in having omitted to take precautions which are in force on neighbouring lines and, I believe, on most railway systems in India. I recommend that an additional rule be inserted by Government after Rule 214 in the General Rules directing that during the monsoon the Permanent-way Inspector shall be responsible for the line being patrolled from sunset to sunrise. I also recommend that, owing to the uncertainty which exists as to the foundation of the remaining wells, the existing bridge be replaced by a girder bridge with spans of 40 feet.

6. The enclosed statements marked A, B and C have been supplied by the Engineer of the Mysore District, Southern Mahratta Railway.

MADRAS,
The 8th October 1897.

(Signed) T. D. FOWLER,
Government Inspector of Railways.

ENCLOSURE A.

Approximate cost of damage to the bridge.

	Rs.
1. Damage to present bridge	11,000
2. Cost of a new bridge	50,000
3. Cost of diversions	4,000

ENCLOSURE B.

Approximate cost of damage to rolling stock.

	Rs.
1 engine and tender 1 accident van 5 third-class carriages 1 first-class carriage 1 double second-class	35,000

ENCLOSURE C.

Number of dead bodies recovered from the river.

Date.	Number of bodies.
September 23rd	2
„ 24th	3
„ 25th	...
„ 26th	2

REMARKS.—Correct damages cannot be given until river subsides. The upper structures of six were totally destroyed, leaving under frames in fair order.

DESCRIPTION, SUMMARY OF EVIDENCE AND FINDING OF JOINT ENQUIRY INTO ACCIDENT TO NO. 70-DOWN, AT MALLUR BRIDGE, MILE 246/12, MYSORE STATE RAILWAY, ON 23RD SEPTEMBER 1897.

Report of an enquiry held under the orders of the Agent, Southern Mahratta Railway, at Channapatna, on the 12th October 1897, as submitted to the Senior Government Inspector with Agent's, Southern Mahratta Railway, letter No. A. 852—10388, dated the 22nd October 1897.

The Committee was composed of the following officers:—

Mr. A. H. MACKENZIE, *District Engineer.*
„ D. HUGH LINDSAY, *District Traffic Superintendent.*
„ J. F. WILLANS, *District Locomotive Superintendent.*

Description.

The bridge at mile 246/12 was built 16 years ago. It is an arch bridge of 8 spans. The size of spans, counting from the north or Bangalore side of stream, is two spans of 25 feet, four of 27 feet 6 inches, and two of 25 feet.

The masonry in superstructure is stone in lime mortar. The piers are built on wells, both round and square. The 2nd and 6th are abutment piers. The 5th pier, according to plan, is built on wells, 6 feet square (internal).

No. *External*, not internal.
F. J. E. S.

* * * * * *

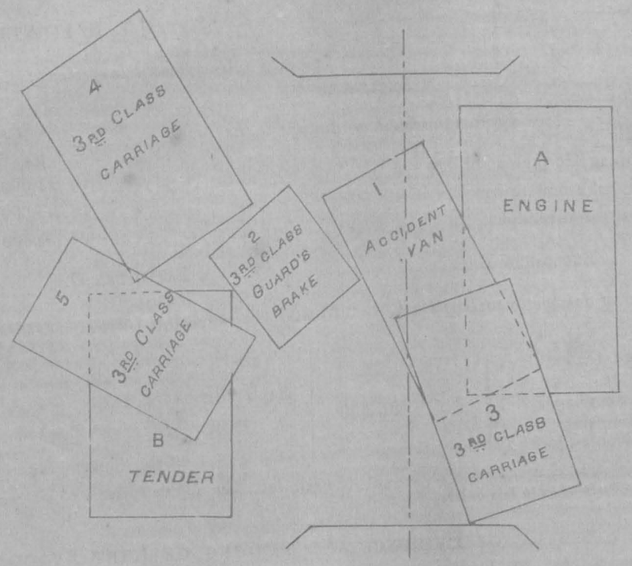
The 5th pier, 5 feet wide, has fallen sideways into the span. Half of the 6th, an abutment pier 8 feet wide, has fallen lengthways upstream, indicating the overturning of wells by a scour in the 6th span.

The bed is sandy, and flood velocity of stream is 15 feet per second.

The fall of the 5th and 6th piers brought down the arches of 5th, 6th and 7th spans.

The engine, tender, accident van, third-class brake and three third-class carriages fell into the gap of the 5th span. While the following second-class carriage hung over the side of pier No. 4, the lower end being partly submerged in the water, the succeeding double first-class hung a little over the gap. The roof and portion of one side of one third-class carriage was found on a sandy island, covered with brushwood one-fourth of a mile down stream. A rough sketch of the position of the vehicles in the gap is as follows:—

Note.—Probability seems to be that the fall of the 6th pier came first of all.
J. B. M.



BROKEN PIER.
No. 5.

PIER No. 4.

A. Engine, funnel uppermost and tail down.
B. Tender, on side.
1. Accident van, submerged.
2. Third-class guard's brake, end on.
3. Third-class carriage, on its side on top of No. 1 and A.
4. „ „ on its wheels with shutters closed on down-stream side.
5. „ „ wheels uppermost and lying on B.

Evidence.

Evidence given by Chief Guard, Narayan Row, before the Government Inspector, on the 24th September 1897.—My name is Narayan Row. I was Chief Guard of No. 70-down of the 22nd. Fifteen years' service, seven as Chief Guard; my pay is Rs. 27-8-0 per mensem. Staff No. 1895. I was Chief Guard of No. 70-down mixed from Bangalore on the 22nd. I left Bangalore City at 21-25 and arrived at Channapatna at 2-23 on the 23rd, one hour and fifty-two minutes late. I left Channapatna at 2-26 with ordinary line clear ticket. I was riding in the rear brake. On arriving at mile 246/12 I felt a shock. The train was then travelling between 12 and 13 miles an hour. I heard no whistle. I put my brakes

5. However, under section 5 of the Railway Act, I called upon the Agent, Southern Mahratta Railway, to meet me with such witnesses and evidence as seemed likely to elucidate this point. We met yesterday, the 27th October, at Bangalore, and proceeded to the site of the bridge. I afterwards had an interview with the Resident of Mysore with reference to certain matters connected with the magisterial enquiry. At this interview I was informed by Colonel Robertson that the Mysore Public Works Department have no information about the details of the construction of the Mysore State Railway on this particular section, all having been made over to the Southern Mahratta Railway Company. The results of my own enquiry on the site of the bridge will be found at pages 9 and 10.

