

[Enclosure No. 1 to Railway Board's Report, dated the 20th April 1910.]

INDIAN RAILWAYS.

**ABSTRACT RETURNS OF ACCIDENTS DURING THE TWELVE
MONTHS ENDED THE 31ST DECEMBER 1909.**

ABSTRACT No. 1.

GENERAL TOTAL.

NUMBER of PERSONS reported, during the TWELVE MONTHS ended the 31st December 1909, 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.	19	96	10	29	...	2	29	127
By accidents from other causes, including accidents from their own want of caution or misconduct	129	304	30	179	2	4	161	487
SERVANTS:—								
From accidents to trains, rolling-stock, permanent-way, etc.	14	93	16	34	1	4	31	131
By accidents from other causes, including accidents from their own want of caution or misconduct	270	405	60	122	4	4	334	531
OTHER PERSONS:—								
Whilst passing over railways at level-crossings	30	16	17	17	...	3	47	38
Trespassers	747	148	358	114	11	7	1,116	269
Suicides	162	12	21	...	4	...	187	12
Miscellaneous, not included in either of the above	12	18	13	9	1	3	26	30
TOTAL	1,383	1,092	525	504	23	27	1,931	1,623

No. 2.

by the TRAVELLING of TRAINS or the MOVEMENT of VEHICLES used exclusively upon RAILWAYS, distinguishing between, where practicable, the nature and causes of the ACCIDENTS occasioning the DEATH or INJURY.

ACCIDENTS TO TRAINS, ETC.																			OTHERS.										Serial Number.												
7.—Whilst moving vehicles by capstans, turn-tables, 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 over bridges, or erections on the sides of the line during the travelling of trains.		11.—When getting on or off engines, vans, etc., during the travelling of trains.		12.—Whilst attending to or by the failure of machinery, etc., of engines in steam.		13.—Whilst working on the permanent-way, sidings, etc.		14.—Whilst attending to gates at level-crossings.		15.—Whilst walking, crossing, or standing on the line on duty.		16.—From being caught between vehicles.		17.—From falling or being caught between trains and platforms, walls, etc.		18.—Whilst walking, etc., on the line on the way home or to work.		19.—Miscellaneous.		Total.		TOTAL STRAYERS.		Whilst passing over the railway at level-crossings.		Trespassers.		Suicides.		Miscellaneous.		TOTAL OTHERS.		TOTAL ALL CLASSES.	
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		
2	6	5	2	2	2	1	1	1	1	1	4	1	2	1	1	4	3	11	36	12	37	7	1	96	20	25	4	1	4	129	29	152	95	1							
1	2	2	1	1	1	1	1	1	1	4	2	1	4	2	4	7	14	17	14	22	1	1	31	11	4	1	1	36	12	58	65	2									
1	3	1	2	1	2	1	2	1	2	10	4	1	10	4	2	12	20	24	21	24	4	1	53	12	1	1	58	13	88	51	3										
1	9	4	1	1	3	3	8	1	3	6	19	24	1	2	2	9	21	52	110	57	150	4	4	222	42	46	1	8	7	280	54	362	296	4							
1	5	7	2	3	1	2	2	1	1	12	11	1	12	11	1	5	11	35	52	37	63	2	2	71	10	17	1	1	89	13	139	9	6								
1	2	1	1	2	2	2	1	1	1	1	5	2	1	5	2	1	4	10	17	10	22	1	1	33	4	14	1	1	47	4	64	36	6								
1	1	1	2	2	2	2	1	1	1	6	6	1	6	6	1	3	5	15	26	15	31	4	5	49	10	13	1	1	66	16	101	75	7								
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
8	11	1	10	4	10	2	4	3	2	42	7	1	1	4	6	17	93	85	95	104	1	1	116	17	14	1	1	131	20	270	250	9									
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	2	2	3	1	8	18	32	8	10	15	9	1	106	66	8	5	3	10	10	5	37	89	270	405	284	498	30	16	747	148	162	12	12	16	951	194	1,508	1,383			
2	21	41	9	48	5	6	17	27	31	25	14	6	3	116	67	1	4	5	15	15	53	90	321	409	359	558	28	13	754	173	189	5	25	20	996	211	1,552	1,092			
2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	8	2	5	2	4	7	1	2	2	5	2	2	5	2	2	2	3	2	4	12	14	33	67	41	78	5	4	243	82	9	1	3	253	89	324	231					

(A) Including the Hardwar-Dehra railway
 (i) Nilgiri, Shoranur-Cochin (3'3") gauge), Morappur-Dharmapuri and Tirupattur-Krishnagiri (2' 0" gauge) railways.
 (j) Bengal Doon extensions.
 (k) Dhrangadra, Jamnagar and Jetalpur-Bajkot railways.

(l) Including the Ledo and Tikak Margherita Colliery Branch railway.
 (m) Mymensingh-Jamalpur-Jaganathganj railway, and the 2' 6" gauge lines.

ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, ETC., REPORTED DURING THE YEAR 1950-51, IN THE STANDARD GAUGE, 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.

Classes of accidents	BENGALEE-NAGPUR (a)								BOMBAY, BARODA AND CENTRAL INDIA (b)								EASTERN BENGAL STATE								EAST INDIA (c)								Number of headings
	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 81 of the Indian Railways Act, No. IX of 1950.	Other accidents.	Total	Killed.	Injured.	Killed.	Injured.	Total	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1950.	Other accidents.	Total	Killed.	Injured.	Total	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1950.	Other accidents.	Total	Killed.	Injured.	Total	Killed.	Injured.							
1. Collisions between passenger trains or parts of passenger trains	...	...	...	...	...	...	...	...	...	1	...	1	...	8	...	6	...	13	1	...	1	...	8	...	3	...	3	...	1		
2. Collisions between passenger trains and goods or mineral trains, engines and vehicles standing foul of the line	8	4	7	...	9	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	1	1	...	1	1	...	11	2	
3. Collisions between goods trains or parts of goods trains	...	11	20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	5	9	...	1*	...	7	...	8	...	3		
4. Collisions between light engines	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	
5. Passenger trains or parts of passenger trains leaving the rails	7	20	33	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	2	1	3	...	...	...	...	...	...	...	...	5	
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	11	104	115	...	...	...	1	...	1	...	5	5	...	...	...	...	...	...	1	12	13	...	...	...	3	...	3	...	6		
7. Trains or engines travelling in the wrong direction through points	...	9	9	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	2	18	20	...	...	...	4	...	4	...	7	
8. Trains running into stations or sidings at too high a speed	4	7	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	8	
9. Trains running over cattle on the line	1	77	78	...	...	...	...	...	...	...	74	74	...	...	...	...	...	...	...	180	180	...	...	...	...	...	...	1	...	9	
10. Ditto over obstructions on the line	10	32	42	3	1	...	...	...	...	...	8	8	...	...	...	...	...	...	2	11	13	...	...	...	...	...	...	...	...	10	
11. Trains running through gates at level-crossings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
12(a). Ditto of tubes, etc., of engines	...	...	...	...	...	...	...	...	...	...	22	22	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	12 (a)
13. The failure of machinery, springs, etc., of engines	...	7	7	...	...	...	...	...	...	...	31	34	...	...	...	...	...	...	...	22	21	...	...	...	...	...	...	...	...	...	13
14. The failure of tyres	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
15. Ditto of wheels	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
16. Ditto of axles	...	1	1	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	1	2	3	...	...	...	...	...	...	...	...	16
17. Ditto of brake apparatus	1	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
18. Ditto of couplings	5	24	29	...	...	...	...	...	...	...	35	35	...	...	...	...	...	...	...	5	5	...	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
20. Broken rails	4	...	4	...	...	...	...	...	...	...	8	8	...	...	...	...	...	...	...	15	15	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	3	2	5	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	5	5	...	...	...	...	...	...	...	...	...	21
22. Slips in cuttings or embankments	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	22
23. Fire in trains	1	4	5	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
24. Fire at stations, or involving injury to bridges or viaducts	...	10	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
25. Other accidents	19	23	42	...	...	...	...	...	...	...	28	26	...	...	...	...	...	...	...	5	5	...	...	...	...	...	...	...	...	...	25
TOTAL ALL CLASSES	80	348	428	63	41	1	3	5	1	215	210	8	5	13	10	249	259	4	1	1	4	31	880	911	63	81	5	40	8				

(a) Including the Gondia-Chanda, Jabalpur-Gondia extension, Mourhanj, Parlakimedi Light, Paralia-Bunhi and Raj-Dhanuri. (3'6" gauge) railways.
 (b) Including the Godhra-Bulandnagar, Nagda-Motera, Nagda-Ujjain, and Patala-Cambay railways.
 (c) Including the Delhi-Umbla-Kalka, South Behar and Tarkessur railways.

Not (a) passenger(s).
 † Of these, one was not passenger
 ‡ Of these four were not passengers.

ABSTRACT NO. 8.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1909, 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.*

	GREAT INDIAN PENINSULA.								INDIAN MIDLAND. (a)								MADRAS AND SOUTHERN MARRATTA (b)								NIZAM'S GUARANTEED STATES. (c)								Number of headings.
	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 88 of the Indian Railways Act, No. IX of 1900.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 88 of the Indian Railways Act, No. IX of 1900.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 88 of the Indian Railways Act, No. IX of 1900.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.								
1. Collisions between passenger trains or parts of passenger trains	1								
2. Collisions between passenger trains and goods or mineral trains, engines and vehicles standing foul of the line	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2								
3. Collisions between goods trains or parts of goods trains	...	3	3	...	...	5	...	5	...	3	2	...	...	...	...	...	...	...	...	...	...	...	...	...	3
4. Collisions between light engines	...	1	1	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	4
5. Passenger trains or parts of passenger trains leaving the rails	...	15	15	1	...	1	...	3	3	6	...	6	15	15	15	15							
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	124	124	...	...	1	2	1	2	25	25	...	...	...	...	...	...	1	3	4	...	...	...	...	...			
7. Trains or engines travelling in the wrong direction through points	...	2	2	...	...	...	...	...	...	4	4	...	1	...	1	...	2	...	...	...	...	...	...	...	...
8. Trains running into stations or sidings at too high a speed								
9. Trains running over cattle on the line	...	140	140	...	...	...	...	...	...	311	311	...	...	...	...	...	...	...	329	329	...	...	...	...	...			
10. Ditto over obstructions on the line	...	11	11	...	2*	...	1	...	3	8	8	1	...	1	...	1	9	10	1*	3*	...	1	1	4							
11. Trains running through gates at level-crossings	...	10	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12. The bursting of boilers of engines								
12(a). Ditto of tubes, etc., of engines	...	45	45	...	...	...	...	...	...	17	17	...	...	...	...	...	...	...	80	60	...	...	...	...	...			
13. The failure of machinery, springs, etc., of engines	...	151	151	...	...	...	...	...	...	68	68	...	...	...	...	...	...	...	106	108	...	...	...	...	...			
14. The failure of tyres								
15. Ditto of wheels								
16. Ditto of axles	...	5	5	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	11	11	...	...	...	...	...			
17. Ditto of brake apparatus	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18. Ditto of couplings	...	89	39	...	...	...	...	...	...	9	9	...	...	...	...	...	...	...	11	11	...	...	...	...	...			
19. Ditto of tunnels, bridges, viaducts, culverts, etc.								
20. Broken rails	...	11	11	...	...	...	...	...	...	7	7	...	...	...	...	...	...	...	6	6	...	...	...	...	...			
21. The flooding of portions of permanent-way	1	1	...	...	...	...	...	...	...	1	4	5	...	...	...	...				
22. Slips in cuttings or embankments	...	3	3	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23. Fire in trains	...	101	101	...	...	...	...	...	...	19	19	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24. Fire at stations, or involving injury to bridges or viaducts	...	17	17	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	4	4	...	...	...	...				
25. Other accidents	1	162	163	1	2	1	2	45	45	3	...	3	1	74	75	...	1*	...	4	...	5						
TOTAL ALL CLASSES	1	641	842	...	2*	2	11	2	13	526	526	...	1	...	5	...	6	...	11	639	650	16†	19‡	...	5	16	24						

(a) Including the Agra-Delhi Chord, Baran-Kotah, Bhopal-Itarsi, Bhopal-Ujjain and Bina-Gauna-Baran railways.
 (b) " Kolar Gold-fields railway.
 (c) " Bozwada extension railway.

* Not (a) passenger(-).
 † Out of these, one was not a passenger.
 ‡ Out of these four were not passengers.

ABSTRACT No. 3.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1909, 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 STATS. (a)							ODISH AND BOMBAY STATES. (b)							SOUTH INDIAN. (c)							TAMIL VALLEY.							Number of headings.			
	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 85 of the Indian Railways Act, No. IX of 1900.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 85 of the Indian Railways Act, No. IX of 1900.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 85 of the Indian Railways Act, No. IX of 1900.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.		Injured.		
1. Collisions between passenger trains or parts of passenger trains	1	...	1	...	8	...	...	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
2. Collisions between passenger trains and goods or mineral trains, engines and vehicles standing foul of the line	5	6	11	...	13	...	3	...	16	3	4	7	4	16	2	1	6	17	...	...	...	...	...	...	...	...	...	...	...	2	
3. Collisions between goods trains or parts of goods trains	4	33	42	...	2	5	2	5	2	3	5	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	3	
4. Collisions between light engines	...	16	16	...	...	2	...	2	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	
5. Passenger trains or parts of passenger trains leaving the rails	5	5	10	...	6	...	...	6	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	2	161	163	...	1	...	5	...	6	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	
7. Trains or engines travelling in the wrong direction through points	...	1	1	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
8. Trains running into stations or sidings at too high a speed	2	3	5	...	14	...	...	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
9. Trains running over cattle on the line	...	527	527	...	...	...	...	...	...	120	190	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	1	24	25	...	19	...	4	...	5	1	4	5	19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
11. Trains running through gates at level-crossings	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
12. The bursting of boilers of engines.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
12(a). Ditto of tubes, etc., of engines	...	51	51	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12(a)
13. The failure of machinery, springs, etc., of engines	...	207	207	...	...	...	...	...	...	16	16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
14. The failure of tyres	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
16. Ditto of axles	...	5	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
18. Ditto of couplings	...	85	85	...	...	...	...	...	...	12	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
20. Broken rails	...	59	59	...	...	...	...	...	...	6	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	1	25	26	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
22. Slips in cuttings or embankments	...	2	2	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
23. Fire in trains	...	9	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
24. Fire at stations, or involving injury to bridges or viaducts	...	13	13	...	...	...	...	...	...	1	2	3	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
25. Other accidents	1	67	68	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
TOTAL ALL CLASSES	22	1,257	1,277	...	43†	2	19	2	62	7	252	259	5†	18†	2	4	7	22	...	354	354	...	3	2	3	2	6	...	23	23

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.																Number of headings.																
	ASSAM-BENGAL.								BENGAL AND NORTH-WESTERN (TIERFOOT AND COMPANY'S SECTIONS).									BENGAL DOOARS. (a)								BEAUNAGAR-GONDAL-JUMNAGAR-PORBANDAR. (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.							
1. Collisions between passenger trains or parts of passenger trains	1							
2. Collisions between passenger trains and goods or mineral trains, engines and vehicles standing foul of the line	...	2	2	...	...	...	...	...	...	9	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
3. Collisions between goods trains or parts of goods trains	...	2	2	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	
4. Collisions between light engines	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4							
5. Passenger trains or parts of passenger trains leaving the rails	2	2	4	...	...	1	1	1	1	1	7	8	...	...	...	...	...	...	...	...	...	...	...	...	...	5	
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	10	10	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	
7. Trains or engines travelling in the wrong direction through points	3	11	14	2	5	...	...	...	...	...	...	...	...	...	...	...	...	7						
8. Trains running into stations or sidings at too high a speed	...	1	1	...	...	...	...	...	...	159	159	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
9. Trains running over cattle on the line	2	108	108	...	...	...	...	...	...	9	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	...	10	10	...	...	...	1	...	1	...	9	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
11. Trains running through gates at level-crossings	11						
12. The bursting of boilers of engines	12						
12(a). Ditto of tubes, etc., of engines	12(a)						
13. The failure of machinery, springs, etc., of engines	...	22	22	...	...	...	...	...	...	...	15	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
14. The failure of tyres	80	80	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14						
15. Ditto of wheels	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15						
16. Ditto of axles	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16						
17. Ditto of brake apparatus	17						
18. Ditto of couplings	...	13	13	...	...	...	...	...	...	...	17	17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	19						
20. Broken rails	...	7	7	...	...	...	...	...	...	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	16	16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21						
22. Slips in cuttings or embankments	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
23. Fire in trains	...	1	1	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
24. Fire at stations, or involving injury to bridges or viaducts	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24						
25. Other accidents	...	3	3	...	...	...	...	...	...	...	1	10	11	...	...	...	...	...	...	...	...	...	...	...	...	...	25
TOTAL ALL CLASSES	4	181	185	...	...	1	2	1	2	5	299	304	2	5	...	...	2	5	...	...	39	39	1*	1*	...	...	24
																											25						
																											25						

(a) Including the Bengal Dooars extensions.
(b) " " Dhrangadra, Jamnagar and Jetalsar-Rajkot railways.

* Not (a) passenger(s).

ABSTRACT No. 3.— ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1909, 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.*

	BURMA.												CAWPOOR-DUHWAL.								DEOGHUR.								DISRO-SADUYA. (a)								Number of headings.
	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 1900.	Other accidents.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1900.	Other accidents.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1900.	Other accidents.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1900.	Other accidents.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.					
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	...	2	2	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
3. Collisions between goods trains or parts of goods trains	...	11	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	
4. Collisions between light engines	...	8	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	
5. Passenger trains or parts of passenger trains leaving the rails	3	4	7	7	12	2	3	9	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	17	17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	
7. Trains or engines travelling in the wrong direction through points	...	50	50	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	
8. Trains running into stations or sidings at too high a speed	...	10	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	
9. Trains running over cattle on the line	1	244	245	1	1	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	
10. Ditto over obstructions on the line	2	17	19	1	1	...	...	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	
11. Trains running through gates at level-crossings	...	6	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
12(a). Ditto of tubes, etc., of engines	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12(a)	
13. The failure of machinery, springs, etc., of engines	...	36	36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
14. The failure of tyres	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
15. Ditto of wheels	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
16. Ditto of axles	8	12	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
17. Ditto of brake apparatus	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
18. Ditto of couplings	...	20	20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
20. Broken rails	...	8	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	5	18	23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
22. Slips in cuttings or embankments	...	7	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
23. Fire in trains	...	22	22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
24. Fire at stations, or involving injury to bridges or viaducts	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
25. Other accidents	1	53	54	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25

ABSTRACT No. 3.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1900, 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.

	NORW.								RAJPUTANA-MALWA. (a)								NORTH AND KUMAON (LUCKNOW-BAREILLY AND COMPANY'S SECTIONS).								SOUTH INDIAN. (b)								Number of headings.	
	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 1900.	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 1900.	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 1900.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.									
1. Collisions between passenger trains or parts of passenger trains	2	2	...	...	...	...	...	...	1	...	1	...	...	...	...	...	1								
2. Collisions between passenger trains and goods or mineral trains, engines and vehicles standing foul of the line	1	1	...	...	...	...	...	...	...	2	2	...	7	...	...	...	7	2							
3. Collisions between goods trains or parts of goods trains	1	2	3	...	...	...	10	...	10	...	...	...	...	...	...	...	...	...	3							
4. Collisions between light engines	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4							
5. Passenger trains or parts of passenger trains leaving the rails	1	8	9	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	5							
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	7	7	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	6							
7. Trains or engines travelling in the wrong direction through points	...	1	1	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	4	4	...	...	...	...	...	7
8. Trains running into stations or sidings at too high a speed	1	1	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	8							
9. Trains running over cattle on the line	...	15	15	...	...	...	...	...	...	213	213	...	...	...	...	...	...	...	...	79	79	...	...	...	...	...	9
10. Ditto over obstructions on the line	12	12	...	1*	2	3	5	1*	3*	...	1	4	8	10						
11. Trains running through gates at level-crossings	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	11
12. The bursting of boilers of engines	7	7	...	...	...	...	...	...	...	...	20	20	...	...	...	...	...	12							
12(a). Ditto of tubes, etc., of engines	12							
13. The failure of machinery, springs, etc., of engines	...	2	2	...	...	...	...	...	...	81	81	...	...	...	...	...	...	...	...	11	11	...	...	...	...	...	13
14. The failure of tyres	14							
15. Ditto of wheels	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
16. Ditto of axles	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16							
17. Ditto of brake apparatus	31	31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17							
18. Ditto of couplings	18							
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	19							
20. Broken rails	16	16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20							
21. The flooding of portions of permanent-way	5	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21							
22. Slips in cuttings or embankments	22							
23. Fire in trains	13	13	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	23							
24. Fire at stations, or involving injury to bridges or viaducts	3	3	...	...	...	...	...	24							
25. Other accidents	68	68	...	...	1	...	1	...	...	...	7	7	...	...	...	...	...	25							
TOTAL ALL CLASSES	...	20	20	2	423	424	...	1*	1	10	1	11	3	144	147	1*	3†	...	1	1	4	...	705	705	2*	10	...	2	10

ABSTRACT No. 3.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1909, 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—Coast								SPECIAL GAUGES.																Number of headings.								
	UDAMPUR-CHITORGARH.								BARASAT BANIMAT LIGHT (2' 6").								BARSI LIGHT (2' 6").									BURNTAIRPUR BARSAT LIGHT (2' 6").							
	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 1900.	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 1900.	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 1900.	Other accidents.	Total.	Killed.	Injured.	Killed.		Injured.							
1. Collisions between passenger trains or parts of passenger trains	1							
2. Collisions between passenger trains and goods or mineral trains, engines and vehicles standing foul of the line	2							
3. Collisions between goods trains or parts of goods trains	3							
4. Collisions between light engines	4							
5. Passenger trains or parts of passenger trains leaving the rails	15	...	15	...	...	1	1	1	1	...	...	...	...	...	...	...	...	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. Trains running over cattle on the line	...	17	17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10							
11. Trains running through gates at level-crossings	11							
12. The bursting of boilers of engines	12							
12(a). Ditto of tubes, etc., of engines	12(a)							
13. The failure of machinery, springs, etc., of engines	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
14. The failure of tyres	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.	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	...	19	19	...	...	...	...	...	15	1	16	...	...	1	1	1	1	...	...	...	...	...	...	...	...	4

ABSTRACT No. 3.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1909, 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—*contd.*

	COOR BHAR (2' 6").							CUTTACK (2' 6").							DHOLPUR-BARI (2' 6").							GANKWAN'S DABHOI (2' 6").							Number of headings.
	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 1904.	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 1904.	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 1904.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		
1. Collisions between passenger trains or parts of passenger trains	1		
2. Collisions between passenger trains and goods or mineral trains, engines and vehicles standing foul of the line	2		
3. Collisions between goods trains or parts of goods trains	3		
4. Collisions between 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	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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. Trains running over cattle on the line	2	9	11	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
11. Trains running through gates at level-crossings	11		

ABSTRACT No. 8.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1909, 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— <i>contd.</i>																Number of hearings.	
	KALKA-SIMLA (2' 6").				POWATAN LIGHT (2' 6").				RAJPIPIA (2' 6").				SHANWARA (DELHI)—SAMARAPUR LIGHT (2' 6").					
	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.			
		Total.	Killed.				Injured.	Total.				Killed.	Injured.			Total.		Killed.	Injured.	Total.	Killed.	Injured.
Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.				Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.				Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.				Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.						
Other accidents.				Other accidents.				Other accidents.				Other accidents.						
1. Collisions between passenger trains or parts of passenger trains	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
2. Ditto ditto and goods or mineral trains, engines and vehicles standing foul of the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
3. Collisions between goods trains or parts of goods trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
4. Ditto light engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
5. Passenger trains or parts of passenger trains leaving the rails	23	10	33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	1	77	78	...	...	...	...	...	...	...	...	...	...	...	...	6	6	6
7. Trains or engines travelling in the wrong direction through points	...	5	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
8. Trains running into stations or sidings at too high a speed	...	3	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
9. Ditto over cattle on the line	1	3	4	...	1	3	4	...	1	3	4	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	2	4	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12(a)
13. The failure of machinery, springs, etc., of engines	1	11	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
14. Ditto of tyres	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
16. Ditto of axles	1	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
18. Ditto of couplings	7	20	27	...	1	1	...	...	...	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
20. Broken rails	1	5	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
22. Slips in cuttings; embankments	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22
23. Fire in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
24. Fire at stations involving injury to bridges or viaducts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
25. Other accidents	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
TOTAL ALL CLASSES	40	137	177	...	1	10	11	...	1*	...	...	...	...	...	...	...	...	8

ABSTRACT No. 3.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1909, 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— <i>contd.</i>																Number of headings.								
	TARAKESHWAR-MAGDA LIGHT (2' 6").								TIRUPUR-BALIPARA LIGHT (2' 6").				DANJELING-HIMALAYAN (2' 0").					GWALIOR LIGHT (2' 0").							
	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 1900.	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 1900.	Other accidents.		Total.	Killed.		Injured.	Killed.		Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1900.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.
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. Collisions between 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 . . .	1	3	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	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	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	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	12(a)
13. The failure of machinery, springs, etc., of engines	13

ABSTRACT No. 3.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1903, 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—concl'd.

	SPECIAL GAUGES—concl'd.																								Number of headings.
	HOWDAH-AMTA LIGHT (2' 0").						HOWDAH-SHRAEKHALA LIGHT (2' 0").						JONKAT (2' 0").						MATHERAN LIGHT—(2' 0").						
	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 1900.	Other accidents.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
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	2
3. Collisions between goods trains or parts of goods trains	3
4. Collisions between light engines	4
5. Passenger trains or parts of passenger trains leaving the rails	8	...	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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. Trains running over cattle on the line	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	12(a)
13. The failure of machinery, springs, etc., of engines	13
14. The failure of tyres	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.	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	9	1	10	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	3
																									15

ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ending the 31st December 1908, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS

	STANDARD GAUGE LINES.											METRE						
	Previous year.			TWELVE MONTHS ENDED THE 31st DECEMBER 1908.								Previous year.			TWELVE MONTHS ENDED THE 31st DECEMBER 1908.			
	Accidents reported to Local Governments under section 68 of the Indian Railways Act, No. IX of 1859.	Other accidents.	Total.	Number.			Number of passengers and others.		Number of servants.		Total all classes.		Accidents reported to Local Governments under section 63 of the Indian Railways Act, No. IX of 1859.	Other accidents.	Total.	Number.		
							Killed.	Injured.	Killed.	Injured.	Killed.	Injured.						
1. Collisions between passenger trains or parts of passenger trains	3	3	6	3	1	4	...	22	...	5	...	27	1	...	1	2	3	5
2. Collisions between passenger trains and goods or mineral trains, engines, and vehicles standing foul of the line	27	14	41	10	15	31	4	37	5	11	9	49	14	14	28	1	21	22
3. Collisions between goods trains or parts of goods trains	24	52	76	19	63	82	...	1	2	20	2	21	1	15	16	5	22	27
4. Collisions between light engines	5	28	33	1	23	23	...	...	...	2	...	2	1	16	17	...	11	11
5. Passenger trains or parts of passenger trains leaving the rails	47	49	96	23	54	77	15	21	...	1	15	22	17	23	40	30	32	62
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	41	325	366	17	436	453	...	1	1	11	1	12	2	100	102	1	74	75
7. Trains or engines travelling in the wrong direction through points	14	46	60	3	37	39	...	1	...	5	...	6	9	119	123	7	73	80
8. Trains running into stations or sidings at too high a speed	11	23	34	7	15	23	...	14	...	...	...	14	1	10	11	...	14	14
9. Trains running over cattle on the line	...	2309	2309	2	2508	2570	...	...	1	...	1	...	8	2179	2187	3	2,429	2,432
10. Trains running over obstructions on the line	36	83	119	17	119	136	...	5	...	7	5	14	16	92	108	4	90	94
11. Trains running through gates at level-crossings	...	27	27	...	16	16	...	...	...	...	...	...	1	20	21	1	14	15
12. The bursting of boilers of engines	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...
12(a). The bursting of tubes, etc., of engines	...	256	256	...	230	230	...	...	...	...	...	...	...	69	69	...	86	86
13. The failure of machinery, springs, etc., of engines	4	762	766	...	681	681	...	...	...	...	...	...	...	240	240	...	186	186
14. The failure of tyres	...	3	3	...	1	1	...	...	...	...	...	...	3	5	8	...	4	4
15. Ditto of wheels	1	5	6	...	2	3	...	...	...	...	...	...	1	...	1	...	2	2
16. Ditto of axles	3	20	23	1	36	37	...	...	...	...	...	...	8	46	54	4	20	24
17. Ditto of brake apparatus	5	2	7	1	6	7	...	...	...	...	...	...	...	5	5	...	2	2
18. Ditto of couplings	30	239	269	5	240	245	...	...	...	...	...	...	2	167	169	...	139	139
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	2	3	...	2	2
20. Broken rails	2	120	122	4	117	121	...	...	...	...	...	...	1	121	122	...	87	87
21. The flooding of portions of permanent-way	7	81	88	...	43	52	...	...	...	...	...	...	15	70	85	16	63	79
22. Slips in cuttings or embankments	6	14	20	...	22	22	...	...	...	...	...	...	...	18	18	...	16	16
23. Fire in trains	10	181	191	1	153	154	...	...	...	...	...	...	3	72	75	2	54	56
24. Fire at stations, or involving injury to bridges or viaducts	7	84	91	1	61	62	...	2	...	...	...	2	...	21	21	1	16	17
25. Other accidents	47	715	762	41	682	723	...	...	...	...	...	...	9	219	228	5	160	165
TOTAL FOR THE TWELVE MONTHS ENDED THE 31st DECEMBER 1908	...	...	...	171	5,620	5,791	27	110	14	93	41	203	...	...	...	62	3,620	3,702
Previous year	...	...	...	330	5,481	5,811	128	271	38	149	166	420	...	...	...	114	3,644	3,758
Mean mileage worked	17,109											13,220						
Number of servants employed	230,838											125,004						
Train-mileage of all descriptions	88,503,000											40,478,000						
Number of passengers carried	194,942,000											127,592,000						
Passenger-mileage	8,049,641,000											4,279,077,000						
Per mean mile open—																		
Train-mileage of all descriptions	5,173											3,000						
Number of passengers carried	11,628											9,648						
Passenger-mileage	470,492											323,535						
Total passengers—																		
Killed per million of passengers	0.096											0.078						
Injured per million of passengers	0.483											0.227						
Killed per million of passenger-miles	0.002											0.002						
Injured per million of passenger-miles	0.012											0.007						

* Not (a) passenger (s).
 † Of these, eight were not passengers.

‡ Of these four, one was not passenger.
 § Of these, nine were not passengers.
 ¶ Of these, thirteen were not passengers.
 * Of these, seven were not passengers.
 ** Of these, eleven were not passengers.

the 31st December 1909, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, and of RAILWAY SERVANTS KILLED OR INJURED in each class of accident.

LINES.				SPECIAL GAUGE LINES.												TOTAL ALL GAUGES.																			
THE 31st DECEMBER 1909.				TWELVE MONTHS ENDED THE 31st DECEMBER 1909.												TWELVE MONTHS ENDED THE 31st DECEMBER 1909.																			
Number of servants.		Total all classes.		Previous year.			Number.			Number of passengers and others.			Number of servants.			Total all classes.			Previous year.			Number.			Number of passengers and others.			Number of servants.			Total all classes.				
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.	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.		
..	..	..	1	1	..	1	2	..	2	..	..	..	..	..	..	5	3	8	7	4	11	..	23	..	5	..	29	..	..	..	..	..	..	..	..
..	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	41	28	69	17	36	53	4	44	5	11	9	55	..	..	..	..	..	..	..	..
5	15	5	15	..	..	..	..	..	..	..	..	..	..	..	..	25	67	92	24	85	109	..	1	7	35	7	36	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	44	50	1	33	34	..	..	..	2	..	2	..	..	..	..	..	..	..	..
3	4	10	16	49	19	68	58	26	84	..	..	1	1	1	1	113	91	204	111	112	223	22	33	4	6	28	39	..	..	..	..	..	..	..	..
..	..	..	..	2	47	49	1	82	83	..	..	..	..	..	..	45	472	517	19	592	611	..	1	1	11	1	12	..	..	..	..	..	..	..	..
1	1	3	6	..	7	7	..	5	5	..	..	..	..	..	..	23	172	195	9	115	124	2	6	1	6	3	12	..	..	..	..	..	..	..	..
..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	13	33	46	7	23	36	..	14	..	..	..	14	..	..	..	..	..	..	..	..
..	..	1	1	2	25	27	4	32	36	..	2	..	..	..	2	10	4,513	4,523	9	5,029	5,038	1*	113	1	..	2	3	..	..	..	..	..	..	..	..
..	8	8	15	1	12	13	6	11	17	..	3	..	1	..	4	53	187	210	27	220	247	13	22	..	11	13	33	..	..	..	..	..	..	..	..
..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	47	48	1	30	31	..	..	..	1	..	1	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	3	3	..	..	..	..	..	..	..	..	..	..	368	368	..	316	316	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	33	33	..	1	24	25	..	..	..	..	..	..	4	1,035	1,039	1	891	892	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	1	1	..	..	1	1	..	..	..	..	..	..	3	9	12	..	6	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	4	4	..	..	..	..	..	..	..	..	..	..	2	9	11	1	4	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	4	4	..	2	2	4	..	..	..	..	..	..	11	70	81	7	58	65	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	7	12	1	8	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	8	8	7	29	36	..	..	..	..	..	..	32	414	446	12	408	420	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	3	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	4	4	1	5	6	..	..	..	..	..	..	3	245	248	5	209	214	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	3	3	1	4	5	..	..	..	..	..	..	22	154	176	26	110	136	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	2	1	3	2	..	2	..	..	..	..	..	..	8	33	41	2	33	40	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	3	255	268	3	207	210	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	7	106	113	2	77	79	3	2	..	..	3	2	..	..	..	..	..	..	..	..
7	10	7	13	2	8	10	1	7	8	..	..	2	..	2	58	942	1,000	47	849	896	3	7	..	12	13	15	50	..	..	..	..	..	..	..	..
6	34	37	75	..	..	..	86	228	314	..	55	1	4	1	9	..	..	..	339	9,468	9,807	48	156	31	131	79	287	..	..	..	..	..	..	..	..
4	26	7	67	..	..	..	60	182	242	..	1	1	..	1	1	..	..	..	504	9,307	9,811	111	131	43	175	174	48	..	..	..	..	..	..	..	..

† Of these, twelve were not passengers.
 †† Of these, one was not a passenger.
 ††† Of these, three were not passengers.
 § Of these, twenty-one were not passengers.
 †††† Of these, four were not passengers.

*** Of these, nineteen were not passengers.
 †††† Of these, twenty-nine were not passengers.
 ††††† Of these, ten were not passengers.
 §§§ Of these, sixteen were not passengers.

985
 5,801
 1,885,000
 7,164,000
 67,593,000

1,913
 7,273
 68,622

0.279

0.030

31,320
 361,643
 130,871,000
 333,698,000
 12,396,311,000

4,179
 10,654
 895,795

0.087

0.361

0.002

0.010

ABSTRACT No. 5.

PROPORTION OF PASSENGERS KILLED AND INJURED ON THE SEVERAL RAILWAYS OPEN FOR TRAFFIC IN INDIA FROM CAUSES BEYOND THEIR OWN CONTROL IN PASSENGER JOURNEYS FOR THE YEARS 1892 TO 1909.

YEAR.	NUMBER OF PASSENGERS KILLED AND INJURED FROM CAUSES BEYOND THEIR OWN CONTROL FROM ACCIDENTS TO TRAINS.		Number of passenger journeys (inclusive of journeys by season ticket-holders).	PROPORTION RETURNED AS KILLED AND INJURED (FROM CAUSES BEYOND THEIR OWN CONTROL) TO NUMBER CARRIED.	
	Killed.	Injured.		Killed.	Injured.
1892	8	42	127,230,914	1 in 15,903,864	1 in 3,029,307
1893	51	84	135,262,950	1 in 2,652,215	1 in 1,610,261
1894	1	85	145,462,546	1 in 145,462,546	1 in 1,711,324
1895	8	37	151,723,981	1 in 18,965,493	1 in 4,100,618
1896	24	93	159,162,589	1 in 6,631,775	1 in 1,711,426
1897	22	123	150,618,092	1 in 6,846,277	1 in 1,176,704
1898	6	66	150,567,899	1 in 25,094,649	1 in 2,281,331
1899	8	89	169,542,715	1 in 23,220,388	1 in 1,890,032
1900	14	85	175,667,916	1 in 12,547,707	1 in 2,066,681
1901	3	47	177,852,204	1 in 59,284,068	1 in 3,784,089
1902	127	184	189,056,511	1 in 1,488,634	1 in 1,027,481
1903	...	116	210,231,000	1 in 4,204,620	1 in 1,812,336
1904	11	83	227,097,000	1 in 20,645,182	1 in 2,736,108
1905	3	140	243,157,000	1 in 82,719,000	1 in 1,772,550
1906	9	194	271,063,000	1 in 30,118,111	1 in 1,397,232
1907	45	150	305,890,500	1 in 6,797,567	1 in 2,039,270
1908	121	281	321,169,000	1 in 2,654,289	1 in 130,877
1909	29	127	333,698,000	1 in 11,506,829	1 in 2,627,514

Appendix I to the abstract returns of accidents on Indian railways for the twelve months ended the 31st December 1909.