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F. J. E. SPRING,

FROM *Senior Govt. Inspector of Rys., Madras.*

F. D. FOWLER, ESQ., GOVERNMENT INSPECTOR OF RAILWAYS,

TO *Madras,*

THE SENIOR GOVERNMENT INSPECTOR OF RAILWAYS,

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Description.

The bridge at mile 246/12 consists of two spans of 25 feet at each end, and four of 27½ feet in the middle; in all eight spans. It is an arch-bridge of stone masonry on wells, round and square. It is on a skew of 10 degrees. The 5th and 6th piers from the north end were apparently undermined by a scour. The 6th pier, an abutment pier, is 8 feet wide and has been split in two.

* * * * * *

The 5th pier is on square wells 6′ × 6′, and has heeled over sideways into the span. The failure of these piers brought down the arches of the 5th, 6th and 7th spans. Into this gap fell the engine, tender, accident van, three 3rd-class carriages and one 3rd-class brake, all getting smashed up. A double 2nd class hung down the side of pier No. 4, the lower end being submerged in the river, and a double 1st class hung half over the gap. The bridge is 1¼ miles from Channapatna station, and there is a level-crossing gate manned day and night within ¼ mile south of the bridge. The approach to it is on a grade of 1 in 100, up, with level across the bridge. The bridge was built about sixteen years ago. The set of the river is towards the three spans that have given way. Here, the river flows 5 feet below the rest of its bed and is 65 feet wide. The plan shows the two piers that have heeled over to be founded at a considerable depth on rock. The height of the flood on this occasion corresponds exactly with the high flood level shown on the plan, *viz.*, up to springing level. The velocity of the current at flood level is said to be 15 feet per second.

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Evidence.

Ramasamy Aiyah, Stationmaster, Channapatna.—I was appointed stationmaster in 1887. My pay is Rs. 45. I left Channapatna on the previous day, the 22nd, and went to mile 236/8 by 69-up (mixed) to assist the passengers of No. 70-down (mixed) which was derailed at that mileage on the 21st. I returned by 70-down of the 22nd, arriving at Channapatna at 2-23 on the morning of the 23rd. Assistant Stationmaster being on duty, I told him to start the train and went home. About 15 or 20 minutes after the Permanent-way Inspector called me, and said another accident had happened. I returned to the station and sent the prescribed notices of accident, after which I went to the site of accident with the Permanent-way Inspector and assisted in rescuing the passengers with ropes. We rescued about 20 passengers, and there were about 100 passengers in the other carriages.

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mile 236/8 where No. 70-down of the 21st was derailed. I was there till midnight of the 22nd. I had five gangs with me, *viz.*, 1st to 5th gangs, whose lengths are from mile 228½ to mile 248. I took the mate of each gang. I took 3 to 5 men of each gang. I returned to Channapatna by 70-down of the 22nd, arriving at 2-23 on morning of 23rd; I went to my house in the station yard. Three men of No. 5 gang got down with me at Channapatna; three men of No. 6 gang went on by train to the next station; two of these men from 6th gang, within half an hour, came to me and reported the accident. They were travelling in the last vehicle of the train. I informed Stationmaster and sent for the men of the 5th gang and went to the accident with the Stationmaster of Channapatna. On the day of the 22nd it was drizzling at intervals, but no heavy rain fell when I was at 236-8 mile. The Kauva river rises and falls very rapidly. I have never seen for the last seven years the flood as high as the springing of the arches. I have seen it 2 feet below it. I saw it last about four days back; there was then about one foot of water in it. I have never heard of the bridge being unsafe or cracked. I do not remember to have received any circular instructing me to have the line patrolled at night during the monsoons. On the night of the 21st I sent two gangmen on either side of the station with lamps to see if the line was safe, and I waited at the telegraph office from 8 till their return at 11. They reported all was right. I did this because I expected floods, as it had been raining heavily. I always instruct all the gangs to do this when it rains heavily. I did not give special instruction on the 22nd, as I was at the other accident. It seemed to me, from the marks on the bank left by the flood, that the water must have been up to the crown of the arch; but, when I saw the bridge immediately after the accident, the water was up to springing of arch only. I particularly noticed this. A key man goes daily up the line from 6 to 8 over the gang length. He does not go out again that day, but works with the gang. The men live in villages along their lengths, so that they necessarily travel over the line going and returning from their work. The gang-mates have orders to inspect certain bridges, which have suffered before from floods, every morning and evening, and in the event of a high flood to stop the trains. There are no orders to inspect this bridge.

Narayen Row, Chief Guard, of No. 70-down of the 22nd. Fifteen years' service (seven as Chief Guard). My pay is Rs. 27-8-0 per mensem, staff No. 1895. I was Chief Guard of No. 70-down (mixed) from Bangalore on the 22nd. I left Bangalore city at 21-25 and arrived at Channapatna 2-23 on the 23rd, one hour and 52 minutes late. I left Channapatna at 2-26 with ordinary line clear ticket. I was riding in the rear brake. On arriving at mile 246/12 I felt a shock. The train was then travelling between 12 and 13 miles an hour. I heard no whistle. I put my brakes on hard on leaving Channapatna. My train consisted of engine, tender, accident van, one 3rd-class brake, three 3rd-class carriages, one double 2nd, one double 1st, four 3rd class, one double 2nd, and one heavy brake. All my lamps went out from the shock. I lighted my lamp and found the train in the river. The carriages in rear of the double 1st were on the bridge. I protected the rear of my train according to rules. I sent a memorandum to Stationmaster reporting the accident. I then assisted the passengers.