Report of the proceedings of a joint enquiry which assembled at Dudhni station, Great Indian Peninsula Railway, on the 4th December 1909, to investigate the cause of the derailment of vehicles on the down Postal Express at Dudhni on the 26th November 1909.

The Committee was constituted as follows:—

Mr. A. F. Goldney, <i>District Traffic Superintendent,—President.</i>	
Mr. H. G. Rushton, <i>District Engineer.</i>	} <i>Members.</i>
Mr. N. G. Keily, <i>District Locomotive Superintendent.</i>	
Mr. J. E. Dallas, <i>Senior Government Inspector..</i>	} <i>Present.</i>
Mr. N. M. Lele, <i>2nd Class Magistrate.</i>	

Description.

As the down Postal Express was travelling between Boroti and Dudhni, the injector-feed pipe bracket dropped leaving marks on the ballast from about 4 miles from Dudhni station. When passing over the facing points at Dudhni station, this caught the point rod and bent it, thereby forcing open the points and causing the rear wheels of the bogie Postal van and the vehicles in rear of the Postal van to be derailed. The engine, the front brake van and the front wheels of the bogie kept the rails. When the train was brought to a stand, the distance between the points and the rear brake van was 540 feet. Nobody was injured except the guard of the Postal Express, who was unconscious for several hours.

Evidence.

P. Krishna Iyer, station master, Dudhni.—No. 189 down goods train arrived at 17.39 on 26th November 1909; as Kulali refused to admit the train it was taken on the loop line. I locked the down facing points for 17 down passenger train, and admitted 17 down from Boroti. As there was not sufficient time for 17 down to reach Kulali before down Postal Express, I shunted 17 down on to the loop line in front of the goods train. As soon as the train was shunted, I gave line clear for the down Postal Express. All the time the down points key was in my possession. As I had no time to load all my parcels and clear passengers, I asked my assistant station master to go on the facing points and keep the line clear on the post. I specially called the assistant station master for this. After everything was clear, I also went towards the facing points; when near the end of the platform, I observed the down Postal Express arriving inside the outer signal. I at the same time saw a blaze of light on the engine, after about two minutes the train derailed after passing the down facing points. Then I wired the usual all concerned message. I know that the assistant station master and the guard of 189 went to the points.

I have often seen the blaze of light on the engine, but this was a little more than usual.

P. Raghavacharloo, relieving signaller, acting assistant station master.—On the 26th November 1909, I was on the facing points for the down Postal Express with the guard of 189 down goods, and the porter and muccadam. The points were locked for the main line, the key was with the station master. When the train was passing through the points, there was a jerk, and the train went on. I could not see how far, as it was dark. I saw the tongue rail was bent, and all the point rods were bent and

a rail piece was broken. I shouted for the permanent-way inspector. The points were previously in good condition.

Re-called—

As the driver approached the facing points, he was running as fast as on the road, faster than usual. The train passed the points at about 30 to 35 miles an hour.

C. E. Allamby, guard of Postal Express.—On passing on the facing points at Dudhni, having seen that the signals were off, I had my hand lamp in my hand, and was about to exchange signals, when I was knocked to the other side of my brake and became unconscious. Just before that the train was not going much more than about 10 miles an hour. I could see that the driver was applying the brake.

Narsaya Mohanaji, guard of 189 down goods.—I was with my train at Dudhni. I shunted for 17 down and the down Postal Express. I was on the facing points for the admission of the down Postal Express with the assistant station master, muccadam and a porter. The points were properly locked for the main line, the points were in proper working order. The driver of Postal Express was coming rather high speed. I saw a blaze of light on the engine, which was usual. The train derailed after the engine and front brake had passed the points. After the train passed me, I saw the tongue rail was split, the rod bent, and the other big rail was broken.

The driver passed the points at about 30 to 35 miles an hour.

Pandoo Mahadoo Kale, second class brakesman.—On reaching the facing points at Dudhni, the train was going at the same speed as between stations, that is very fast. The signals were off

I was in the front brake. I have been three or four times before with the Postal Express. The speed on this occasion was the same as on the other occasions. I saw a green light on the points. I noticed nothing unusual until I reached the points.

C. Rodgers, driver.—I have been driving passenger trains on and off 3½ years. I am a goods driver.

As I approached Dudhni, the signals were lowered to run through. I shut off steam a little before the outer signal and applied the vacuum brake to check the speed. After picking up line clear, I opened out steam again, and feeling the train pulling heavy, I looked back and saw a lot of dust flying. I applied the brake and stopped the train. I went back to examine my train and found that the trailing wheels of the bogie Post van were derailed and all the vehicles in the rear of it.

I passed over the points at about 10 miles an hour. When I returned to my engine, the fireman told me that the injector would not work, on examining my engine, I found that the bracket had come off and pipe was bent. (The injector feed pipe union nut bracket underneath the foot plate).

When I shut off steam just before arriving to the outer signal, the fireman put the injector on and it worked satisfactorily. I noticed nothing unusual on approaching the station. After passing the points and before opening out steam, I examined the line clear and saw that it was correct. This took a very short time. After opening the regulator I travelled about 2 to 3 engine lengths before noticing that the train pulled heavily. I had worked this engine for about a month, but had not been out on the trip previous. Another driver had worked the engine. I came on duty at Sholapur 1 hour 15 minutes before the starting time of the train. I examined all the trimming and nuts, motion, etc., but without getting under the engine, as there is no examining pit where the out-going engines stand. I never got under the engine for examination purposes just before going out on account of there being no pit. But I examined the engine the same morning when she was over the pit and found everything correct; I got under the engine, and examined this particular bracket and found the nuts tight. I had on a previous occasion found one of them loose and tightened it up. The nuts of the bracket were on the inside. The bracket striking the point rod must have been the cause of the accident.

R. Perkins, fireman.—On approaching Dudhni, the driver shut off steam and I put on the injector outside the outer signal, it worked all right. Line clear was picked, and steam was put on after passing the points. We felt the train pulled heavy, and the driver looked back and stopped the train. I tried to put on the injector, but it would not work. On looking round to find out the cause, I found the feed pipe bracket had come away from its upper fastening and was resting on the weigh bar shaft bracket and the brass union was lying on the ballast still attached to the copper feed pipe. The flexible feed bag had been wrenched off and was lying bent back under the tender, the copper feed pipe was slightly straightened out, but otherwise undamaged. I came on duty at Sholapur about an hour and a half before the starting time. I saw the driver examine the engine in the usual way. In the morning the engine was over the pit being washed out and both the driver and I got underneath and

thoroughly examined her. We did not seem to be going above the usual speed over the facing points. There was no severe jerk, and I did not know what had happened till the driver came back.

Muccadam Hussainli.—On the 26th November 1909, I was on the facing points for the down Postal Express, with the assistant station master, guard of 189 down and a porter. As the train passed over the points, I heard something knocking. The points were locked and key with the station master, then the train derailed, after I saw that the rod was bent and a rail broken. The train passed the points going very fast.

Read over and explained to the witness and acknowledged by him to be correct.

H. E. Scanlon, loco. foreman.—I arrived at Dudhni station by the break-down train on the 26th November 1909. I saw the facing points; they were gaping about an inch, on the other side the space looked to be as usual. I saw that the points were locked over for the main line. Three of the point rods were bent and the front one seemed to have been struck by something about a foot from the left rail, there were also marks on the ballast about 8 feet away from the points where something appeared to have been dragging. I examined the whole of the train, but found nothing that would have caused this. I examined flanges of the bogie Postal van, and they appeared all right. Later on, when the Postal Express driver returned from taking water at Ghangapur, he told me that the feed pipe bracket had dropped out and that it was marked, it was bent, and from this I concluded that it was this that had struck the point rod and caused the points to split. This engine has been working here on the regular passenger and mail link for the past two months. This was the second Postal Express that this engine had worked. The engine tyres were in good order. I have never heard of a bracket dropping before.

Wesley Jauardan, permanent way inspector.—On the 26th November 1909, I arrived at Dudhni station about 19.15. I went to the points; I saw the points were badly damaged. I found the front point rod and two other point rods were bent and points were opened, a small gap (about two inches) on either side. Then I went as far as the rear brake and noticed the damages to the permanent-way. Then I saw the derailed carriage of the Postal Express and the engine, there was something dropped between the tender and the engine. The driver was doing some repairs, then I returned back to the points and went back as far as the down outer signal and noticed the marks made on the ballast. I thought that the marks must have been made by the thing which was dropping down from the engine, and I formed the opinion that the same thing must have struck the point rod and caused the points to be opened and the vehicles to be derailed.

I did not measure the distance that the points were gaping. On the morning of the 28th I examined the road towards Boroti and found the marks on the ballast from 215 mileage, 8 telegraph post.

The rear brake had come to a stand 540 feet beyond the points, that is about 4 miles from the points.

I had examined these points on the morning of the 26th and found them in good order. I found the flexible feed pipe clamp near the crossing.

Finding.

We find that the derailment was caused by the top bolts of the injector feed pipe bracket working out, and causing the bracket to drop and catch the point rod as the engine passed over. This, as the rod bent, forced open the points and derailed the vehicles

A. F. GOLDNEY,
District Traffic Supdt.,

President.

N. G. KEILEY,
District Loco. Supdt.

H. G. RUSHTON,
District Engineer.

Dated Dudhni, 4th December, 1909,

Remarks and reasons for finding.

The marks on the ballast for some distance in front of the points and the mark on the point rod, which was bent, correspond with the position of the injector feed pipe bracket. This bracket after falling remained attached to the copper delivery pipe, and the flange of this caught the point rod, bending it sufficiently to cause the switch to gape. There is on the bent rod a mark evidently caused by a brass flange. It is not quite clear how the tender and front brake got over the points without being derailed, but it is likely that this was a result of their rigid wheel base, whereas the bogie with its longer wheel base and freer action just managed to get a flange inside the gaping switch. The bolts securing the feed pipe bracket could not possibly have worked out between Sholapur and Dudhni if they had been tight when the engine left Sholapur, and it is therefore obvious that the engine had been working for sometime with this bracket in a defective state. If the driver had examined his engine properly, as laid down in rule 291, General Rules and Regulations, he must have detected this. He must, therefore, be held responsible for the derailment. On the other hand, the bolts are so placed that it is necessary to have the engine over a pit to examine and tighten them properly, and owing to there being no examining pit for outgoing engines at Sholapur, this can only be done when the engine goes into shed for a wash-out or other purpose.

A. F. GOLDNEY,
District Traffic Supdt.,
President.

N. G. KEILY,
District Loco. Supdt.

H. G. RUSHTON,
District Engineer.

Dated Dudhni, 4th December 1909.

Remarks by the Senior Government Inspector of Railways.

I believe that the normal position of the three bolts which attach the bracket to the frame is with the heads outwards. If it could be arranged to place the nuts outwards the examination by the driver would be simplified, and the chance of the examination being scamped (it is a somewhat troublesome job to get at the ends of the bolts which are on the inside of the bracket) would be reduced. When this particular bracket was replaced, one nut and two heads were placed outwards. I examined the engine when placed over an ash pit and I found it doubtful whether it would be practicable to place all three nuts outside because the space at the back which is available for manipulating the bolts is small. But if this can be arranged, I dare say the Locomotive Superintendent will make the necessary alterations as the advantage is obvious.

J. E. DALLAS,
Senior Government Inspector of Railways.

Bombay, January 4th, 1910.

Annexure No. I in Appendix I to the abstract returns of accidents on Indian Railways for the twelve months ended the 31st December 1909.

Particulars of damage to rolling stock and permanent-way.

Permanent-way.

- 1 Point rod bent and broken.
- 2 Point rods bent.
- 2 Slide chairs broken.
- 1 Heel chair broken.
- 15 4-holed chairs broken.
- 181 Tie bars badly bent.
- 10 Tie bars broken.
- 180 Round pots broken.
 - 1 J. type fish plate broken.
 - 1 K. type fish plate broken.
 - 2 W. type fish plates broken.
- 20 Fish bolts broken.
- 60 Iron coiled keys broken.
 - 1 Tongue rail bent.
 - 1 69 lbs. 24 feet steel rail broken.
 - 5 Crossing chairs broken.
 - 4 Check chairs broken.
 - 1 Check rail slightly damaged.

Damage to rolling stock.

- East Indian railway bogie Postal van No. 1794—trailing bogie trailing pair of wheels derailed, damage nil.
- Great Indian Peninsula railway, 3rd class, No. 333-F.—two pairs of wheels derailed (damage) 1 door inside batten broken, and one axle guard bent slightly and axle brass sole plate broken, wheels gauge found correct.
- Great Indian Peninsula restaurant No. 674—two pairs of wheels derailed, one short buffer bent and one No. 7 axle box lug broken, three axle guards slightly bent.
- Great Indian Peninsula reserved 2016—two pairs of wheels derailed, one No. 7 axle box sole plate broken, and one battery box broken completely and one battery box side cover broken. Kuskuss pad zinc box broken and 6 foot boards iron brackets badly bent and one short buffer bent and axle box back collar broken and two axle guards slightly bent.
- Great Indian Peninsula reserved No 2012—one short buffer bent, one battery box completely broken, two foot boards broken and cracked, one foot board bracket bent and two axle guards slightly bent.
- Great Indian Peninsula Brake Van No. 492-N.—two pairs of wheels derailed, body bolts broken and body shifted, two short buffers bent, one bearing spring top plate broken, gas high pressure and low pressure pipe damaged, and one axle guard slightly bent.
- Damage to engine No. 523-B-3—injector feed pipe union nut brass bracket of engine bent.

Appendix II to the abstract returns of accidents on Indian Railways for the twelve months ended the 31st December 1909.

Report of the proceedings of a joint enquiry held at Wasind station, Great Indian Peninsula Railway, on the 23rd December 1909, to investigate the cause of the collision between a ballast train and No. 388 up goods at mileage 48½ between Wasind and Khadavli on the 17th December 1909.

The committee was composed of the following officers:—

Mr. R. P. CARRERAS, *District Traffic Superintendent.*—President.

Mr. R. C. H. BARNARD, *District Engineer.*

Mr. E. H. HART, *District Locomotive Superintendent.* } Members.

Also attended.

Mr. J. E. DALLAS, *Senior Government Inspector.*

Mr. MOORE, *Assistant Police Superintendent.*

Description.

In this case as a ballast train working under notice No. 24 of the 13th November last was loading ballast at mileage 48½ on the up line, one mile out of Wasind, it was run into by 388 up goods. The two brakes of the ballast train and five ballast wagons were completely wrecked. The engine and four wagons on the 388 up goods were damaged. One cooly and the guard of the goods train were slightly injured.

Mileage 48½ is between Wasind and Khadavli, and at the bottom of an incline from Wasind of 1 in 120, which falls immediately after leaving Wasind up to about 700 feet from the point of collision. Mileage 48½ is round a steep curve, and the driver of 388 up could not have seen the rear of the ballast train till about 800 feet from it. The section is worked on the absolute block system—Preece's instruments—and no train is allowed to leave Wasind for Khadavli until the train previous leaving Wasind has passed the starting signal at Khadavli.

The ballast train consisted of 18 ballast wagons and two brakes, worked by engine No. 838 H 2. The load of 388 up goods consisted of 48 wagons and two brakes, equal to 947 tons on leaving Wasind, worked by engine No. 777 H 1., driver, Allen. Head guard, Syed Edroos.

Evidence.

Patrick Allen, goods driver.—I was driver of 388 up goods ex Kasara to Bombay, on the 17th December. I had a full load, 50 vehicles including brakes. I do not remember the tonnage. I was working engine 777 H 1 type. I arrived at Wasind at 8-15 about 25 minutes late. I left Wasind right time at 9-5. Whilst at Wasind I detached the Wasind brakes and attached 5 wagons. I then came to the station and saw the station master, who told me there was a ballast train on the section for which he was waiting line clear, and that as soon the line clear was received, he would let me go. The station master did not say the ballast train would come back. Shortly after I got the starting signal and the guard whistle, and I started. After leaving I exchanged signals with the guard, and whilst doing so the guard of a down train shouted out to me, but I did not infer from the front. If he had shown a red flag, I should have understood. Going round the curve my angwalla told me there was a train in front, I looked out and saw it, I applied my vacuum brake and reversed my lever. My speed at the time was from 16 to 18 miles an hour. There is a downward gradient from the point of collision. I checked the speed shortly. I sounded my danger whistle. I cannot say if the guards applied their brakes. I collided and wrecked the rear brake and 3 ballast wagons. When I collided the coolies were off the trucks. They heard my danger whistle. I did not see any flagman returning to the brake of the ballast train. I heard one cooly was injured. I cannot say how he got injured. He had a slight cut over the left brow.

W. Hanard, fireman.—I was fireman with driver Allen of 388 up goods on the 17th December. After we got the starting signal at Wasind we started. Just as I commenced firing, the angwalla called out Ho Ho. I looked out and saw the ballast train in front of me. I opened the danger whistle. I saw the coolies jump off the ballast train. Shortly after we collided. When the collision occurred the driver had the vacuum brake on and the lever was reversed. I did not know there was a ballast train in front before starting.

Framroz Ardeshir Shroff, driver.—I was driver of the ballast train between Wasind and Khadavli on the 17th December. My load consisted of 18 ballast wagons and two brakes. My engine was 838 type H 2. My train was running between Kasara and Kalyan. We did loading and unloading at different mileages. The train was running under a special notice. I left Wasind at 8 A. M. after the starting signal was lowered. I did not see the permanent-way inspector or time-keeper. My instructions from the guard were to stop at mileage 48 to load and then go on to Titwalla. Accordingly I stopped. I did not see the station master before leaving. I stopped at the mileage up to 9-5, when I got instructions from the guard to whistle up to warn all coolies to sit down. I gave two long whistles and was waiting for the guard's signal to start. All of a sudden I got a push from the rear and fell down on the foot plate. I then found there had been a collision and the lines were blocked. I did not see any one behind the ballast train with a flag. I could not see owing to the curve.

C. Lawrence, guard.—I was guard of the ballast train on the 17th December. I got line clear for the ballast train at 8-5, that is I received the bell and the starting signal. I proceeded to 43 mileage for loading. Whilst loading I was standing on the down line to protect the coolies from down trains. My brakeman was about 50 or 60 yards behind the rear brake with a red flag. He was not there when the collision occurred, because we were about to start and he had gone back to his brake. I intended going to Titwalla after loading. Before leaving I told the station master I was going to stop at mileage 43 for loading, but I did not say how long I would remain there. I had a train list. The list included 388 up goods. I made enquiries about this train before starting, and was informed it would be shunted for 12 up passenger. I am not certain if any one was present when he made that statement. I was at the Telegraph office when the 'is line clear' enquiry was given. I do not remember the beats. I heard the bell and saw the semaphore arm raised. Neither the permanent-way inspector nor time-keeper were with my train. The contractor was with the train.

I understand that when a ballast train is stopped between stations for loading and unloading it is not required to be protected in the same way as goods train stopped out of course.

Syed Ahmed Edroos, goods guard.—I was guard of 388 up on the 17th instant. On arriving at Wasind my load consisted of 43 wagons and 4 brakes—873 tons—and left with 48 loaded and two brakes, 947 tons. I arrived at Wasind at 8-15 about 15 minutes late and left at 9-5 about 16 minutes late. The station master told me at first that I was going to be shunted into the siding to allow 12 up to pass, as the ballast train was in front, and I went to my brake. Whilst waiting there I heard the bell and saw the signal lowered. I did not see the block removed or 'is line clear' given. After starting a down train was coming in and the guard in charge (Jones) made a sign to me. I did not understand what it was, but to be on the safe side I applied my brake. Shortly after my train collided. I received a slight injury near the left eye and on the left knee. Going out of Wasind there is a curve so that the ballast train could not have been seen till the driver got near it. It is also down a heavy incline. I have frequently run as a ballast guard. When running on ballast trains I have not sent a man out with a flag at the required distance. I have not had any ballasting requiring to stop between stations. If my train had to stop a long time, I would protect it as required by the rules.

Manekjee Rustomjee, station master, Wasind.—I was on duty on the morning of the 17th December. The ballast guard came to me at about 7-55 and asked for permission to go out for loading, and that after loading he would go to Titwalla. He did not say how long he would remain loading. I supplied him with a train list. He enquired about the running of 388, and I informed him I had received the warning at 7-50. I did not tell him the train would be shunted for the 12 up passenger. I asked the signaller, Nurhar Balwant, to get 'line clear' for the ballast train. I was present when he got 'line clear.' I heard the beats 00-00-00 and acknowledged by 0-00-0. There is the same signal for a ballast train that runs through as for a ballast train that stops for loading between stations, and that signal is 00-00-00. The 'is line clear' for a goods train is 00-00-0—I am quite sure. I have seen the block code and am satisfied that there is a different signal for a ballast train that has to pass through the section, to one that has to stop for unloading or loading. The ballast train left at 8 A.M. and the goods train arrived at 8-15. I allowed the driver to take water for engine purposes. I then detached the Wasind brake and put on another 5 loaded and the train was ready at 8-40. There was no sign of the line being cleared back for the ballast train till 9-3 when the signaller informed me the 'line clear' had been received. I went inside and told him to give 'is line clear' for 388, and he did so. It was acknowledged in my presence. I then gave the bell and ordered the signalman to give the starting signal. As the brake passed the station I told him to give the

departure, and saw him do it, and the departure was acknowledged.

Nurhar Balwant, signaller.—I was on duty on the morning of the 17th when the ballast train left. The train left at 8 o'clock. The station master did not advise me whether the train was going to stop for loading or not. After about 45 minutes the station master asked me to enquire where the ballast train was. I gave one attention beat, it was not acknowledged. Ten or fifteen minutes afterwards I received the 'train out of section' signal for the ballast train. As the station master did not inform me that the ballast train was going to stop, I gave the beats 00-00-0, which means a ballast train running through. If I had known the train was going to stop, I would have given 00-00-00. I produce the block book. The entries show that 'is line clear' for the ballast train was given at 7-53, that it was acknowledged at the same time that the departure signal was given at 8 and acknowledged at the same time and the train out of section given at 9-2.

The 'is line clear' for 388 up was given by me at 9-2 and acknowledged at the same time.

As the station master asked to enquire where the ballast was, I gave the attention beats.

At this point the witness was informed that there are three sorts of signals connected with the ballast train, *viz.* (1) train stopping on section, (2) train running to next station and stopping, (3) train running through next station. He was asked why in the absence of information from the station master as to which class this ballast train belonged to he chose to signal for a running through train (0-0)-0. He replied: I gave this signal because I thought it was a running through. I did not enquire. I guessed it was a ballast train running through.

Before the train left I told Khadavli on the speaking instrument that it was a ballast train.

I gave the 'train entering section' signal to Khadavli at 9-5 and it was acknowledged at the same time. All the beats received by me were regularly given.

On arrival of 181 down goods brakeman A. Sataram informed me that the block instrument had been worked by a pointsman: at 9-15 when 181 down arrived, he informed us of 2 trains being on one section, which was the first intimation we had. The station master then asked to enquire from Khadavli where the ballast train is. I got him on the instrument about ten minutes afterwards.

Gopal Balwant, assistant station master, Khadavli.—I was on duty from midnight of the 16th till 12 noon on the 17th. I received the 'is line clear' signal for the ballast train at 7-55. I acknowledged the signal at once. I did not give the 'train out of section' signal for the ballast train. I was at the office from 7-55 to 8-55; then I left the office for the call of nature. I could not hear the bell from where I was. I returned to the office at 9-10. At 9-3 a porter named Mahadu Goonaji came to call me and said "Wasind giving beats." I followed him into the office. When I arrived I tried to get Wasind on the speaking instruments, but could not get him till about 9-23. Then I asked "Why are you giving beats" and he said "Goods train left." Then I said "How has it left when I did not give line clear." I noticed that when I returned the position of the indicator was at 'on.' I wish to say that the signal 'train out of section' for the ballast train was not given and that the goods train left without 'line clear.' I asked my pointsman Mahadu Goonaji if he had interfered with the block instrument, and he said yes, that he had put back the switch at 'off' and then returned it to 'on' and given beats. I did not ask him what beats he had given. This pointsman has been at Khadavli for about 3 years. He never touched the instrument before. He did not have my authority to touch the instrument. He cannot write. Mahadu Goonaji is a Kunbi. I am a Brahmin. I found the switch and indicator both, when I returned, to be in the same position as when I left the cabin, *viz.*, at 'on.' The beats I received for the ballast train were 00-00-00, which means 'train stopping between stations and coming on.' If the train was

going to back the beats would be 0000. If the train had been backing I would have received a message to that effect, but in the absence of that information I understood the ballast train was coming on. When I got to the cabin at 9-10 I did not know that a goods train had left Wasind. I knew this at about 9-23. The porter told me he had touched the instrument after Wasind advised me that a goods train had left.

Mahadu Goonaji, Porter.—I was on duty at Khadavli on the morning of the 17th when the assistant station master went to obey a call of nature.

He ordered me to lower the signal for the up train and to sit in the cabin. I went into the cabin and heard many beats given by Wasind on the block instrument. I was frightened at the beats and I gave one beat in reply. After this Wasind gave more beats. I then called the station master. I only gave one beat. I moved the switch at the time of giving one beat. I did not mean to signify anything by this. I did not look at the indicator. I have never worked the block instrument before. I cannot write. I do not know the beats for a goods train.

Finding.

We find that the 'train out of section' signal for the ballast train was given by porter Mahadu Goonaji; that he subsequently accepted "is line clear" signal for 388 up goods and that he did this under a misapprehension and under the general instructions of the assistant station master Gopal Balwant.

(Sd.) R. P. CARRERAS, (Sd.) E. H. HART, (Sd.) R. C. H. BARNARD,
District Traffic Supdt., District Loco. Supdt. District Engineer.
President.

Dated 17th December 1909.

Remarks and reasons for finding.

As it will be seen from the evidence the ballast train left Wasind for mileage 48½ at 8 A. M. to load ballast. Before leaving the ballast guard was provided with a list of trains and in that list was entered 388 up—the train which was to follow it. The guard says that the station master advised him the train would be shunted at Wasind, but the station master denies this. According to the guard's evidence whilst the train was loading stone it was not properly protected by a man with a red signal and detonators as required. The guard says that the brakesman was about 70 or 80 yards behind the rear brake of the ballast train but that he withdrew the brakesman just before the collision, because he was about to start. This evidence is corroborated by the driver, who states that he had already given two loud whistles as a signal for the coolies to sit down and was about to start when he heard the guard's whistle of the approaching train and that then the coolies jumped out. The 388 up goods left Wasind at 9-5 and the collision took place about 5 minutes afterwards.

It will be seen from the extracts* of the block books of Wasind and Khadavli, which we attach, that the 'is line clear' signal for the ballast train was accepted by Khadavli at 7-53 and the 'train out of section' signal given at 9-2, that the 'train entering section' signal for the ballast train from Wasind was received by Khadavli at 8-0, and that there are no entries of the 'train out of section' signal for the ballast train at Khadavli in that station's block book. Wasind also shows that the 'is line clear' signal for 388 up goods was despatched at 9-2 and the acknowledgment received at the same time that the 'train left section' signal was given at 9-5 and the acknowledgment received at 9-5, but the Khadavli book does not show any of these entries.

The committee have gone very carefully into the question as to how the 'line clear' for these trains was sent and accepted and find the evidence somewhat conflicting. The station master admits that he knew that the ballast train would be required to stop at mileage 48½ to load stone, and that he advised the signaller when giving the 'is line clear' signal to the ballast train to that effect. He says also that he heard the beats given which were 00-00-00. The Wasind signaller, Narhar Balwant, states that the station master did not advise him the ballast train would stop at the mileage and that the signal which was transmitted was 00-00-0. The Khadavli assistant station master, Gopal Balwant, says that the signal which he received was 00-00-00. Neither of these witnesses were aware that a signal for a train to stop on a section is 00-00-000. The assistant station master having accepted the 'is line clear' for the ballast train with the full knowledge that it was to stop at mileage 48½ to load stone, having been advised to this effect on the instrument, says he left the cabin for the call of nature at 8-55 and instructed porter Mahadu Goonaji to lower the signal for the in-coming train and to remain in the office. He further states that at 9-5 he was called by porter Mahadu Goonaji, who advised him that Wasind was giving beats on the block, that he immediately proceeded to the office and endeavoured to obtain Waind on the instrument up to 9-23, when he got a reply to say that a goods train had left Wasind. He then asked the porter Mahadu Goonaji if he had interfered with the block instrument, and was told in reply that he had moved the switch and given one beat. When the assistant station master left the cabin, both the switch and indicator were at 'on' and when he returned to the cabin they were in the same position, showing that the porter had gone through the process of removing the block and re-blocking for a following train. The pointsman asserts that he does not

* Not printed.

know how to work the block, and the assistant station master that the porter has never worked the block before, and that he received no authority from him to work it. We do not credit these statements. We cannot find any reason why the assistant station master should ask the porter to remain in the cabin unless it was to work the block. The evidence of the Wasind signaller is that the beats he received from Khadavli were clear and not from a man who had touched the block instrument for the first time. We are of opinion that this man has worked the block before with the knowledge and consent of the assistant station master, and that he did so on this occasion without knowing that the ballast train was on the section loading up stones. The entries in the Wasind block book are perfectly clear that the 'train out of section' signal was given for the ballast train and 'is line clear' signal accepted for 333 up goods by Khadavli, and there is no reason to doubt that his signals were properly acknowledged from Khadavli, and this could not have been done by a man not knowing the block.

We may point out that at 9-15 the 27 down Delhi Express was allowed to enter the section at Khadavli for Wasind after the collision occurred. This train would probably have run into the wreckage but for the action taken by gatemen Govind Baloo No. 60 and Jawoo Jagoo No. 61, who promptly exhibited a red flag and brought the train to a stand. The collision occurred at 9-10, and as it was not possible to transfer passengers, the Engineers arranged at once to slew the road, and this was done by 14-10, when single line working was introduced. The up line remained blocked from 9-10 on the 17th till 17-30 on the 18th, when the engine was put on the road. The long time in clearing the line was due to the heavy weight of the engine—an H type—mounting the rear brake and two ballast wagons. It was very difficult to extricate the *débris* and to re-rail the engine, it had to be laid on a formation and a track put under it.

After the up line was cleared the Engineers took the repairs in hand. Seventy-five yards of road had been demolished. The road was reported right for traffic at 20-15 and double line working introduced at once.

This long stoppage on the up line and single line working caused considerable delay to passenger and goods trains, a list* of which is attached, as also a large accumulation of up loaded at Igatpuri and Kasara.

Remarks by the Senior Government Inspector.

Although it appears to be impossible to prove from the evidence that the porter, Mabadu Goonaji, worked the block instrument for 333 up goods, that is to say worked it correctly from a knowledge of the working obtained in an unauthorised way, I think the committee have diagnosed the case correctly. It is a matter of common knowledge that some station masters encourage menials to learn the use of the instruments so that by their assistance they (the station masters) may absent themselves from the station and enjoy more rest in their quarters. In the present case it would appear that the station master either forgot to warn the porter about the ballast train being still on line, or there was some other flaw in the instructions given. However this may be, no railway man, from a superior officer to a menial, would accept as true the porter's statement that being ignorant of block working he for this special occasion put over the switch and gave one beat. Personally I incline to the idea, without proof, that he can and did work the instrument correctly. But if we assume that he was ignorant of block working, then we come across what looks very much like an intrigue, because no railway servant ever admits anything against himself in these enquiries, and the readiness to admit some sort of interference with the instrument requires a reason. It looks very much like an attempt on the part of the porter to shield some one else (for a consideration), the idea being that the touching of the instrument by this poor ignorant man would be viewed with lenience and a very light punishment would be inflicted. But in the interests of the public such an act must be placed in the category of rash and negligent acts endangering the public safety. So the porter's case has the appearance of being a bad one from either side. It is therefore satisfactory to know that the Agent has decided to prosecute both the assistant station master and the porter of Khadavli.

2. It is possible of course that the station master did not intend that the porter should touch the instrument, but the latter showed too much enterprise. And it is possible that in other stations where the station masters do not make definite use of the menials for block working, the latter may let the station master in by meddling. I think, therefore, that it is worthy of consideration whether station masters should not have some ready means of locking up the instrument when leaving the office, perhaps a key hanging to a belt by a chain or other personal attachment might be considered.

3. It is unsatisfactory that neither of the station masters nor the Wasind signaller knew the correct way to signal the different sorts of ballast trains. Their default was not due to any defect in the code signals, but if the staff cannot understand the code as now presented to them, it is perhaps necessary to make it clearer in the following particulars. There are three "is line clear" signals for ballast trains as follows:—

Ballast train running through	.	.	.	.	.	.	00-00-0
Ballast train	.	.	.	.	.	.	00-00-00
Train stopping in section	.	.	.	.	.	.	00-00-000

The second of these signals refers of course to a train "running to the next station and stopping there": perhaps this might be made clear by the addition of the words which I have put in inverted commas. In the third signal it is not specified whether the train is to go on or return. I suggest that the existing signal should apply to trains going on and that a new signal should be added for trains stopping on section and returning.

4. This affair also calls attention to the necessity for making applicable to ballast trains the rules for the protection of trains stopped out of course. It so happens that such precautions would not have averted this collision because it occurred just at the time when the outposts would have been coming in. But for general purposes such a rule seems to be desirable. To the heading which precedes General Rule No. 86, which runs as follows:—"Trains stopped between stations by accident, failure, or obstruction" might be added the words "and material trains working between stations".

5. The collision occurred about 9-10 A.M. The Khadavli assistant station master let the down 3rd class Delhi Express through at 9-15, and it is only due to the promptness of gatemen Nos. 60 and 61 that a second catastrophe was averted. The Khadavli assistant station master says that although he returned to the station at 9-10, it was not till 9-23 that he discovered what the porter had been doing in his absence. So possibly the grave charge of having left the 3rd class Express proceed when he knew that it was possible that a collision had occurred on the up line cannot be brought home to him. But the Agent says that further enquiries will be made on this point. If anything important transpires I will report again.

J. E. DALLAS,

*Senior Government Inspector of Railways,
Circle No. 6.*

BOMBAY;

The 30th December 1909.

Annexure No. I in Appendix II to the abstract returns of accidents on Indian railways for the twelve months ended the 31st December 1909.

Particulars of damage to rolling stock and permanent-way.

388 UP GOODS.

Engine No. 777 completely derailed; end badly damaged.
Wagon „ 12686 derailed and damaged.
„ „ 4473 derailed.
„ „ 2647 derailed and damaged.
„ „ 4769 „ „ „

BALLAST TRAIN.

Brake vans Nos. 467 and 1210 smashed.
E. D. wagons Nos. 46, 38, 36, 50 and 21 smashed up and wreckage thrown down bank.

PERMANENT-WAY.

	Rs.	A.
105 Tie bars broken	154	12
150 New pattern pots broken	435	15
5 30-feet 82-lbs. rails broken	73	3
7 30 „ 82 lbs. „ slightly bent . . . . .	.....
Cost of permanent-way repairs	262	0
	<u>925</u>	<u>14</u>

**Appendix III to the abstract returns of accidents on Indian Railways
for the twelve months ended the 31st December 1909.**

Report of the proceedings of a committee of enquiry which assembled at Ennur and Madras on 22nd to 27th June 1909 to enquire into circumstances attending the derailment of No. 2 up mail at mile 13/3, North-East Line, Madras and Southern Mahratta Railway, on the 19th June 1909.

The committee was composed of the following officers:—

W. Nathan, Esq., Senior Government Inspector of Railways	. President.
L. E. H. Brock, Esq., Locomotive Superintendent	} Members.
R. Greenall, Esq., Acting General Traffic Manager	
A. B. Strange, Esq., Chief Engineer	
R. H. Shipley, Esq., I.C.S., District Magistrate, Chingleput	} Present.
C. G. W. Clogstoun, Esq., Deputy Inspector-General of Criminal Intelligence Department and Railways.	
F. E. Coningham, Esq., Superintendent of Government Railway Police.	
Captain C. L. Magniac, R.E., Deputy Agent, Madras and Southern Mahratta Railway.	

DESCRIPTION.

At about 10-37 hours on the morning of June 19th 1909, while No. 2 Up Calcutta-Madras Mail was proceeding from Minjur to Ennur, an accident occurred at mile 13/4 (at a distance of 1 1/4 miles from the former station), by which nine out of eleven vehicles forming the train were derailed—four of them being completely wrecked—causing the death of twelve native and three Eurasian passengers, and serious injury to fifteen others.