C. T. Sadananda, Assistant Stationmaster, Channapatna.—Twelve years on the Southern Mahratta Railway. Pay Rs. 25. Three months at Channapatna. I was on duty at Channapatna from 6 P.M. on the 22nd to 6 A.M. on the morning of the 23rd instant. I remember that there was heavy rain from about 7 P.M. which continued up to the time No. 70-down left my station for Mudgere. There was rain all the day, but not heavy. I believe the rainfall the whole day was 2 inches, as the next morning I heard from the State local officials that this was the quantity that fell during 24 hours ending in the morning of the 23rd early. No gangmen or any one else came to say that the bridge was out of order or in any way dangerous. I do not know that the Permanent-way Inspector gave orders on the night or the 21st to any of the permanent-way men. He did not speak to any permanent-way men in my presence. He was the only permanent-way employé that I saw that night. He came to my office to enquire where 70-down was. He slept in my office all night. I happened to ask him why he came, and he said he was going to Maddur that night by 70-down to see the Shimsha bridge, as it was raining very heavy. The 70-down was about 2 hours late that night.

Conclusion.

The evidence shows that for the seven years during which the Permanent-way Inspector has been in charge of the bridge, he has never seen the flood rise to the springing of the arches, but has noticed it 2 feet below it; that there was no indication of danger, from cracks or otherwise, which would cause any apprehension for the safety of the bridge; that the mates of certain bridges which had suffered in former years from severe floods had special instructions given them to watch those bridges during heavy floods; that the local rainfall was not heavy enough to induce exceptional precautions being taken on the day of the accident as regards this particular bridge, even if it had been under suspicion; that the last time the Permanent-way Inspector saw the bridge was four days before the accident, when the river had one foot of water in it; that the gang length in which the bridge lies is daily patrolled by the gangmen and others of the gang when going to and returning from their work. The Assistant Stationmaster on duty deposes to the Permanent-way Inspector coming to the station office, on the night of the 21st, when there was heavy rain, to go by No. 70-down to inspect Shimsha bridge, which shows that while he was anxious about the Shimsha bridge he had no misgivings about the Mallur bridge.

2. The accident was due to the overturning of the upstream well of the 6th pier caused by a scour from an obstruction in the 6th span, and the consequent failure of spans Nos. 5 to 7. This is indicated by the wells of the 5th pier falling sideways into the span towards the 6th pier, whilst the upstream well of the 6th pier has heeled over upstream.

3. Considering the character of the river, its rapid velocity, said to be 15 feet per second, and its sandy bed, I am of opinion that much larger spans would have ensured safety from obstruction by trees sticking in the spans.

4. Although the drawing shows the wells as founded on rock, I think that in all probability -two they were founded considerably short of it. Levels taken after the accident show that the flood h or- when at its highest did not rise higher than springing of arches. I am informed by the Agent e rear of the Railway that every bridge on the line is examined annually by an officer, and that this and 13 bridge had never been reported as cracked or unsafe. Rule 206 of the General Rules issued by my brakes the Government of India prescribes that each ganger must immediately collect the men of hi gang whenever their services may be required. The ganger, having been called off with gang under this rule to assist in repairing the washaway at mile 236/8, was not in a posi a shock.

on hard. On leaving Channapatna my train consisted of engine, tender, accident van, one third-class brake, three third-class carriages, one double second, one double first, four third-class, one double second, and one heavy brake. All my lamps went out from the shock. I lighted my lamp and found the train in the river. The carriages in rear of the double first were on the bridge. I protected the rear of my train according to rules. I sent a memorandum to Stationmaster reporting the accident; I then assisted the passengers.

Evidence of Permanent-way Inspector, Channapatna section, Ruthnasawmy Pillay, on the 12th October 1897.—My name is Ruthnasawmy Pillay. My age is 38. Salary Rs. 90. I am Permanent-way Inspector, Channapatna section. My service on the Southern Mahratta Railway is 14 years. I have been Permanent-way Inspector at Channapatna for seven years. The length of my charge is from 228½ miles to 268 miles. I have ten gangs. I have eight to ten men in each gang, including gateman and one mate or ganger in charge. The gangers have four mile lengths to look after. My gangs are numbered one to ten. On the day of the 22nd I was at the site of the other accident at mile 236-8, where No. 70-down of the 21st September was derailed. I was there till midnight of the 22nd. I returned to Channapatna by 70-down of the 22nd. I had with me at mile 236-8 parts of gangs one to six inclusive. I had five men from the 5th gang and three men from the 6th gang. Besides these men I had the gangers of both 5th and 6th gangs. The 6th gang work between 248 and 252 miles. The bridge at mile 246/12 is on the length of the 5th gang. Three men of No. 5 gang were left behind to look after the road and gates. One man to patrol and two men to look after the gates. There are three gates near the bridge, one at 245/17 and 18, one at 246/4 and 5, and one at 247/1 and 2; at the last gate the gateman stops there night and day, being a traffic gate on an important road. The gangmen looking after gates have to work and look after ½ of a mile of line on either side of their gates. I did not give the gangmen left behind any special instructions on the 21st or 22nd.

I have a copy of the General and Subsidiary rules of 1897, parts I and II. I set apart one gangman to patrol his length of 4 miles. He does this regularly every morning, returning by 8 or 9. He then works in the gang. If he finds anything wrong or suspicious, he has to report to me as well as to the ganger. If he finds anything likely to endanger trains, he has to protect the train by showing red flags as signals and stopping the train. There is no patrol after 9 o'clock. Some of my coolies of gang No. 5 live at Channapatna Fort, some at Malur opposite bridge. They leave the work at 6 o'clock and have to pass over their length going to, and returning from, work. Consequently they patrol the line and pass over the bridge. There is no night patrolling. I have no instructions to patrol the line at night. I have to submit a bridge report in authorized form every month, after I have personally inspected every bridge in my section. I inspected the bridges last on the 2nd and 3rd of September, and submitted the required reports. I examined the arches of the bridge at mile 246/12 and did not find any cracks in them. There were no cracks in the piers also, but some in the parapet walls on the north-west and north-east side. These were all old cracks existing from the time I took charge of the section seven years ago. The Shimsha bridge is on my section. I have two watchmen at that bridge one on either side. They have been there from the commencement of the line. There is a speed restriction of 5 miles an hour over the bridge. I have no watchmen on other bridges because there are none under suspicion.