The line from mile 14 to mile 13/4 is straight and practically level. At mile 13/4 there is an uninterrupted view for a considerable distance in both the up and down directions. The line is here unfenced and there are small villages close to it on either side. There is a grade of 1 in 1,000 falling from north to south (or in the direction in which the train was travelling), extending from mile 14 to mile 12 1/2. The bank where the accident occurred has a height of 4 to 5 feet.

The permanent-way was renewed about nine months ago and is of the strongest and best description at present in use on the railway. The ballast is of sand and somewhat deficient in quantity, and there is no blinding of brick or stone. The joint spaces were found on examination to be fairly regular, neither unduly tight nor open. The rails are 80-lbs. steel bull-headed, 30-feet long: the sleepers cast-iron bowls (hematite) 12 to each rail, each pot weighing 117 lbs.; the rail being secured in the jaws by means of tapering teak keys. Four-holed dropped fish-plates are used with the ends cut away to clear the pots and so secure closer spacing at the joints. Each bolt is provided with a Grover's spring washer.

The last train which passed safely over the spot before No. 2 up mail was No. 65 down at about 9-15, or approximately 1 hour 22 minutes before the accident occurred.

No. 2 up mail left Ponneri, the last stopping station, at 10-20 hours, the booked time, and passed through Minjur station (mile 15) at 10-34 hours, or five minutes late, and, according to the guard's evidence, it took three minutes in covering 1 1/4 miles between Minjur and the site of the accident.

The composition of the train is illustrated by Annexure No. 6, and was as follows:—

- (1) Engine "W" class No. 770.
- (2) Baggage-van G 4 M.S.M. 4 wheels.
- (3) Brake-van No. 793 B.N.R. 4 wheels.
- (4) Composite first and second class, B. 48 M.S.M. 4 wheels.
- (5) Intermediate No. 802 B.N.R. 4 wheels.
- (6) Latrine III No. 193 " "
- (7) Postal III No. 325 " "
- (8) Bogie composite first and second class No. 845 B.N.R.
- (9) " III No. 666 B.N.R.
- (10) " III No. 662 "
- (11) " III No. 683 "
- (12) Brake-van No. 783 " 4 wheels.

The train was being worked vacuum brake throughout. The lower part of Annexure No. 6 shows in plan approximately the position in which the vehicles were found after the accident.

It appears probable that the first vehicle to leave the road was a four-wheeler, either the 3rd, 4th, 5th or 6th vehicle of the train. The first two vehicles, a baggage-van and a brake-van, were apparently dragged off the road from behind, but were not badly derailed, and did not leave the formation. The next four vehicles were derailed, fell down the bank to the west of the line, and were badly smashed up. The three bogie vehicles behind these four-wheelers were derailed on east of the line. The first two came to a stand in a slanting position, half-way down the bank. The last bogie vehicle and the rear brake-van were not derailed at all. The whole of the train after the derailment was situated between mile 135 and mile 13/3. The engine and tender, when the accident occurred, parted from the train and, according to the driver's statement, ran forward two or three telegraph posts before coming to a stand. The total distance from the most northerly mark left by a wheel flange on the table of the west rail up to the point where the leading or southernmost vehicles came to rest was 452 feet.

A careful survey of wheels, axles, axle-boxes, springs, couplings, buffers, etc., of the running gear was made on the day following the accident. A search was also made on the day of the accident for any loose fittings or broken parts on the road for some miles back, but nothing was found.

The track was found after the accident to be disturbed in rear of the first mark of derailment. Careful measurements of the displacement were made, from which the diagram given as Annexure No. 7 was plotted.

After the accident the driver took the engine, which was not damaged at all, to Ennur station and called for assistance. At Ennur a loaded covered goods wagon was emptied and taken back to accommodate the injured. Fourteen injured passengers were loaded in this covered goods wagon and were taken to Madras by the engine of the train. One of these injured passengers died on the way to Madras.

A relief train with the Agent and some other officers left Rayapuram at 12-33 and arrived at Ennur at 13-0. A further relief train left the Central station at 12-44 with medical assistance from the General Hospital. The Company's Chief Medical Officer followed on a light engine. Five injured passengers and two dead bodies were brought to Madras by the second relief train. Five dead bodies were subsequently removed from under the *debris*.

Seven passengers were killed on the spot, one died in the train on his way to hospital, and seven died after admission to the hospital. Of the 15 injured passengers, 12 were taken as in-patients at the General Hospital and 3 are being treated as out-patients.

The line was blocked from the time of the accident up to 17-15 hours on 21st June, and the following trains were transhipped :—

No. 1 down mail and No. 66 up express on 19th June.

No. 2 up mail and No. 65 down express on 20th „

No. 1 down mail and No. 66 up express on 20th „

No. 2 up mail and No. 65 down express on 21st „

The morning and evening Ponneri locals were cancelled beyond Ennur on 19th, 20th and 21st June. The following goods trains were cancelled from the time of the accident up to 21st June :—

No. 342 E.	of 19th between Gummidipundi and Rayapuram.
„ 12 up	of 19th „ Gudur and Rayapuram.
„ 10 up	of 20th „ Bitragunta and Salt Cotours.
„ 11 down	of 20th „ Rayapuram and Bezwada.
„ 5 „	and 12 up of 20th between Rayapuram and Bitragunta.
„ 5 „	of 20th between Bitragunta and Bezwada.
„ 5 „	of 21st „ Rayapuram and Bitragunta.

The estimated total cost of damage to rolling stock caused by the accident is Rs. 75,000 and to permanent-way Rs. 1,840.

EVIDENCE.

Ramanuja Aiyar, station master of Minjur.—
No. 2 up mail passed my station at 10-34 on 19th June 1909, that is, 5 minutes late.

Q. Was anything wrong with the train or staff?

A. No.

Q. Had the driver made up any time from Ponneri?

A. The train-entering-section signal was received from Ponneri at 10-26 and the train passed through my station Minjur at 10-34.

Q. Did you notice the speed of the train running through your station?

A. About 10 or 15 miles an hour.

Q. What is the usual speed when trains pass your station?

A. Ten or 15 miles an hour.

Q. Where were you when the train passed your platform?

A. I myself handed the hoop to the fireman. I did not notice the driver.

Q. Was everything quite steady as the train passed?
A. I noticed nothing unusual.

T. K. Srinivasulu, station master, Ennur.—I gave line clear for No. 2 up on the 19th June 1909 at 10-27.

Q. What time did you get the train-entering-section signal?
A. 10-33.

I was expecting the train till 10-55, but it never arrived. The engine only arrived at 11-0. The driver gave me a memorandum, which I repeated in my all-concerned telegram under class A at 11-35, having tried to get Rayapuram for 30 minutes.

Q. What was the memorandum?
A. The wording was that 2 up was wrecked at mile 13-3 and medical assistance was necessary. The memorandum was also signed by the guard.

Q. What did the driver say?
A. He only told me that the train was wrecked and some of the carriages derailed.

Q. Did he mention the cause of the accident?
A. He said that his engine was shaking from side to side and that some of the carriages were derailed.

Q. Did you ask the driver any more questions?
A. No. I was busy sending off the message.

Q. What other steps did you take?
A. I unloaded a wagon and sent it back with the engine for injured passengers.

Q. Did the driver bring in any vehicles?
A. No.

Two first class passengers at my station, who were waiting for the train, went back to the scene of the accident with the wagon. One passenger out of the train came walking in and told me about the accident. He was a Brahmin, and said he had escaped. No. 65 passed through my station on 19th June a little late at 9-5 and the train-out-of-section signal for this train was received from Minjur at 9-19.

Driver Brown.—I left Ponneri right time and kept to the running time. When approaching mile 13, there were gang coolies working on both sides of the accident. When between the two gangs, I felt a very slight oscillation. Immediately after this I felt a jerk on the train as if the train was pulling behind. I at once looked out and I found that about the third and fourth vehicles were derailed. I at once put my hand on the vacuum, but I found that the vacuum was already on owing, I suppose, to the breakage of the hose coupling. The engine broke away from the train and ran forward two telegraph posts. No other vehicles came with the engine. The rest of the train was standing, and no collision occurred with my engine.

Q. Any damage to the engine?
A. No.

When I first looked out, I am almost sure the first two vehicles were quite straight and apparently on the road and only the third and fourth vehicles were derailed. At the time I looked back first, I put no brakes on at all, but I found that the brake had already gone on. I did not see any of the wreck occur because I ran ahead two or three telegraph posts. I was running at ordinary booked speed, about 37 miles an hour. I had no occasion to apply my brake before the accident occurred.

Q. Have you been out on strike?
A. Yes.

Q. When did you come back?
A. About eight days ago.

Q. Do you know the section well?
A. Yes, I have been working on it for two years.

Q. How often had you driven the mail?
A. About two or three times. I have also worked passenger trains.

Q. Did you notice what the gangs were doing?
A. No.

Q. Was the vacuum working well?
A. Yes, I had tested it at Bitragunta and it was in working order. No damage has been done to the engine and nothing has since been done to it. After the accident I stopped, handed the train key to the guard and got an authority from him and came on to Ennur.

Q. Have you ever noticed anything wrong with that part of the line?
A. Slight oscillation on the whole section when I was driving a goods train.

Q. Were you looking out before the accident, and did you notice anything wrong with the road?
A. I was looking out and saw nothing wrong.

Q. Have you any theory as to the cause of the accident?
A. No.

Q. Have you ever reported the state of the road between Ennur and Minjur?
A. No.

Q. Was the whole train working vacuum-brake?
A. Yes.

Q. Do you think the line between Ennur and Minjur is worse or better than near Gudur?
A. They are about the same.

Q. Did you examine the wrecked train before you came to Ennur?
A. I only looked at the baggage-van and found nothing which gave any clue to the accident.

Q. Had it not been for the accident, would you have thought of anything of the oscillation?
A. No.

Recalled—

I noticed some coolies before the site of the accident, and after the accident there were some other coolies standing near the baggage-van, where it stopped.

W. G. Halyburton, chief guard.—I left Ponneri at right time on 19th June 1909 and ran through Minjur at right time. At mile 13-3 I was suddenly jerked, I looked out and saw some carriages off the road. I heard a terrible noise and noticed my engine had run ahead of the train. As soon as I felt the jerk, the train stopped. I exhibited danger signal and got down and rendered assistance to the wounded passengers. I then sent a memorandum by the driver to Ennur calling for the assistance of a relief train and medical aid. I then returned and assisted the passengers. I told the driver when handing the memorandum to him that he should bring any vehicles in Ennur yard for the injured passengers. Afterwards I collected thirteen severely wounded passengers and put them in the covered goods wagon brought by the driver. I then told the driver to take them to Madras and have them put in the General Hospital. I then again helped the passengers and collected the mail bags and waited till the relief train came. Three passengers were dead as far as I was able to discover. One we removed conveniently and the other two were pinned down. After the relief train arrived, we transhipped the passengers and put one dead body into my brake-van of the relief train, which then started. I left Bitragunta three minutes late and lost three minutes at Talamanchi picking up line clear. I arrived at Nellore six minutes late and made up three minutes. I arrived at Gudur fourteen minutes late—eleven minutes lost by cautious driving. Two minutes were recovered at Gudur. Three minutes were made up by traffic at Nayudupeta, and the locomotive made up four

minutes between Gudur and Nayudupeta. I left Nayudupeta five minutes late and arrived at Ponneri right time. I was not looking out at the time of the accident. I noticed some gangmen about one telegraph post behind my brake-van after the accident. They ran away as soon as the accident had happened. Only one maistry remained near my brake. The gang coolies ran away to the villages and took their tools with them. I did not go back after the accident to try and find out the cause. I did not notice any unusual oscillation before the accident, but between Ennur and Minjur I always noticed oscillation. The line between Ennur Bridge and Minjur is worse than any other section. I know the section of the line well and frequently travel over it. I asked the driver how the accident occurred, and he said he did not know. My train was fully vacuum-braked. I asked the gang maistry if the line was under repair, and he said that they were only doing ordinary packing work. I wanted a cooly to take a message for assistance, but he said all the men had gone. I did not touch my brake handle. Looking out from the rear of my brake-van, I did not notice that the line was bent. We were travelling at normal speed at the time of the accident. The brake was working all right and the driver was running steadily. I heard the brake go on at the time of oscillation. I did not apply the brake myself.

Q Do you know if any one owes a grudge against the driver?

A. No.

Q. You did not notice any one speaking to him at Bitragunta?

A. No.

Q. What was the exact time of the accident?

A. 10-37 by my watch. I looked before getting out of my van.

Recalled—

Q Was the maistry behind the train or in front when you addressed him?

A. He was behind.

Q. You are certain that the gang was working at 13-4?

A. Yes.

Q. The gang maistry said the coolies had run away when you questioned him?

A. Yes, he said they had gone.

I identify Thulukhanam as the maistry with whom I had conversation after the accident.

Recalled—

I saw the gangmen a telegraph post behind my brake-van, when it came to a stand. They dispersed at the time I looked out. The maistry was at my brake-van. Half the men were on one side and half on the other. There were about nine of them. I did not see them again.

A. Thomas, under guard.—I was in the front brake busy sorting parcels and luggage way-bills and I felt a slight jerk but no more than usual and immediately after found my brake-van derailed. On looking at the vacuum, I found it was destroyed. As my brake-van was leaning to the right, I could only jump to the right through the window. On looking back, I found part of the train capsized and smashed. I immediately started to help the injured. I did not go back to examine the road. I did not notice any coolies, but some crowbars were just in front of the baggage-van. I cannot say as to the speed. I am travelling constantly by Nos. 1 and 2 mails and the road is always shaky between Ennur and Minjur, but I did not notice anything unusual on the day of the accident. The driver was running steadily and the vacuum-brake was all right. No whistling occurred before the accident. I had no conversation with the chief guard as to the cause of the accident. I do not know the time of the accident. I saw the driver after the accident. He was all right, but somewhat pale.

Issoof Sheriff, first fireman of No. 2 up mail of 19th June 1909.—After firing, I was standing on the left side of the engine, when we had a shake. The driver applied the brake. The engine went two telegraph posts ahead and stopped. After stopping, we backed and got a memorandum from the guard. Six or seven gang coolies were working in the rear of the site of the accident, as the train approached, some on one side and some on the other. After the accident I did not see them. I was looking out on the left-hand side at the time of the accident, but noticed nothing wrong. The driver did not whistle before the accident because the gang coolies were clear of the line. The driver applied the steam brake when the accident occurred. The train was travelling at the usual speed.

Thangavelu, driver of No. 65, on the 19th June 1909.—I noticed nothing when passing over the spot where the mail was afterwards derailed. I noticed the gangers working about at that point. They were not doing any work when the train passed. I was going about 30 miles an hour at the time. I have been working the last seven years over the section and consider the road between Bezvada and Madras all about the same.

A. Allen, chief guard of No. 65, on 19th June 1909.—I did not notice anything wrong between Ennur and Minjur. I noticed a gang about two telegraph posts away on the north side of the place where the mail train afterwards derailed. I felt no bump. I often travel over the section, and sometimes it is bad, but it is better now than it has been, and is not dangerous for fast trains. I crossed the mail at Ponneri, but noticed nothing unusual. I left Ennur at 9-3 and arrived at Minjur at 9-16, right time.

Marugesu Pillai, maistry.—I am a permanent maistry working between 13th and 16th miles. On the day of the accident I was working at 14-4 mile. I arrived only an hour after the accident. I am not at present working on the site of the accident. There was a temporary gang at work there. Since the pot-sleepers were laid, I have not been responsible for the part of the line where the accident happened. There had been no quarrel between me and any other gang.

Thulukhanam, temporary gang maistry.—I was permanent maistry at Konnur (Villivakkam) on the Madras Railway for five years. I then resigned and after four or five months joined the East Coast Railway. I have been working at Ennur one month. I am now working at miles 12 and 13. On the day of the accident I was working with nine men at mile 13-1. These men came from the surrounding villages. When the engine came on alone, the gangmen got down the bank, but they did not run away, and were on the spot after the accident happened. The guard asked me to take flags and detonators to protect the train in rear, but did not ask me about the coolies. There were no men working at 13-4. When the guard spoke to me, I was in the front of the train and not behind. On the 17th June 1909 the permanent way inspector told me that the road between 13-1 and 13-2 was bad, and on the 19th June I was working there. I was only lifting and packing. I was supervising my coolies doing the work. I was working at mile 13-4 about nine or ten days before the accident. I found that it was necessary to pack at 13-1 on the day of the accident. No other gang was working anywhere near. None of my gang have run away, and they are working now. There is no enmity between me and my men.

or any of the villagers. I do not know the cause of the accident. I have never known the line to buckle on my length.

Tenugopal Charri, assistant permanent-way inspector.—My section is from Basin bridge to Arambakkam. I was at Ennur when the engine of the mail came in alone on 19th June 1909. There was a covered goods in the yard. I opened and had it emptied and went back with the engine and the empty wagon to the scene of the accident. I assisted the wounded. I then examined the line and found that it was crooked owing to the fall of the carriages. The permanent-way inspector came and asked me the cause. I told him I did not know, and that I was at Ennur at the time. I piloted the engine and the wagon of wounded, and at mile 12 met the relief train. I returned to the scene of the accident by trolley with the officers who came by the relief train.

Q. How many gangs were then at the spot?

A. Only one gang of nine men. I only saw their tools when I came up, but they were assisting the passengers.

Q. Where were the tools?

A. Between 13-1 and 13-2.

Q. Were the tools in front of the accident or behind?

A. In front.

Q. How many crowbars are there in the gang?

A. Nine crowbars.

Q. Did you get any orders to give attention to this part of the road?

A. About a month ago the permanent-way inspector told me to give attention to the road between Wh. hermenpet and Ponneri. There was a special gang on the line working from 12-10 to 14-2.

Q. When were the men of the special gang last working at the scene of the accident?

A. About a week before the accident.

Q. Where were the gang working on the day of the accident?

A. Thirteenth mile, telegraph post 1-2.

Q. When were you last over your section?

A. On the 18th.

Q. What condition was the road in then?

A. Fair.

Q. Have you ever noticed drivers of the up mail making up time over that length?

A. I seldom go by mail, and I have not noticed it particularly.

Q. Were there orders for work to be done by the maistry at mile 13-1 and 2?

A. Yes, on the 18th the permanent-way inspector gave him orders.

Q. Did you observe slacks on the 18th?

A. Yes, two at mile 13-1 and 2, and I saw the permanent-way Inspector notes about them.

Q. How much more work had to be done when the mail derailed?

A. Four or five joints had to be picked up adjacent to the slacks, but they were all in front of the derailed train.

Q. There were no slacks at the place when the train derailed?

A. No, not when I examined it on the 18th.

Q. Have you recently noticed any strangers talking to your gangmen?

A. No.

Q. Have you heard any rumour that the train was to be wrecked.

A. No.

Q. When you examined the line behind the train and saw that the line was crooked, how did you account for it?

A. I considered it was the derailment that caused the kink.

Q. Has that particular piece of the line given special trouble?

A. No.

Q. Which part of your section do you consider the worst?

A. Miles, 11, 12 and 13.

Q. Why do you consider these miles bad?

A. Because the soil is clay.

Q. Have you made any written report about this part of the section?

A. Yes, this portion gave trouble and so a temporary gang was put on.

Q. How long has this gang been working?

A. From the 11th of this month and previously up to the end of the last month.

Q. Where did gang maistry Thulakanam come from?

A. I do not know.

Q. Is he a good man?

A. He is an intelligent man.

Q. Has he any quarrel with any one?

A. Not that I know of.

Recalled—

I trolled back by the Agent's orders to Ponneri to examine the road between the site of the accident and Ponneri station, to search for any broken fittings of rolling stock. I started between 2 and 3 P. M. and found nothing. Nothing has been found since so far as I know, but I have not been out on the line since the accident.

J. B. Duncan, Esq., District Engineer, Madras and Southern Mahratta Railway.—The District Engineer exhibited copies of his inspection notes, Annexures Nos. 1 and 2 of February 28th and May 25th, 1909. In February these notes show slacks in the 13th mile at most of the telegraph posts throughout the mile. The report for May shows slacks at five telegraph posts only. Previous to February this portion of the line was in very bad order and it was useless to notice special posts as it was bad throughout. On June 8th, the Chief Engineer travelling over the line wired me that there were bad slacks between Ennur and Minjur. I wired on to the permanent-way inspector on the 9th to attend to this at once. He replied on the same date that heavy slacks from miles 12 to 14 had been rectified. [Telegrams exhibited attached to the proceedings (Annexures Nos. 3, 4 and 5).]

Q. To what do you attribute the bad condition of that road?

A. To the soil of the bank being unfavourable and to the road having been recently disturbed by the substitution of pot for timber sleepers.

Q. To what do you attribute the kink found in the road after the accident?

A. To the accident itself. Probably to the subsidiary derailment of the bogies, following the primary derailment of the four-wheelers further in advance.

Q. There is no evidence to your mind of foul play?

A. No. After the accident, I especially examined the road, so far as I was able, with a view to seeing whether any fastenings were missing, but the appearances were entirely such as might be expected to result from the derailment.

Q. There have been no complaints as to interference from outsiders?

A. No. But the coolies at this part of the line are not an easy lot to work with. I found it necessary to transfer a permanent-way inspector on this section owing to his being assaulted by coolies.

Q. Assuming the kink in the road prior to derailment, do you consider it would have accounted for it?

A. It would be decidedly risky to take such a kink at forty miles an hour.

Q. How long would it take to make a kink like that at the accident?

A. The ballast on the convex side would have to be opened out, and it would be about half an hour's work.

Q. Would the gang maistry know where the permanent-way inspector was?

A. Yes, and knew that they could do anything without fear of surprise.

Q. Would a driver be able to see such a kink?

A. He certainly ought to, if he was looking out.

Q. Was there, as far as you know, anything in the road to cause the accident?

A. No.

Q. Do you consider that part of the line a fully-boxed road?

A. No.

Q. Don't you think it would be possible to slew it without moving the ballast?

A. I should hardly like to say without trying.

C. Steel, permanent-way inspector.—I was trollying from Ponneri to Washermenpet with the pay clerk on 18th June 1903, paying ganga. When I arrived at Minjur, the station master informed me of the accident and I went on to the spot. I arrived at the site of the accident about 11-30. I began to get the wounded and the corpses out of the wreckage.

Q. Were the coolies in the temporary gang reliable?

A. Yes, experienced men.

Q. How many in the gang?

A. Ten and one maistry.

Q. None of them were connected with Madras?

A. No, they are local men, and none of them came from Madras.

Q. Have there been many people out at Ennur lately?

A. Yes, a good many lately.

Q. When did you last trolley over the section?

A. On the 18th.

Q. Was there any jealousy between the gangs on the section?

A. Not that I know of.

Q. Have you heard any rumour that there was to be a wreck to that train?

A. I have heard nothing.

Q. Were the maistry and the coolies of the temporary gang on the spot when you arrived?

A. Yes, they were there.

Q. Have they been working since the accident?

A. Yes, they are all at work.

Q. What condition did you consider the road in on the 18th?

A. Fair. It was improving daily.

Q. Could you have failed to notice the kink which lay behind the train after the accident, in trollying over?

A. No. I have never noticed a kink of that nature on the road.

Q. Have you ever had experience of a line buckling with the heat?

A. Never in a pot road; sometimes in a sleeper road.

Q. Have you ever seen it on the North-East Line?

A. No.

Q. You don't think that part of the road would have buckled?

A. No.

Q. Do you think that there was anything in the road when you saw it on the 18th that would derail a train travelling from 60 to 70 miles an hour?

A. No. I think such a train would have passed

Q. Did you examine the road after the accident?

A. I did not examine it until about an hour after I first arrived.

Q. Did you see anything suspicious which might account for the accident?

A. No, nothing.

Q. To what do you attribute that kink behind the first point of derailment?

A. I think it was caused by the recoil of the accident.

Q. You have never seen an accident similar to this one?

A. No.

Q. Had you any reason for suspecting foul play?

A. No.

Q. Do you consider the part of the line between Ennur and Minjur as good as the rest of your section?

A. No. The bank is bad and the road has recently been moved.

Q. Did you ever report the line insufficiently ballasted?

A. Yes.

Q. Have you ever lost keys?

A. No.

Q. Have you ever had any cases of fishplates removed?

A. Not on the North-East Line.

Q. Could the kink have been caused without removing the boxing?

A. It would be very difficult, but the boxing could be removed and then the kink could be made and the whole operation would have only taken 2 or 3 minutes. Certainly well within 10 minutes.

Q. When you examined the road, did you see any marks of the derailment?

A. Yes.

Recalled—

The gangs are working between Ennur and Minjur as follows:—

No. 4 gang	.	From 7-10 to 10-6
" 5 "	"	" 10-6 " 13
Special gang	"	" 13 " 14
No. 6 "	"	" 14 " 15-16
" 7 "	"	" 15-16 " 18-19

J. Dorsey, carriage examiner, Bitragunta.

Q. You examined No. 2 up mail at Bitragunta?

A. Yes.

Q. How long did the train stop?

A. Eight minutes.

Q. Was the train in good condition?

A. Yes.

Q. There is full examination at Bitragunta?

A. Yes.

Q. There were no hot-axles?

A. No, no hot-axles?

Q. The brake was in good condition?

A. Yes. The guard's indicator showed 18 inches.

Q. Did one of the assistants examine the train also?

A. Yes.

Q. Are wheels tapped at Bitragunta?

A. Yes.

Q. Do you examine the whole train yourself?

A. Yes.

Q. Is 8 minutes long enough for this examination?

A. Yes.

Q. Did you notice the couplings?

A. They were all in good order and tightly

F. Bell Scott, Esq., District Locomotive Superintendent.

- Q. When did you arrive on the scene?
 A. On the morning of the 20th June 1909, from Waltair.
 Q. Did you examine the wreck?
 A. Yes, and found nothing.
 Q. Did you examine the axles?
 A. Yes, every axle and axle-box, and found nothing in axles, boxes or buffers which could have caused the accident.
 Q. Did you see the baggage-van?
 A. Yes, but I did not notice the hole in the front panel until at Eonur, after it had been brought in from the site of the accident.
 Q. You do not know how this damage was caused?
 A. I cannot say.
 Q. You are satisfied that the driver is a competent man?
 A. Yes, he is one of our best men now working.
 Q. You have never had cases of tampering with brakes?
 A. No, not since May 26th and 27th at Rajahmundry. No tampering took place at Bitragunta.
 Q. No tampering has taken place to your knowledge at Rayapuram?
 A. No.
 Q. What flaw in rolling-stock would be sufficient to cause the accident?
 A. Only a broken axle.

Raman, gang cooly.

We were working at mile 13—the maistry supervising the work. The maistry called to me “The train is capsized” and asked me to follow. I with other men went. When I got to the place, I helped in removing the injured. I did nothing further.

- Q. Where do you live?
 A. Minjur.
 Q. How many men are there in your gang?
 A. Nine men.
 Q. Relatives of yours?
 A. They are not relatives, but I know them well.
 Q. Where do they live?
 A. Four men live at Minjur, two at Adapamedu, two at Mallur, and one man at Nundybukkam.
 Q. Do they ever come in to Madras?
 A. No.
 Q. Are they all the same caste?
 A. Eight are one caste; one separate.
 Q. Is the maistry the same caste?
 A. No, of a different caste.
 Q. Were you close to the accident?
 A. About half a mile ahead, or about five or six telegraph posts.
 Q. Was there any other gang?
 A. No, except about two miles away, towards Ponneri.
 Q. Where was the maistry when he called to you about the accident?
 A. Ahead of the train, working with the gang.
 Q. Did the engine pass you?
 A. Yes, about one telegraph post.
 Q. What tools did you have at the time?
 A. A crowbar. Each man had one.
 Q. When they went back to the train, what did they do with their tools?
 A. We carried them with us to the train.
 Q. What is the name of your maistry?
 A. Thulakanam.
 Q. Were all the gang working together in one place at time of the accident?
 A. Yes.

Q. Do you remember any Eurasian or European speaking with your maistry?

- A. No.
 Q. Where were you working when 65 down passed?
 A. At the same spot as where we were when the accident occurred.
 Q. Were there any villagers near the line at the time of the accident?
 A. No, not at the time of the accident.
 Q. Did the mail train whistle?
 A. No.
 Q. Are the gang on good terms with the maistry?
 A. There is no ill-feeling.
 Q. No trouble with villagers?
 A. No.
 Q. How far is the nearest village?
 A. Very near.
 Q. Did the villagers come out for the accident?
 A. Yes.
 Q. Where is the village relative to the site of the accident?
 A. On both sides, about a furlong from the accident.

E. V. Walters, loco. foreman, Rayapuram.

- Q. You went by the relief train to the accident?
 A. Yes.
 Q. Did you examine the vehicles?
 A. No., I was the first loco. man on the ground, but my time was occupied in arranging the loco. power. Before leaving Rayapuram, I telephoned to Perambur for the breakdown train and staff. I assisted in relieving the injured passengers. I remained at the site of the accident assisting generally until the evening.

Vuchee, gang cooly.—All the ten men of the temporary gang were working at mile 13-1. We were packing the western side. While working, the engine of the mail came alone. The maistry said that the train had capsized and called to us to follow him. We went to the spot and helped the injured and gave them water.

- Q. When the accident happened, how far away were you?
 A. About six telegraph posts.
 Q. Did the engine run past you or stop before it got to you?
 A. The engine passed us.
 Q. Was there any other gang working near?
 A. About two miles away, on the Ponneri side.
 Q. How do you know there was another gang two miles away?
 A. We left them there on our way to work.
 Q. Where do you live?
 A. At Adapamedu.
 Q. What time do you go to work?
 A. At 7 o'clock.
 Q. What tools did you have with you at the time of the accident?
 A. Shovels, crowbars and a chair.
 Q. What did you do with your tools when the accident happened?
 A. We took them with us.
 Q. Where were the gang working at the time of the accident?
 A. All working together at mile 13-1.
 Q. Did you see any other train pass?
 A. A passenger and local train.
 Q. Where were you then working?
 A. Between mile 13-1 and 13-2.
 Q. Were there any villagers about at the time of the accident?
 A. No.

- Q. How far away was the nearest village?
 A. One furlong.
 Q. Has there been any misunderstanding between the villagers and the gang?
 A. No.
 Q. Is there any quarrel between the two gangs?
 A. No.

G. A. Pereira, travelling ticket collector.—I was in the train at the time of the accident and was travelling in the third class bogie next to the first

and second class bogie composite. With me were three other travelling ticket collectors. There were several passengers in the carriage. I felt two or three jerks and the train came to a stand. We got out and helped the passengers and the injured. No one was injured in my carriage. The driver was running very steadily even at the particular spot of the accident. I felt no oscillation. It was only when I got down that I knew an accident had occurred. I did not notice whether there were any gauge working. I did not talk to the driver or to the guard after the accident.

FINDING.

1. We exonerate the driver and train staff from blame in connection with the accident. We find that neither the formation of the train nor the working of the vacuum brake contributed to the accident.

2. The only alternative causes left to consider are defects in the rolling-stock or in the road.

3. With regard to the rolling-stock, a careful survey was made on the day after the accident and it revealed no vital defects such as broken axles or damaged tyres which would be likely to cause a derailment. The four-wheeled stock was, however, so seriously damaged that we cannot positively say that the accident may not have been caused by some minor defect, all traces of which were lost in the smash. The search for missing parts on the line made on the 19th instant resulted in nothing being found, and, considering all these facts, we are of opinion that the failure of the rolling-stock was not a probable cause of the accident.

4. In regard to the road, the evidence recorded shows that the section of the line from Minjur to Ennur had lately been in an unsatisfactory state and that, in consequence, it had been receiving special attention—an extra gang being employed, which on the day in question, was working near the site of the accident. The committee have, however, travelled over this road several times during the last few days, and find it to be in fair running condition, and safe for a considerably higher speed than the train is likely to have attained. It has also to be remembered that a down passenger train travelling at a speed of about 30 miles an hour passed safely over the spot 1 hour 22 minutes before the derailment took place.

A point to which we attach special importance is the condition in which the road in rear of the derailed vehicles was found after the accident, as illustrated in Annexure No. 7. The plan shows a double reverse curve immediately in rear of the first mark of derailment. The total length of the portion of the road so disturbed was 90 feet, and the maximum versed sine of the second and more decided kink was 5½ inches. We have carefully considered whether these kinks were the cause of the derailment or one of its effects, but are unable to come to a positive conclusion in the matter. We consider it possible that this lateral displacement without disturbance of gauge may have resulted from the violent displacement of the track under the derailed vehicles.

If the kinks were in before the accident occurred, the second, and more pronounced, kink was, we consider, sufficient to cause the derailment. It would also probably have produced derailment at the point where it actually occurred, and would have tended to send the four-wheeled coaches in the direction they actually took.

If the kink was in the line before the derailment, we have to consider how it can have come there. We are convinced that it was not due to heat causing buckling of the track, because the accident occurred before eleven hours on a fairly cool morning and the neighbouring joints were not tight.

It is established by the evidence, including that of gang maistry Thulakanam himself that his gang were working on the date in question close to the spot where the derailment took place. The evidence as to the exact position of the gang is conflicting, but this, we consider, may be due to the guard and driver having mistaken trespassers on the line for gang coolies. The gang had crawbars with them, and we have proved by experiment that the kinks could have been made by them in 10 minutes or even less. The interval between the passage of No. 65 down passenger train and the accident to No. 2 up mail was therefore sufficient to have allowed them to produce this disturbance of the track.

We find it hard to believe that an experienced maistry and gang could by inadvertence have produced the kinks. On the other hand, it appears extremely improbable that they would maliciously have disturbed the road in broad day-light, and have remained on the spot when the chances of detection were so strong and the result of detection would have been so extremely serious to themselves.

5. Finally, we consider that the balance of probability is that the accident did result from a defect in the road rather than from a defect to the rolling stock. Further, we consider it probable that this defect was the kink in the line. The evidence, however is not sufficiently conclusive to justify us in definitely fixing responsibility on the permanent-way staff.

6. We desire to comment on the general question of marshalling trains comprising both four-wheeled and bogie passenger coaches. In the present accident the bogies fortunately derailed on the opposite side of the track to that taken by the four-wheelers and may not have contributed to the seriousness of the accident. In other cases, however, the results might be different, and we are of opinion that were there are mixed rakes of bogie and four-wheeled stock the former should be marshalled in front of all four-wheeled passenger vehicles.

Annexure No. 1 in Appendix II to the abstract returns of accidents on Indian Railways for the twelve months ended 31st December 1909.

EXHIBIT A REFERRED TO IN THE STATEMENT OF MR. J. B. DUNCAN, DISTRICT ENGINEER.

Letter—From Mr. J. B. DUNCAN, District Engineer,

To—The P. W. Inspector, Section 5, Ponneri.

Dated—Rayapuram, the 26th February 1909.

No.—C/106-246.

Inspection.

Herewith notes of Slacks on your section taken by me on 24th instant.

Bridge 2/20.
 „ 3/14.
 „ 3/21.
 „ 4-4.
 10/12, 16, 18, 19, 22.
 Bridge 11/3, 6, 13, 18, 19, 23.
 12/1, 3, 4, 6, 8, 9, 13, 14, 16, 19, 24.
 13/4, 5, 6, 7, 8, 13, 14, 16, 18, 19, 21, 22, 23.
 14/1.
 21/21 level-crossing. 22/7 bridge 23/2, 6.
 23/15, 19.
 24/1, 2, 6, 7, 8, 9, 11, 17, 18, 19, 22.
 26/5, 17, 19, 20, 23.
 27/4, 16, 28/10 level-crossing.
 31/5, 32/15, 24.
 33/2, 34/15, 21, 24.
 35/6, 11, 18, 22, 36/7, 9.
 37/10, 14.

Annexure No. 2 in Appendix III to the abstract returns of accidents on Indian Railways for the twelve months ended the 31st December 1909.

EXHIBIT B REFERRED TO IN THE STATEMENT OF MR. J. B. DUNCAN, DISTRICT ENGINEER.

Letter—From Mr. J. B. DUNCAN, District Engineer,

To—The P.W. Inspector, Section 5, Ponneri.

Dated—Rayapuram, the 25th May 1909.

No.—C 106384.

Inspection.

Herewith notes of *Slacks on line* on your section taken by me on 23rd instant.

10/14, 16, 19, 23.
 11/9, 11, 12, 15, 17, 23.
 12/3, 11, 16, 23.
 13/4, 6, 11, 15, 21.
 14/2, 8, 17, 20.
 15/1.
 16/3, 7, 12 (16/14 level-crossing) 17, 19, 22.
 17/2, 14, 18, 22.
 18/12, 14, 23.
 19/1, 3, 8, 9, 18, 23.
 20/11.

Ponnari.