Evidence given by Permanent-way Inspector, Ruthnasawmy Pillay, before the Government Inspector, on the 24th September 1897.—Total service from 1879. Permanent-way Inspector from 1883. Pay Rs. 90. My length extends from 228½ to 268 miles. On 22nd I was attending to matters at the site of the other accident at mile 236-8 when No. 70-down of the 21st was derailed. I was there till midnight of the 22nd. I had five gangs with me, *viz.*, Nos. 1 to 5 gangs, whose lengths are four miles each, *viz*, 228½ to 248. I took the mate of each gang. I took three to five men of each gang. I returned to Channapatna by 70-down of the 22nd, arriving at 2-23. I went to my house in the stationyard. Three men of No. 5 gang got down with me at Channapatna. Three men of No. 6 gang went on by train to the next station. Two of these men from 6th gang within half an hour came to me and reported the accident. They were travelling in the last vehicle of the train. I informed Stationmaster and sent for the men of the 5th gang and went to the accident with Stationmaster, Channapatna. On the day of the 22nd it was drizzling at intervals, but no heavy rain, when I was at 236-8 mile. The Kanva river rises and falls very rapidly. I have never seen for the last seven years the flood as high as the springing of the arches. I have seen it 2 feet below it. I saw it last about four days back, there was then about 1 foot of water in it. I have never heard of the bridge being unsafe or cracked. I do not remember to have received any circular instructing me to have the line patrolled at night during the monsoons. On the night of the 21st I sent two gangmen on either side of the station with lamps to see if the line was safe and I waited at the Telegraph Office from 8 till their return at 11. They reported all was right, because I expected floods as it had been raining heavily. I always instructed all the gangs to do this when it rains heavily. I did not give special instruction on the 22nd as I was at the other accident. It seemed to me from the marks on the bank left by flood the water must have been up to the crown of the arch. A keyman goes daily up the line from 6 to 8 over the gang length; he does not go out again that day, but works with the gang. The men live in villages along their lengths so that they necessarily travel over the line going and returning from their work. The gang mates have orders to inspect certain bridges which have suffered before from floods at morning and evening, and in the event of a high flood to stop the trains. When I arrived at the scene of the accident the water was up to springing; I particularly noticed it.

Evidence of C. T. Sadanandam, Assistant Stationmaster, Channapatna, on the 12th October 1897.—My age is 35. My salary Rs. 25 and service twelve years. Staff No. 232. I was Assistant Stationmaster on duty on the night of the 22nd September 1897. I did not count the number of passengers in the first four third-class carriages in 70-down of the 22nd, but I observed that these carriages were about half full. I remember that there was heavy rain from about 7 P.M., which continued up to the time No. 70-down left my station for Mudgere. There was rain all the day, but not heavy. I believe the rainfall the whole day was 2 inches, as the next morning I heard from the State local officials that this was the quantity that fell during 24 hours ending in the morning of the 23rd early. No gangmen or any one else came to say that the bridge was out of order or in any way dangerous. I do not know that the Permanent-way Inspector gave orders on the night of the 21st to any of the permanent-way men. He did not speak to any permanent-way men in my presence. He was the only permanent-way employé that I saw that night. He came to my office to enquire where 70-down was; he slept in my office all night. I happened to ask him why he came, and he said he was going to Maddur that night by 70-down to see the Shimsha bridge, as it was raining very heavy. The 70-down was about two hours late that night.

Evidence of Ramasawmy Aiyah, Stationmaster, Channapatna, before the Government Inspector, on 24th September 1897.—I was appointed Stationmaster in 1887. Pay Rs. 45. Train left Closepett at 2-1 and arrived Channapatna on the 23rd. I left Channapatna on the previous day, the 22nd, for mile 236/8, by 69 up mixed, to assist the passengers of the derailed train at that mileage. I returned by 70-down of the same date, arriving at Channapatna 2-23 on the 23rd. Assistant stationmaster being on duty I told him to start the train and went home. About 15 or 20 minutes after, the Permanent-way Inspector called me and said another accident had happened. I returned to the station and sent the prescribed notices of accident; after that I went to the site of accident with the Permanent-way Inspector and assisted in rescuing the passengers with ropes. We rescued about 20 passengers, and there were about 100 passengers in the other carriages.

Evidence of Fireman, F. A. Snell, on the 12th October 1897.—My age is 23. I have four years' service on the Southern Mahratta Railway. One year as second fireman and three years as first fireman. My salary is 12 annas per day. I was first fireman on engine of No. 70-down of the 22nd September 1897. I was looking out ahead, when we approached the bridge at mile 246/12, and while on the bridge, by the head light of the engine, I saw nothing unusual. Then the engine went down suddenly. I fell into the water and came up again but was knocked down once more by a carriage falling near me. I rose to the surface and was carried down by the current about two or three miles down the river. I can swim. When I got out I could not walk and lay in the paddy fields till morning when some ryots came and carried me up to the broken bridge at mile 246/12. Later on Dr. Benson had me carried round to the Channapatna Station from whence I returned to Bangalore and went into hospital. I did not see the driver or second fireman after we fell into the river. I did not notice if any one else floated down the river with me. I did not notice anything, being frightened and confused.