21/11, 17, 24.
 22/5, 13, 21.
 23/3, 9, 10, 16, 20.
 24/1, 3, 6, 10, 11, 14, 15, 17.
 25/4, 23, 24.
 26/10, 11, 12 (14 B) 17, 19, 21.
 27/1, 5, 8, 19, 24.
 28/3.
 30/2, 10, 17.
 31/1, 4, 7, 12, 15.
 32/1, 12, 14, 19, 24.
 33/1, 5, 7, 9, 11, 12, 15, 17, 22, 23, 25.
 34/2, 5, 9, 16, 19, 21, 24.
 35/2, 4, 6, 7, 10, 12, 17, 18, 22, 23.
 36/4, 5, 6, 13, 20, 22, 23, 24.
 37/1, 9, 11, 14.

Annexure No. 3 in Appendix III to the abstract returns of accidents on Indian Railways for the twelve months ended 31st December 1909.

EXHIBIT C REFERRED TO IN THE STATEMENT OF MR. J. B. DUNCAN, DISTRICT ENGINEER.

Telegram—From Mr. Strauge, Ponnari.

To—Mr. J. B. Duncan, Madras.

Dated—The 8th June 1909.

Bad slacks between Ennur and Minjur. Require attention sharp.

Annexure No. 4 in Appendix III to the abstract returns of accidents on Indian Railways for the twelve months ended 31st December 1909.

EXHIBIT D REFERRED TO IN THE STATEMENT OF MR. J. B. DUNCAN, DISTRICT ENGINEER.

Telegram—From the District Engineer, Rayapuram,

To—The P. W. Inspector, Ponnari.

Dated—The 9th June 1909.

Chief Engineer complains bad Slacks between Ennur and Minjur. Attend at once.

Annexure No. 5 in Appendix III to the abstract returns of accidents on Indian Railways for the twelve months ended 31st December 1909.

EXHIBIT E REFERRED TO IN THE STATEMENT OF MR. J. B. DUNCAN, DISTRICT ENGINEER.

Telegram—From the P. W. Inspector Ponnari,

To—The District Engineer, Rayapuram.

Dated—The 9th June 1909.

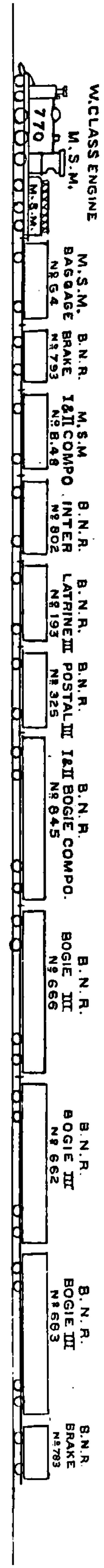
Your wire date.

Heavy slacks—Mile 12 to 14.

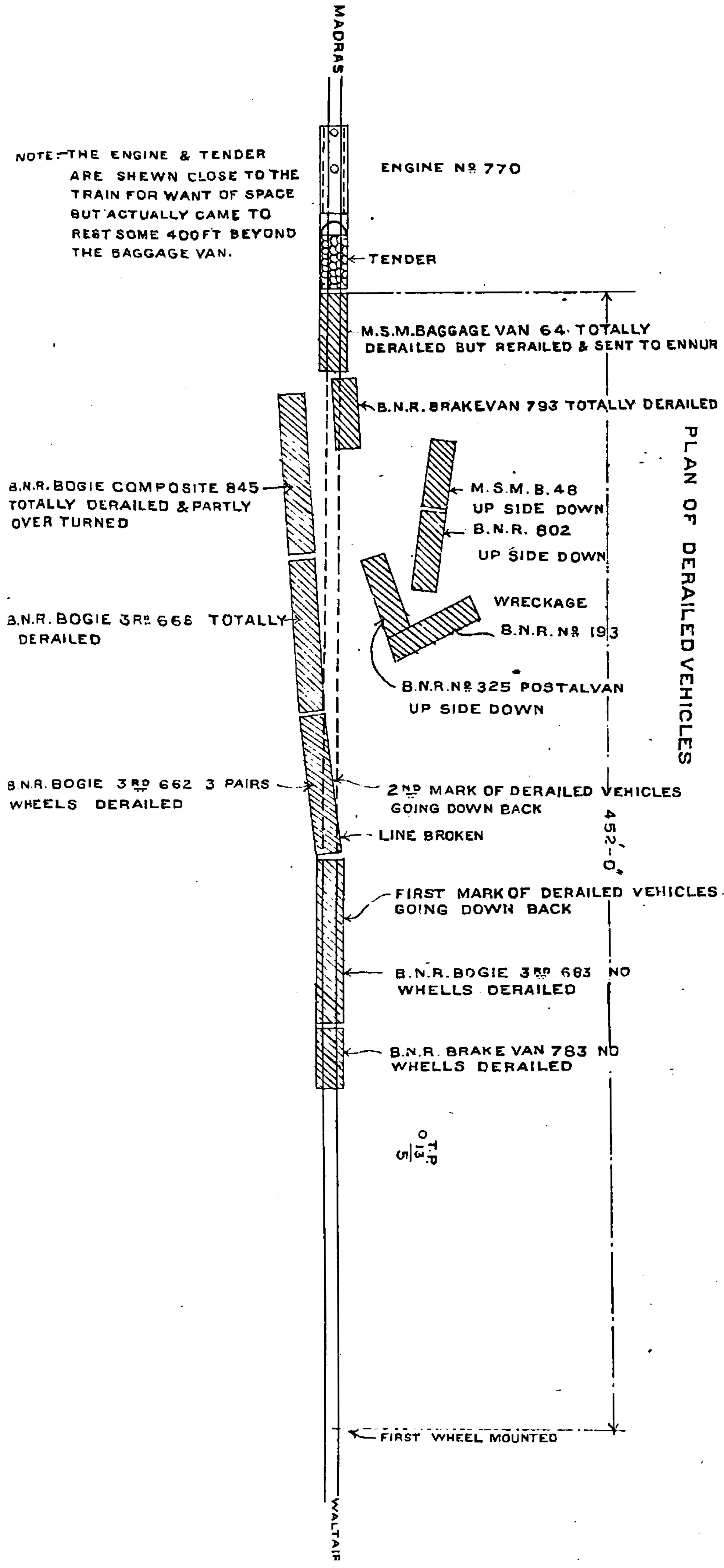
Pot road rectified.

ANNEXURE No. 6 IN APPENDIX III TO THE ABSTRACT RETURN OF ACCIDENTS ON INDIAN RAILWAYS FOR THE TWELVE MONTHS ENDED 31st DECEMBER 1909.

COMPOSITION OF No 2 UP MAIL WALT AIR TO MADRAS
 DUE AT MADRAS ON 19-6-09
 SCALE 50 FT TO 1 INCH



PLAN OF DERAILED VEHICLES



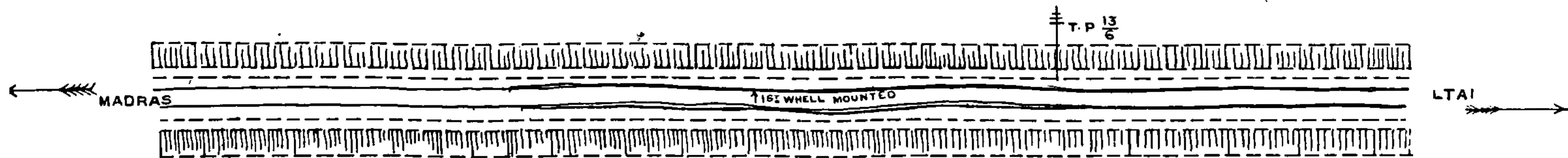
ANNEXURE No. 7 IN APPENDIX III TO THE ABSTRACT RETURNS OF ACCIDENT ON INDIAN RAILWAYS FOR
THE TWELVE MONTHS ENDED 31st DECEMBER 1909.

M & S.M.R.

PLAN OF DISTURBED ROAD BEHIND DERAILMENT

SCALE 50 FT = 1 INCH

NOTE — THE KINKS ARE EXAGGERATED PARTICULARLY
THE FIRST ONE (NORTH END) OWING TO
SMALLNESS OF SCALE.



Appendix IV to the abstract returns of accidents on Indian Railways for the twelve months ended the 31st December 1909.

Report of the proceedings of a committee of enquiry which assembled at Toungoo on the 26th, 27th, 28th and 29th March 1909 to investigate into the cause of the derailment of No. 239 up passenger train at mile 140-19 Burma Railways, on the 24th March 1909.

The committee was composed of the following officers:—

Mr. J. A. M. DESPEISSIS, Superintendent of Way and Works	. President.
Mr. N. M. CARNELL, Officiating Traffic Manager	. . .
Mr. L. P. JOHNSON, Loco. and Carriage Superintendent	. . . } Members.

Also present—

Mr. J. CLAGUE, Officiating Deputy Commissioner, Toungoo.
Mr. J. H. HEAP, Junior Government Inspector of Railways.
Mr. R. E. BARBER, Superintendent, Government Railway Police, on 27th only.

In attendance—

A Police Inspector representing Superintendent of Police, on 26th only.

DESCRIPTION.

On the morning of the 24th March 1909 at about 4-55 No. 239 up passenger train, after having received authority to proceed at Zeyawadi, continued on its way to Nyaungchidauk; and on arrival at mile 140-19 the whole train was derailed with the exception of the last three vehicles, on the entrance to the diversion. The whole of the forepart of the train, consisting of one horse box and five bogie third class vehicles, were telescoped and piled up, the engine going down the bank and turning over on its right side. A few minutes later fire was noticed in one of the bogie third class. This immediately extended, and the whole train was burnt except the two rear vehicles, viz., a bogie first, second and third class composite and a bogie brake luggage-van, which were uncoupled and pushed back clear of the fire.

As far as is known at present nine Asiatics lost their lives including the first fireman and a brakesman who was travelling off duty, and seven were seriously injured and are being treated in hospital, including the driver. Seven persons including one European passenger and one European railway servant were slightly injured and are being treated as out-patients at the Toungoo hospital. Some others slightly injured went away to their homes from the scene of accident.

EVIDENCE.

Mr. Alexander Richard Godber, Sub-divisional Officer at Pyu, Toungoo District.—I am the Sub-divisional Officer in charge of the Pyu sub-division, Toungoo District. I went to Pyu station on the 24th morning at 8-15 to catch the up train due usually at half past eight, No. 91 up.

The station master told me of this accident.

I have not yet received my official intimation.

I at once wired to the hospital assistant at the Zeyawadi private dispensary to proceed at once to the spot and render every assistance. I then waited for the train and went up in it as far as Zeyawadi together with Mr. Dyer, the excise inspector, who was on tour at Pyu. On arrival at Zeyawadi, I found the train was not allowed to proceed further, so I asked the station master and the driver if they would take me on the engine to the scene of the accident, as I explained that being a Magistrate, my services might be required for an enquiry or dying depositions. On arrival at the scene I met Mr. Scriven, permanent-way inspector, who was already at work on the

line. The *thugyi* of Myaungthè village was ordered to supply any labour and render every assistance possible, and I also directed the police who were present to take every step to prevent looting. When I arrived the debris was on fire, and the stench of burning flesh was overpowering. I was able to find at least one corpse burning. I made enquiries for the man in charge of the fixed signal and found he had absconded. Mr. Pocklington, assistant engineer, Burma Railways, then arrived and I told him I should be glad to help him in every possible way. I tried to get particulars of the accident from the guard but he was very reticent.

I should like to mention that I and Mr. Dyer were told by Mr. French, extra assistant conservator of forests, Toungoo, who travelled with us to Pyu by 2 down the same day that he had met Mr. and Mrs. Lasbury at Nyaungchidauk and they had given him two distinct versions of this accident: one was that Mr. Lasbury was asleep when the accident occurred and was thrown off his berth, and the second was that he was awake

at the time of the accident and pulled the communication cord and was also able to decide that the train was travelling at excess speed.

I arrived at the scene of accident at about 9-15 and the corpse I saw looked like the body of a child, but the stench—apart from the horses—indicated in my opinion that more than three corpses were burning.

I have asked the *thugyi* of Myaungthā to make enquiries as to the number of visitors that morning at village near the scene of accident. I shall be able to let you know any figures I may get.

My opinion as to the number of corpses burning is not based on any previous experience of burning corpses.

All injured people had been removed before my arrival on the scene. I made no attempt to enquire the number of persons burnt in the debris because I was amongst the first arrivals and I was unable to make any formal investigation as to any who were under the debris on account of the heat.

I made no enquiry about the burning of the fixed light.

W. H. Kenny, District Engineer, Toungoo, Burma Railways.—A diversion was put in from mile 140-19 to 141-8 to allow for the raising of the formation of the main line.

A diversion was set out and constructed according to the plan sent to the Government Inspector of Railways who sanctioned the opening on my certificate without his prior inspection. On Saturday the 20th March when returning with the assistant engineer to Toungoo by 94 down he mentioned that he was very anxious to have the diversion opened, and I think he mentioned the 23rd as the date he would like to have it done. I said that I was afraid I could not go down to do so, as I had some important work on the Pegu-Moulmein and would be going out on Sunday night or Monday morning. If it was a matter of urgency he had the power to open the diversion under the Agent's circular. He asked would he sign the certificate or would I. I replied I would.

On Sunday in office, thinking over the question of the diversion, I wrote a note to the assistant engineer saying he would have to sign the certificate as he was opening the diversion. I also wrote that as we had received no orders about special signals we must have signals under the rules. The assistant engineer now states that I did not write but I spoke to him. On my way down to Pegu-Moulmein by 2 down on Monday I met the permanent-way inspector Scriven. I mentioned to him that the assistant engineer was very anxious to open the diversion next day. I then asked him had he any signals, he said no. I replied that I wished to have special signals of our own, that he must make them, and that in the meantime if the diversion had to be opened, the rules in force as regards signals must be observed. I understood him to say that the diversion would not be ready next day, and as the train was leaving I said don't forget your signals. I went on to the Pegu-Moulmein and on my return to Pegu on the 24th evening I first heard of the accident. I concluded from the information received regarding the accident that the diversion had been opened.

I immediately left for the scene of accident on hearing about it, by special engine.

By special signals I told the permanent-way inspector I meant signal posts with a moveable arm and a lamp. I had no time to tell him more as the train went off. I did not tell him about the position of the signals.

My plan which was sent to the Government Inspector of Railways on 12th March 1909 did not show the proposed signalling arrangements nor any rules for working. On the 13th I wrote to the Government Inspector of Railways in continuation of my letter of the 12th, stating a restric-

tion of speed of 5 miles an hour would be imposed. On the 18th I received his sanction to open on my certificate.

The Agent's circular No. 4 of 1907 is binding on me as much as the general rules framed under the Railway Act. The Agent's circular No. 4 prescribes that the notice which I submit to the Government Inspector of Railways shall be accompanied by mention of the system of signalling or special train working which is to be adopted. The reason for not submitting to the Government Inspector of Railways a description of the system of signalling or rules for working the trains was because I did not think at first that any special signalling or rules were necessary.

Q.—When you subsequently considered that special signals were necessary and desirable, did you consider that the Government Inspector of Railways' prior approval was needed, and if not, why not?

A.—It did not strike me at the time that the Government Inspector of Railways' sanction to special signals should be required.

Q.—Do you think so now?

A.—Yes.

Q.—In your opinion what signals should have been shown and at what distances from the entrance to the diversion?

A.—I consider a stop signal a quarter mile out and a proceed with caution signal at the head of the diversion should have been shown.

Q.—Did you intimate your views to the Assistant Engineer?

A.—No, because I considered my views covered by the general rule No. 340.

The rules in correction slip No. 1 to Agent's circular No. 4 of 1907, opening of new works, are those which are to be followed in connection with the opening of the diversion at 140-19.

Q.—Did you obtain from the Traffic Manager a copy of the proposed rules for working and send them to the Government Inspector of Railways in accordance with what is laid down therein, and did you send him complete particulars, etc., etc.?

A.—No, because I did not think them necessary.

I did not send the Traffic Manager a copy of the certificate for opening new works form W. W. 59, but one may have been sent by my office during my absence.

Q.—Traffic Manager:—I hand to you form W. W. 59 to the address of the Traffic Manager, dated 22nd March 1909, signed by Mr. Pocklington, and a copy of your signature shown above it. Was it issued under your authority?

A.—No, this form now handed to me was not issued under my authority.

I expected the diversion would not be required for more than a month; this is the first diversion opened in my district since the issue of the Agent's circular No. 4 of 1907.

I don't remember submitting my description of signalling arrangements for diversions to the Government Inspector of Railways prior to opening during my service, and don't recollect what the old rules provided on this point.

I don't consider the signalling arrangements actually provided at the diversion were quite safe for the protection of the train.

I gave no orders for any super-elevation on the curve at the entrance to the diversion. I do not consider any super-elevation was necessary. With a restriction of 5 miles an hour, I do not consider that correction slip No. 1 to Agent's circular No. 4 of 1907 applies to the case of a temporary diversion—with regard to the traffic department—as it is outside station limits, and out of the control of the traffic department.

I do not think it desirable to put in a super-elevation for 20 miles an hour when the restriction is for 5 miles an hour.

The station master at Pyuntaza informed me that the traffic inspector had travelled by 239 up from Rangoon to Pyuntaza leaving Rangoon on the 23rd; and that the latter had said that the driver had run against signals at Kyauktan. This was corroborated by the traffic inspector whom I saw on the 24th evening.

Note handed in subsequently by Mr. Kenny:—

(1) I wish to bring the following points to notice, as owing to my being upset yesterday, I was unable to do so.

(2) I was asked, did I consider the signals erected sufficient to ensure the safety of trains? As far as I can remember, having just had Rule 840 quoted to me, I said no, and I agreed that I would have put up signals in accordance therewith. Since I made that statement I have been into the rule again and consider (i) that Rule 840 does not apply; (ii) that the precautions taken were sufficient to ensure the safety of trains; (iii) there is no rule laying down that any signals are required.

(3) I was also asked why I had not submitted plans for rules to be drawn up. As the General Rules do not specify that signals are required and as it was outside station limits, I did not consider any special rules were necessary, the drivers having caution orders.

(4) Please read General Rule 840 carefully "Showing of signals," "Proceed with caution"; these signals have only to be shown (a) when work involving danger to train or traffic is involved, *vide* General Rule 833, and (b) *vide* General Rule 837 and General Rule 838.

(5) The present case does not fall under any of the above, hence there was no necessity for any signals to be shown.

(6) In support of this, I would invite attention to General Rule 802, sub-rule (c) and General Rule referred to in it. From the above it will be seen that nowhere is it laid down that the driver is to be helped in any way between stations by being given land marks.

(7) This may be hard on the driver, but that should be represented or brought forward by the loco. officials.

(8) General Rule 840 has only been introduced to meet cases of, where intimation cannot be sent by an engineering employ in time for the driver to be warned through the means of a *Line Clear or Caution Ticket*.