Evidence of M. L. Staggs, Driver of 76-down of the 22nd September.—My age is 25. Salary Rs. 2 a day. Service seven years. Driver for two years past. I was driver of 76-down of the 22nd. I left Channapatna at 15/59 for Mudgere. I passed over the bridge at mile 246/12 at the usual rate of speed and felt no unevenness in passing over. The bridge was all right. The river was in flood. I never saw it high. May have been 6 or 7 feet high.

Evidence of E. Binee, Fireman of 76-down of 22nd September.—My age is 27. Service 17 months. I was a corporal in the 19th Yorkshire Regiment before joining the Southern Mahratta Railway. My salary is 12 annas a day. I was first fireman on engine of 76 down of the 22nd September. When I passed over the bridge at mile 246/12 which was about 16 o'clock, I felt nothing give under the engine, the road and bridge was just as usual. I did not think the river was in extraordinary flood, not more than I had seen it at other times.

Evidence of Arogasawmy, Brakesman of 70-down of 22nd September.—Three years' service. Pay Rs. 10 a month. Age 22. I was brakesman of 70-down of 22nd September. My brake (a third class carriage) was next to the accident van, second vehicle behind the engine. As the carriage is an open one I could see how many passengers were in it. I saw four greasers in my carriage after the train left Channapatna for Mudgere, and there was a Eurasian in the separate compartment. I am quite sure that there were no other passengers in the open compartments. In the third-class carriages behind mine there were about a dozen passengers in each. I saw them at Channapatna. When we fell into the river and three-quarters of my carriage was submerged, I and the four greasers crawled out of the window, and climbing up the roof of the other carriage reached the top of the bridge. I and the four greasers were slightly bruised. I could not appear at the first enquiry as I had fever. I was not looking out when the train approached the bridge.

Re-examined.—In my third-class brake, there were two closed or boarded compartments and two open ones, and not as stated in my former evidence. I was travelling in the north or Bangalore end of the carriage in an open compartment. With me there were four greasers. The open compartment was empty. In the end closed compartment there was one Eurasian travelling. I do not know if there was any one in the second closed compartment. The third-class in which the women were travelling was divided into two compartments. At Closepett and Channapatna I noticed a large number of passengers got out at those stations. I observed this as they left the carriages which were immediately behind mine.

Evidence of Soorsingh, Gateman at mile 247/2 and 3.—Service three years. Age about 50. Salary Rs. 6. I am gateman at mile 247/2 and 3. About 6 o'clock in the evening of the 22nd I went to the bridge at mile 240/12, because I wanted to see if any cattle had been trespassing on the line. The bridge was then as usual. There appeared to be water waist deep in the river at the time. I did not hear the bridge fall at night.

Evidence of Boyah, Gang cooly, of No. 5 Gang.—Age about 30. Service 10 years. Salary Rs. 6 per mensem. On the day of the 22nd I patrolled the line from 244th mile to 248th mile. I went over the line in the morning and went across the bridge and remained trimming the line on the other side of the bridge. I returned in the evening to Channapatna before sunset. I was on the other side of the bridge when 76-down of the 22nd passed over it to Mudgere. The bridge at mile 246/12 was all right when I returned over it in the evening. The level of the water was below the piers. It was less than the previous day. There was nothing that I need have reported to the Stationmaster, Channapatna, or Permanent-way Inspector, Channapatna. I did not therefore report anything to either of these officials. I was alone. I did not see the gateman doing any work. If I had noticed that the bridge was in danger I should have told the gateman to show the red flag when train approached and have gone myself to report matters to Permanent-way Inspector and in his absence to the Stationmaster, Channapatna. There are gates about half mile each side of the bridge.

Evidence of Rajoo, Gang cooly, in charge of gate at mile 246/4 and 5.—Age 30. 12 years' service. Pay Rs. 6. I am in charge of gate at mile 246/4 and 5 in the daytime. I have besides to look after the line ¼ of a mile either side of the gate. I live at Mallur the other side of the bridge. When about to get dark I left work and went across the bridge to my house. The bridge was all right. The water in the river was then about waist high.

Evidence of F. Byramshaw, Pay Clerk of Bangalore district.—My age is 26. Salary Rs. 55. Service 5½ years. I am Pay clerk of the Bangalore district. I was travelling by 76-down of the 22nd September from Bangalore to Mysore. We passed Channapatna after 16 o'clock. I was next to the engine in a third-class brake compartment and was looking out when we passed over the bridge at mile 246/12. I felt no jerk on passing over the bridge. We went over it as usual. I looked at the river and it did not seem to me to be in high flood. I frequently trolly over this bridge making payments to gang coolies and have seen the river before in much the same flood.

Evidence of V. H. Karve, Esq., Officiating Superintending Engineer, Eastern Circle, Mysore State.—I took careful levels of the high flood at the bridge at mile 246/12 on the morning of the 25th September and found it to be one foot below the springing of the arches. I took the marks of the high flood left on the bushes and trees on the left bank, and am satisfied that the flood was no higher. I have also found from calculation that the flood velocity was about 15 feet per second. On the night of the 21st I was at Closepett. It rained very heavily on the night of the 21st between 8 and 12. The rainfall as reported to me next day was 6·45 inches, and nearly the whole of it fell during the time stated. I do not know if we have ever had such a high flood before in the river at mile 243/12 as I have not been in charge of the Bangalore division, to which Channapatna belongs. The rainfall at Channapatna on the 20th was 1·30, on the 21st 1·58 inches, and on the 22nd 0·18.

Evidence of M. R. Ry. A. Krishnasawmy Iyengar, B.A.—I am an Amildar in charge of Channapatna taluk. On the evening of the 22nd no villagers or any owners of gardens either side of the river near the railway bridge came and reported to me that the bridge was in danger of falling or had fallen or that there was extraordinary flood in the river. If the bridge had actually fallen and if there were people near, it is probable they would have told me of it. It is not likely that people would be there as it was raining between three and seven that day.

Evidence of Abdul Rahim, age 45, peon in Military Secretary's Office, Mysore State.—I was a passenger in 70-down of the 22nd September. I was travelling in a third-class closed in compartment. I do not know the position of the carriage on the train. There were with me in the carriage a Brahman asleep on the seat. I was seated next to him; an old pensioned sepoy was sleeping on the floor of the carriage, while a sepoy of the Siladar Horse and a Hindu boy were on the seat opposite to mine. I and the Siladar

Horse sepoy scrambled on to the roof of a carriage when the water poured into our compartment. The roof, with us on it, got swept away in the stream; we struck on an island. I laid hold of some shrubs in the water and waded with the sepoy on to land. I do not know what became of the other three passengers in my compartment. My ticket was lost in the water. No passengers between Bangalore and Channapatna got into my compartment and no one left it.

From the Stationmaster C. Nagaswariah, to the District Traffic Superintendent, dated 14th October 1897. Memorandum No. 344-T.—I have been to the sub-division office. In the compartment of one Mareem Bee, what we meant as Futeem Bee, there were six adults and three children; all were saved, but in the compartment of one goldsmith, Manickachari, there were nine passengers, including him, of whom three strangers and four of his relatives are missing, and further says that he did not take number of passengers in the carriage occupied by goldsmith.

Summary of Evidence.

The evidence of the Permanent-way Inspector proves a system of patrolling by day, and that this was carried out on the date of the accident is amply proved by Boya, cooly of No. 5 gang, who witnesses that he patrolled his length in the morning, going across the bridge and remaining all day trimming banks the other side of it, returning in the evening. Also the gang cooly of the same gang, in charge of gate at miles 246, deposes that he went across the bridge on his way home after dusk.

Both these men are experienced gang men of 12 years' service on this line, and neither of them saw anything in the bridge or the depth of water in the river to cause uneasiness or necessitate a report to the Permanent-way Inspector or Stationmaster. The state of the bridge and the flood is corroborated by the evidence of driver M. L Staggs and fireman E. Binnee, both of 76 Down of 22nd September which crossed the bridge after 16 o'clock. This is further substantiated by Byramshah, pay clerk of the Bangalore District, who was in 76 Down of that date, and by gateman Soorsingh of traffic gate at 247/2-3.

It is clear from Boya's evidence that he understands the rules applying to cases of suspicion, and that, had he any reason to suspect the bridge, it would have been, as he says, a simple matter to have reported it to the Permanent-way Inspector or, in his absence, to the Stationmaster as he lives at Channapatna.

The Permanent-way Inspector inspected the bridge on the 2nd or 3rd September, and a memorandum put in by the District Engineer shows that he inspected it in February last, and that both arches and piers were perfectly sound; only some old cracks in the parapets were noticeable, these being due to want of proper bond and not affecting the stability of the bridge.

This bridge has been built 16 years ago. It was under no suspicion. The local rainfall, as given in Mr. Karve's evidence, was not of such a nature as to call special attention to the bridge. That the Permanent-way Inspector, who has been 7 years in charge of this section, had no misgivings on this account is proved by the evidence of the Assistant Stationmaster Sadanandam, who was on duty at Channapatna on the night of the 21st, and who states that the Permament-way Inspector remained in his office the whole of that night, as he was anxious to go by the night train to look at the Shimsha bridge, although there are two watchmen in charge of it. Meanwhile, hearing of the accident at mile 236/8, he was obliged to go there to render assistance, and remained there the whole of the 22nd up to midnight, when he got into 70 Down and returned to Channapatna. If he had had any misgivings about bridge 246/12, he could easily have taken precautionary measures, as he lives a little more than a mile from it.

Though Mr. Karve's evidence shows that 6·45 inches of rain fell in 4 hours at Closepet* on the night of the 21st, it must be understood this rain would not affect the Mallur river, as Closepet lies in a different valley, and its drainage runs into the Arkavatti river over which we have a big bridge, and rises near Hessergutta. Mr. Karve shows the rainfall at Channapatna to have been only 1·58 inches the same night and 0·80 the following night.

* *Note.*—Closepet about 10 miles north of Channapatna. It was this local rainfall that caused the first accident—the washaway on the night of the 21st.
J. B. M.

Previous to this there was very little rain. It is clear that the bridge was all right up to dusk on the 22nd, for we have not only the evidence of the patrolling gangmen, but that of the driver and fireman and pay clerk who were in 76 Down, the last train that passed over it at the usual speed, several trains having passed over it during the day.

From the statement put in by the District Traffic Superintendent, which is corroborated by the evidence taken, and by the position of the carriages, it is evident that the total loss of life is under† 20. There were eight third-class carriages on the train capable of holding 250 passengers. But there is convincing evidence to prove that the number of those travelling in the third-class carriage provided with a brake, including brakesman and greasers, was 11, and that no one either got into or left the carriage *en route*. Therefore, the maximum possible number of persons travelling in third-class carriages when the train left Bangalore was 250—(32-11)=229. At Kengeri, Bidadi, Closepet and Channapatna 88 passengers alighted and 22½ entered the train, which leaves 163½ as the *possible maximum* in the train when it crossed the bridge. Enquiry however shows that only 132 third-class tickets were issued to stations beyond Channapatna, and the above remarks prove that there could not have been many, if any, more than that number, travelling beyond Channapatna. Of the 132 passengers, 101½ can be accounted for, leaving 30½ unaccounted for. But this number can be still further reduced, for 14 passengers were booked to Mudgere and Maddur where, however,

† I should say about 20.
J. B. M.

searching enquiries seem to prove that no one belonging to these parts is missing. If, as is therefore highly probable, none of these 14 were drowned, the total number of passengers unaccounted for is reduced to 16½, out of which number 7 corpses have been recovered.

In the accident van (No. 1) two traffic cranemen were travelling, and as they are missing it may be assumed that they were drowned, the whole of the carriage being submerged.

In the Up-guards' brake carriage (No. 2) which was found end on, the evidence of the brakesman and peon Abdul Rahim proves that there were altogether eleven, including the brakesman, of whom seven are proved to have been saved.

The next carriage, an ordinary third-class—No. 3, lay on its side on top of the accident van and engine. No bodies were found in it, and it is therefore clear that either the carriage must have been empty or its occupants must have escaped, as from its position no bodies could have been washed out. A live parrot was found in this carriage.

The fourth vehicle, female carriage—No. 4, which was found on its wheels and with all shutters on the down stream side closed, contained, according to the statement of Mureem Bee, six adults and three children, all of whom were saved.

The fifth vehicle, an ordinary third-class—No. 5, was lying wheels uppermost on the tender, and it is evident that the principal loss of life occurred in this carriage. The Sub-Divisional Officer, Closepet, took down the evidence of one Manickachary, travelling in this carriage, who is said to have stated that there were nine in his compartment, of whom two were saved. It is evident that he must have referred to the whole carriage, because the brakesman is positive that there were not more than twelve in the carriage, as a considerable number alighted at Channapatna and only two passengers were booked from Channapatna.

It may therefore be safely assumed that the number of passengers killed is under sixteen, to which number may be added four Company's servants.
Query, about 20.
J. B. M.

It is proved that all 1st and 2nd class passengers are safe.

Finding.

We find it proved that Rules 200 and 214 of the General and Subsidiary Rules, Parts I and II of 1897, have been complied with.

That there was nothing in the local rainfall to induce special precautions.

We are of opinion that the accident is apparently due to some action in the river between dark on the 22nd and 2 o'clock in the morning of the 23rd.

The wells appear to have been undermined by a scour. It would be futile to give reasons for the failure of the bridge till borings are taken (when the river goes down) and the nature and depth of foundations have been decided. At present it can only be a matter of conjecture, hence a full consideration of the subject must be postponed.

A. H. MACKENZIE,
District Engineer.
D. HUGH LINDSAY,
District Traffic Supdt.
J. F. WILLANS,
District Loco. Supdt.

Notes made at the site of the Mallur Bridge Accident by the Senior Government Inspector on the 27th October 1897.

1. An inspection of the position of the fallen engine which still lies in the river bed, though it has rolled over now on its side instead of lying straight as shown in the earlier photographs, confirms, to my mind, the opinion which I had arrived at from the photographs, that the bridge had already fallen before the engine came upon it. Though how long before the engine came on the bridge the gap had occurred there is, and I think can be, no evidence to show. But the fact that the night was a dark one makes it of comparatively small importance whether the bridge collapsed exactly under the train or not.

2. It seems sufficiently evident that the first effect of the flood was the falling of the upstream well of the "abutment pier" which supported the sixth and seventh arches. The collapse of this well caused the upstream half of the pier to tilt over into the river. This naturally brought both arches down with it. Then although the thrust of the eighth arch was insufficient to overturn the pier supporting it and the seventh arch, yet the thrust of the fifth arch was sufficient

to overturn the pier supporting it and the sixth arch. The result was three arches down, one pier overturned sideways, and another pier split and with its upstream portion tilted in the upstream direction.

3. I examined the masonry. That of the arches is excellent, being large slabs of "burnt" granitoid gneiss set in good mortar. That of the piers is not so good, the mortar being of only fair quality, and I found large cavities in the heart of the split pier filled with dry sand. That, however, was not the cause of the collapse.

4. I had hoped to have been able to get at the wells, but that is at present impossible. It appears, however, that under the split pier which once supported the sixth and seventh arches, there are two circular wells, each 7′ 8″ internal and 11′ 0″ external diameter, that is, with 1′ 8″ steining. One of these wells collapsed, but whether by falling to pieces or by being undermined it is at present impossible to say for certain. The wells are apparently built of brick, though why of brick when such excellent burnt stone is available it is difficult to say. I found some of the bricks in the spandril walls beneath the coping. They are very thin bricks and have been moulded radially. The ones that I found were of very poor sandy quality, scarcely fit to be called second-class. Unless the filling of such thin-walled wells, built of such very poor bricks, is a very superior sort of concrete, they must almost certainly, sooner or later, have failed under the vibration of floods and of trains.

5. There are nine foundations, piers and abutments, and the drawing, which was handed to me, as a tracing of the original drawing made over by the Mysore Public Works Department to the Southern Mahratta Railway, shows four of them, which are still standing, as founded on stiff clay; three, including the failed well foundation, as founded on rock; and two, still standing, as founded on sand. The piers, which are 9′ 6″ high, stand on top of the wells, and the wells of the pier which must first have failed are shown as going down 26′ to rock. But there is a suspicious line drawn across the wells at a depth of 16′ 6″ which may possibly mean that one or both of them were stopped at that depth instead of being carried down to the rock. This line, however, might mean a clay stratum. I consider that the Southern Mahratta Railway authorities, finding a drawing of an arched bridge showing that its wells were satisfactorily founded, were quite justified in failing to view that bridge as being fit to be put under suspicion. From my examination of the quality of the bricks, however, and from finding a pocket of sand in the pier masonry, I am inclined to believe that the up-stream well of the pier in question failed because its masonry, or filling, or both, were bad. It must remain in doubt at present whether it was or was not fully sunk to the rock. I am disposed to believe that it was not sunk to the rock but only to the 16′ 9″ line; because, though the depths of all the other wells are figured on the drawing, the only depth figured on this particular well is 16′ 9″, and not the depth 28′ 0″ to the rock, although the lines representing the wells are drawn down to rock.

6. The visible bed of the river is sand. There was evidently no scour in the 6th span, because the engine is lying on the bed of the river about on the level of the top of the wells. Had the bed been deeper than the tops of the wells in No. 6 span at the time of the accident, the engine would now have undoubtedly been more or less buried in sand if the sand had filled in the hole on the fall of the flood. I see no reason to think that there was excessive scour in the 7th or 8th spans either. There certainly is no sign of it now.

7. All other evidence likely to be useful having already been recorded either at the Government Inspector's enquiry on the 24th September, or at the departmental enquiry of the 12th October, it only remained for me to take the following evidence from the District Engineer:—

Evidence of Mr. A. W. Mackenzie, District Engineer, Southern Mahratta Railway.—Am Resident Engineer on the section containing the Mallur bridge. Have seen the bed of the river dry right across during the dry season. It will probably be dry again in a couple of months. When the bed has been dry I have never seen any sign of scour having occurred round any of the piers: but have never taken soundings during flood. There has never been any loose stone pitching round the piers. The depth of the water at present close up to the failed well is only two or three feet (tested by sending men in, F. J. E. S.). I had no particular reason to suspect the probable failure of an arched bridge shown in its drawings as having its piers satisfactorily founded. I have no particular reason to think that trees or brushwood caused excessive scour. No such obstruction has been found.

Conclusion of the Senior Government Inspector.

The Mallur bridge failed as the result of the collapse first of the upstream end of the pier supporting the 6th and 7th arches. Pending the results of borings and excavation, which the Southern Mahratta railway authorities promised to undertake, it was not at first possible to say what precisely was the cause of the failure of this pier. I was at first disposed to think that it failed owing to its structure being deficient in strength, and to its therefore yielding at last under the combined vibration of trains and of floods, aggravated by a certain amount of scour. It seemed possible that the foundation, which there was reason to think had not been sunk to the rock, had got underscoured; but I thought this less likely than that it failed from inherent weakness. The Agent states that he had this point thoroughly investigated by borings as soon as the well could be got at.

2. So far as the evidence before me as to the state of the foundations is to be depended on, it goes to prove that the Southern Mahratta railway authorities had wrongly identified the failed piers and arches on the old plan in their possession, and that as a fact the pier to whose settlement the failure was due was not founded on wells as had been supposed, but on an open shallow foundation which, as in course of years the bends of the river changed their position, found itself exposed to a scour to which it was never intended that it should be subject. This mistake in identity is explained by the Southern Mahratta Railway Company's Officers as having arisen from the fact of the men who constructed the bridge having omitted to record on their drawing which was the Bangalore end and which the Mysore end of the bridges; and in the absence of any other available means of identification, the position of deep water on the plan of several years ago was believed and assumed to be identical with the actual position of deep water of to-day. The available evidence leaves little room for doubt that the cause of the failure of the bridge was the underscouring of a shallow founded pier, and for this I cannot see that blame can attach to any members of the Southern Mahratta Railway Company's present Engineering staff.

3. I do not think that, up to sunset on the evening before the accident occurred, the railway servants had any reason to suspect the bridge. Indeed it was not a sort of bridge which would be likely to be looked on as liable to be suspected, considering the record of its drawing as above interpreted. The flood which, according to the expert evidence of Mr. V. H. Karve, seems only to have reached within a foot of the springings of the arches, was not an abnormal one. I consider the permanent-way staff to be free from blame. I also see no reason to blame the engine staff. There is a rising grade of 1 in 100 up to the bridge, and the engine staff would not get a good look over it until they came very nearly on to it; and it would in all probability have been too late, even if the gap had been fully visible on arrival at the bridge on a bright moonlight night, to pull up the train. But the night in question was dark, and the chances were largely against the engine staff being able to see the gap until they were practically into it, even if any one of them should have happened at that particular instant to have his eye on the road in front of the cowcatcher.

4. The chief question to be considered is whether the Southern Mahratta system of patrolling the line is sufficient and suitable for local conditions. Their system is to patrol the whole line during daylight and only certain ghât sections and suspicious places at night. The South Indian Railway patrol system is a very good one. I print their rules as Annexure No. 1.* The correspondence which led to the abandonment of a similar system on the Madras railway will be found printed as Annexure No. 2.* I am informed by the Agent, Southern Mahratta railway, that they have not, and apparently never have had, any system of night patrolling all over the entire line. I understand them to reason that a night patrol is only a partial insurance against accidents of a sort likely to happen from heavy rain; because an interval of some hours may elapse between the passage of a patrol and that of a train. Unless patrols follow each other at very brief intervals of time, or unless, which is equally impracticable, standing patrols are posted at every point of possible danger, it can be in nobody's power to decide whether or not more stringent patrolling might have prevented an accident. I consider, however, that the Company's own interests, as well as the safety of the public, demand that some more satisfactory system of inspection than that now in force should be organized.

* Not printed.

5. It now remains to consider the several estimates that have been made of the number of casualties. As was natural enough, considering the probable sources of their information, the daily press very greatly exaggerated the figures from the first, and wild rumours were, as usual, afloat of attempts on the part of the railway to conceal the truth. I have carefully read all the available evidence, and I believe that not more than twenty in all were killed and drowned, including the four railway servants. The evidence recorded during the second enquiry seems to me to make it fairly certain that there were few, if any, fatal casualties in excess of this number.

6. The causes which led to the accident to the same train, No. 70 Down Mixed, only a couple of days previously, at mile 236/8, and to the accident to a goods train only a few days later, October 13th, a few miles further south between Mudgere and Maddur, were very similar to the causes of the fatal accident on the Nilgiri Branch of the Madras railway on the early morning of November 4th, 1893, when 40 passengers were killed and 34 injured. In all these cases a night train ran into a comparatively small breach or obstruction caused by an abnormal and sudden rainfall over a comparatively restricted area. In both of the Southern Mahratta cases just referred to, an engine and several vehicles were derailed, with fortunately no loss of life and but little injury to persons or property other than railway property; but these accidents might just as well have happened to mail trains full of passengers, as actually did happen in the case now under investigation.

7. I certainly consider that the Southern Mahratta railway ought no longer to defer the adoption of a set of rules for night-patrolling their line during the monsoon seasons similar to those in use on the South Indian railway. Should further serious accidents be ascribable to the absence of such patrolling, the incidence of blame will be clear.

OOTACAMUND,
11th August 1898.

FRANCIS J. E. SPRING,
Senior Govt. Insptr. of Rys., Madras.

G. I. C. P. O.—No. 192 P. W. D.—20-10-98.—612—JOB. C.