M. M. Dey, assistant station master, Zeyawadi.—This is my line clear book at Zeyawadi. I gave line clear to Pyu for 239 up passenger train at 4-30. The train left Pyu at 4-32, and arrived at Zeyawadi at 4-51. I went to the north points, and as this train is a running through train I handed line clear there, and the train passed through in order. I gave out report at 4-51. I gave the driver a line clear and caution ticket on which was written reduce speed 5 miles an hour over diversion from miles 140-19 to mile 141-8. I did not visit the scene of accident. I know that I had to issue a line clear and caution ticket to up trains until further orders as the station master notified this in writing in the usual place in the telegraph office.

This is the line clear and caution ticket that I gave the driver, it is numbered 20376—34, it is for 239 up passenger train on 24th March, and signature on it is mine. I got the private number "eight" shown thereon from the assistant station master, Kywèbwè. I can write a little better than I have written in the line clear and caution ticket if I write slowly.

Had I not issued order to the driver reducing speed I should have used the line clear form in the book above the line clear and caution ticket I tore out, it is still in the book.

I came on duty at 18 hours and passed 6 up trains all on line clear and caution tickets; they all passed after dark, the last up train before the

accident left Zeyawadi at 2-35 on 24th and was 183 up goods.

Maung Bah Tin, station master, Zeyawadi.—About 6-30 on the 24th the assistant station master called me. I came to the station at once. I saw Mr. Lasbury who informed me about the accident, and I wired to all concerned. After half an hour I informed the hospital assistant of Zeyawadi to render assistance, and after arrival of 91 up at about 9 hours I piloted the engine of 91 up to the scene of the accident to bring back one brakevan and one bogie first, second and third class. On the engine along with me was Mr. Godber, Sub-divisional Officer. At the scene I did not see any one injured and I was informed that Nyaungchidauk side had taken away the injured passengers by train and I could not get any full particulars from any one at the scene of accident. I brought the brakevan and bogie first, second and third class back to Zeyawadi.

When I got to the scene of accident, all but the brakevan and bogie first, second and third class were on fire and I could not get near, and I could not see anybody in the fire, but the smell was strong. I received two wires from the permanent-way inspector: one sent from Nyaungchidauk and one from Zeyawadi to reduce the speed over the diversion from 140-19 to 141-8. Copy of the original wire handed over to me by the permanent-way inspector I pasted against the instrument in the telegraph office. I sent a copy to Nyaungchidauk and to all persons shown thereon.

R. A. Pocklington, assistant engineer, Burma Railways, Toungoo.—I went by 2 down on the 23rd and trollyed up to the diversion and stopped there till 12 hours seeing that it was connected up properly. I then trollyed on to bridge 208, mile 137-13, to see the work there; trollyed back again to the diversion; waited till it was ready, and opened it at 14 hours and sent out the necessary telegram to the people concerned. I went back to the diversion in the afternoon, later on passed ballast train 36 over it, left word with the permanent-way inspector that the line should be well patrolled, and returned to Toungoo by 5 up.

The next morning I received a wire at 7-45 (wire No. 29) from Nyaungchidauk. I sent a note to the station master saying I should like to go down by either the accident special, 2 down, or a light engine. I received the reply that the accident special was waiting for me. I went down by the accident special. When we got to Nyaungchidauk we found that an engine and two goods vehicles were on the line bringing in the injured people. The accident special stopped at Nyaungchidauk and the loco. foreman, Mr. Noble, the civil surgeon, Captain Beit and myself went out by accident trolley; met the engine and the vehicles with the injured people a mile south of Nyaungchidauk, stopped that train, and the civil surgeon went on board and took charge of the injured. Meanwhile I went on to the diversion by trolley (Captain Beit did not go on to the scene of accident) and superintended the re-instatement of the main line.

I arrived at the scene of accident at 10 hours and saw a mass of smouldering debris, the engine lying on its side, two telegraph posts leaning over, and all the telegraph wires smashed. With the exception of two which had been pushed back south of the level crossing, all the vehicles had been burnt and were smouldering. I saw one bone sticking out, and smelt the smell of burning flesh, it was very strong from the horse box. The smell from the other end was slight. I was told that there were two bodies in the debris, one at each end. I was then with Mr. Godber, who said there were some ribs burning, but I could not see them.

I arranged for a fixed signal at each end of the diversion consisting of point indicators showing green and stuck into the ground so that they could not be turned.

I was authorised by the district engineer to open the diversion in his absence. A plan and section of the diversion were submitted to the Government Inspector of Railways and to those I worked. I put up signals as an extra precaution, although they are not shown on the plan. The signals were put up by the permanent-way inspector and I agreed to them. I think the district engineer, Toungoo, saw them on his way to the Pegu-Moulmein on the 22nd.

On the previous Saturday the district engineer, Toungoo, agreed to open the diversion, but said to get the signals up as soon as possible; their exact description and position were left to me.

After inspecting the signals put up by the permanent-way inspector, I agreed to them. I gave no further orders.

I thought that one fixed signal at each end of the diversion was necessary to locate the position of the diversion, but I do not think from the General Rules that any signal was necessary.

The copy of the safety certificate sent to the traffic manager is incorrect, inasmuch as it is shown as signed by Mr. Kenny, whereas it was actually signed by me. The letter forwarding a copy of the safety certificate to the Traffic Manager was despatched the evening of the 22nd and should reach him on the 23rd.

The diversion was opened on the 23rd at 14 hours. I did not ask the traffic manager to fix a date for opening the diversion, and I don't know whether he was asked or not. No date as fixed by the traffic manager was received by me.

Q.—Do you know of any rules under which it is necessary to protect the line with signals when the train has to proceed cautiously?

A.—I know of Rule 337 which in my opinion apply only to cases of emergency, and when the station master has not had time to show on the line clear ticket that there is a caution, and also Rule 337 does not apply to a diversion that is a new work.

Q.—Did you place the signals that were placed by your authority because you considered that the General Rules did not provide for the circumstances that had arisen?

A.—I placed them as an extra precaution, because I considered the General Rules do not provide for this case. I did not examine the burner of the signal lamp in use at the south end before the accident, but the permanent-way inspector filled, trimmed, and put it in position. I left the question of rest for the man to be placed on night duty to the permanent-way inspector. I saw the burner after the accident at 13 hours on the 24th in the gate hut. I cannot say whether the burner was put in the lamp or not. The points indicator was put immediately south of the level-crossing. I ordered the points indicator to be moved out a quarter of a mile south of the level-crossing to protect the main line which had a reverse curve in it. In order to clear the wreckage the points indicator was shifted a quarter of a mile, because I wanted the train to go dead slow from the new position of the point indicator to a point a quarter of a mile north of the reverse curve on the main line.

After the signals were shifted I did not issue orders to the traffic staff intimating they had been shifted. I cannot say whether orders were issued by any engineering official.

I sent telegram No. 28, dated the 23rd March 1900, time 14-55.

Q.—Have you advised station masters, Nyaung-chidauk and Zeyawadi, that the speed had been restricted to 5 miles an hour in the diversion from mile 140-10 to 141-8 because no such telegram seems to have been received by them?

A.—No, 140-10 is a mistake for 140-19 and the station masters had already received their instructions in permanent-way inspector's wire S. 23 of 22nd March 1900, the diversion begins at 140-19.

Q.—You said in your evidence that the points indicator had been shifted up a quarter of a mile south to protect the main line which had a reverse curve in it in order to clear the wreckage. Do you not think it was equally necessary to have had a signal a quarter of a mile outside the entrance to the diversion?

A.—No, because in the first case I wanted the position of the line between the two signals to be protected, and in the other case I only wanted to protect the diversion between 140-19 and 141-8. I used points indicator sunk into the ground so that they could not be turned in preference to hand lamps used by a gangman who was liable to go to sleep.

By fixed signal I do not mean the signal defined in General Rules, definition 12, but a signal fixed in a place from which it could not be moved and exhibited elsewhere.

G. A. C. Lasbury, station master, Pegu.—I was coming from Pegu to Toungoo on Volunteer duty under orders of the district traffic superintendent, Toungoo, by 239 up. I was travelling with my wife in the 1st class. I woke at 4-45 in the morning of the 24th. I saw the time by my watch and had barely laid down again when I heard the noise of a train passing over points and at the same time received a shock, the carriage lurching from which I thought there was an axle broken or something else wrong. I at once jumped at the alarm cord. I missed it and was bumped against the ceiling. I stood up again and made another grab at the cord, and caught it. I was again thrown against the right side, but the cord gave to my pull, and we came to a halt. I immediately looked up and saw a points indicator. I helped my wife out, jumped out myself and went up to the indicator. Seeing that there were no points connection, I came to the conclusion we were up some diversion or road under repairs. Suspecting this lamp had something to do with it I took up the lamp, opened it and examined the burner; it was perfectly cool. I returned the lamp into the bracket, helped my wife back to the compartment and I went to the middle portion of the train; on the right hand side saw that there was a very serious accident, and that the first portion of the train was on fire. I saw a number of people in the 5th carriage from the brakevan which was capsized. All the carriages from the engine up to the 3rd from the rear were capsized. I rendered what assistance I could to two of the passengers and ran back to get assistance to the huts near by. There was no one on the spot at the time of the accident. After a great deal of calling out the gangmen from their huts just then came out. I ordered them to the front of the train to try and extinguish the fire. I ordered the guard to protect his train, and Mr. Johnstone, assistant station master, Toungoo, who was a passenger in the 2nd class next to me, to go also to the front to see what he could do there. I went again to the centre of the train with a few men, but found it was too late to extricate any one from the debris on account of the fire which had come on rapidly. I went back then to save the carriages which were still standing on the line. I uncoupled the brakevan and bogie first, second and third class and hand shunted them out of reach of the fire. I could not uncouple the next bogie third class as the couplings were red hot and we could not get near them. Half an hour after the driver came running to the rear portion of the train in a nude condition except for a light coat, and badly scalded. He was making random statements about the speed and the light and complaining bitterly of the scalds. I had him put in the 3rd class of the bogie first, second and

third class. I then went forward to the front of the train and saw the engine and the two ponies out of the horse box. The syces were badly injured and one other pony was dead. I had all the injured who had been removed by others again moved to a secure place and attended to them. I then sent Mr. Johnstone to Nyaungchidauk to send a wire to all concerned, whilst I went to Zeyawadi as all the telegraph wires had been burnt and through communication had been interrupted. On my returning from Zeyawadi, an engine with three vehicles arrived, into which I placed all the injured and got them away to Toungoo. At Nyaungchidauk outer signal I met Captain Beit, Mr. Noble, and Mr. Pocklington. I and Captain Beit ordered the train to stop at the station at Nyaungchidauk for two hours to allow him to attend to the injured. One of the injured died at scene of accident, and one died after arrival at Nyaungchidauk.

There were seven men and one woman in the carriage I first went to, all of whom I could not in any way extricate and I am sure were all burnt to death. Five of these were unconscious when I went to the carriage, and the other three were conscious. The woman had the lower portion of her body under the carriage, but being unable to help her I could not remain and ran away. I also know of the brakesman being burnt to death, and also that a Punjabi was removed and died on the spot from injuries. I also heard cries and groans from other parts of the wreckage underneath, but I could not number the sufferers. They also must have been burnt up. After 15 minutes from the time of accident there was no possibility of stopping the fire.

I estimate the speed of the train at the time of the accident at 30 miles an hour from my observation when I looked out of the window just before. It was however very dark at the time.

I had no conversation with Mr. French, extra assistant conservator of forests, but my wife did. The lamp signal bracket was just about opposite the front coupling of the bogie first, second and third class I was riding in. No one came out to render assistance for 20 or 30 minutes after the accident, not even the gangmen, and only then by a lot of shouting and ordering on my part.

When I took out the lamp from the signal, it was an ordinary square shaped oil reservoir. It had a little oil in it, but no cowl on the burner. It was quite cold and it had a wick. I drew no one's attention to it, but two Burmans saw me examine the lamp. I returned the burner to the lamp and restored the lamp to the bracket.

George Montagu Scriven, permanent-way inspector, Burma Railways.—On 22nd instant I received a letter from Mr. Pocklington stating that the diversion was to be opened out on the morning of the 23rd. On receipt of this I proceeded by 2 down from Kywèbwè to Zeyawadi and thence by trolley to the diversion at mile 140-19, taking with me two point indicator brackets and two speed boards. I put the point indicators in position for the diversion, one being at the gate hut on the south side of the level-crossing between 140-18 and 140-19 about 6 to 8 feet from the level-crossing. I also put up the speed board behind the lamp, 2 feet behind. On return to headquarters I received orders from the assistant engineer to await his orders before opening the diversion as he would come himself to do the opening. On the 23rd, the assistant engineer came by 2 down and I accompanied him to the diversion. On the way at Nyaungchidauk I sent a wire to impose a restriction of 5 miles an hour between 141-18 and 140-8 over diversion, and I also handed a memo. to the station master asking him to block the line. On the previous day I had advised those concerned by wire of the probable opening of the diversion on the 23rd and imposing a restriction of 5 miles

an hour from 140-19 to 141-8. I altered the mileage on the 23rd from 140-19 to 140-18 because I had in the meantime placed the signal post outside 140-19. In the presence of the assistant engineer I slewed the main line on to the diversion and finished the work about 13 hours on 23rd. I then removed the block by sending a memo. to that effect to the station master at Nyaungchidauk. In about one hour No. 38 ballast train came on the diversion, which I piloted over on the engine and then walked back over the diversion from south to north, ordering the sinkages of rails to be picked up. In a short time another down goods train came which I also piloted over the diversion. Having done this I got the two signal lamps and burners and trimmed and filled them and shewed the night signalman and the ganger how to place the lamp in the bracket. In the meantime 92 down had come down and passed over the diversion. I waited about an hour for 5 up to arrive at the diversion when I jumped on the engine and came away to headquarters at Kywèbwè. I left the diversion at about 17 hours.

I heard of the accident to 239 up at about 5-45 A.M. and I went by 178 down goods to the scene, travelling from the station with the wagons and engine which went to fetch the injured. I arrived at the scene about 8 A.M. and inquired from the guard how the train came as regards speed. He said it came slowly and that the lamp was out. I therefore went to the signal bracket and found that the lamp and burner had been removed. At Nyaungchidauk pressing Mr. Johnstone, assistant station master, told me that the train had been travelling at full speed and that he did not notice if the lamp was alight. After finding the lamp missing I called up the night signalman Bhemo and swore at him for taking the lamp out, and he replied he took it out because it was daylight as ordered. Then I proceeded to restore the main line to permit traffic running to be recommenced, and on looking again I found the lamp had been replaced in the bracket, and it was lighted. After about 20 minutes I asked the Police Sergeant, Hpo Mon, to take the man Bhemo into custody and gave him a man to identify him, but half an hour later the Sergeant informed me that he could not find him. I did not ask Bhemo if the lamp was alight when the train passed. When I arrived at the wreck the debris was burning, and my men were throwing water on to the portion nearest the main line to enable us to get to work to slew the line back to the main line. I examined the wreck later and only saw signs of two human beings' bones.

I have never opened a diversion before. I placed the signal lamps where I thought desirable, and Mr. Pocklington approved of them. Mr. Kenny told me on passing on his way down the line on the 22nd that he wanted special dwarf signals with arms put up, and I replied I had none available but would make them and use the point indicator meanwhile. I have heard Mr. Kenny's evidence read over to me, and I corroborate it. I ordered the special men, one for each end of the diversion, to go on night duty to attend to the lamps, and to take their rest during the day.

The accident happened before I could make the special signals ordered by Mr. Kenny.

I recognize the burner, wickholders and cowl as the one I issued for use at the south end of the diversion. On the day of the accident I again examined this lamp and trimmed it for use that night, and I found the oil reservoir was leaking. I therefore arranged to have it repaired, but this was not done, and some one substituted another burner for use on the night after the accident. I could not wait that night to see the proper burner placed in position for use in good order. I depended on gang cooly Suma and the ganger to see that this was done.

On the 23rd evening whilst returning from opening the diversion, I asked Mr. Pocklington

to get the loco. department to impress on drivers the necessity for observing the cautions, as I consider that a curve of 500 feet radius was dangerous for a train travelling at full speed.

Mr. Pocklington asked me what action he could take and I could not tell him, but I would report the first man who disregarded the caution. The drivers who came up to the place on the day I opened the diversion all observed the caution, and I tested the curves with one engine at about 10 miles an hour. They stood all right.

I do not consider that General Rule 3-40 applies to the case of a diversion, but only in cases of emergency when stations are not warned to give caution tickets. I used my judgment in placing signals in this instance, and also do so in every instance when there is a caution to be observed on my length.

I had no orders regarding the superelevation of the curves in the diversion. I laid the curves without superelevation. I had the two point indicator lamp cases and burners spare. They do not form part of my sanctioned equipment.

I had no wick for these burners. I obtained some from the station master, Nyaungchidauk, which was too broad, I cut it to suit. After I cut it I got it to burn well with the cowl on.

When I arrived at the diversion between 10 and 11 hours, I detailed gangman Bhemo to go for rest so as to be ready for night duty, he went at once. I saw him again between 4 and 5 o'clock in the afternoon, when I showed him the working of the lamp. As far as I know he had been resting in the gang hut from 11 to 4 in the afternoon. I consider one man sufficient to look after four caution lights at night.

I detailed a gangman, Suma, to look after the light in its new position in the night after the accident, this was between 3 or 4 o'clock. At the same time I sent him to Zeyawadi to get the lamp repaired. I told the mistry to put a second man with Suma to attend to the light at night.

I did not see the lamp when it was brought back from Zeyawadi.

C. L. Kelly, guard of 239 up.—I was in the brakevan. The train ran through Zeyawadi at 4-47 and arrived at 140-20 at 4-55. I was looking out and doing my journals and observed no light exhibited by the engineering staff. There was a slight bump, I was thrown off my seat. When I happened to put my hand to the vacuum, the gauge showed 0. I got out and enquired from the signal man and gang coolies why they had no light. I could find no lamp, cowl, nor burner inside the bracket of the indicator. They replied they had a hand signal lamp with them. This hand signal lamp was brought out by them as they came out of their hut. I went up and attended to the passengers and the fire. I shouted to the coolies to bring water, water was rather far, and I tried to get sand to suppress the fire, the blaze was too much, and the coolies very few. I then had the wounded taken some distance from the fire, then had the brakevan and the bogie first, second and third class, the remaining stock of 239 up which were not derailed, hand shunted back two telegraph posts. These were the only two vehicles that were not derailed. After protecting my train under the rules prescribed I had the gang coolies and tried to clear the main line. As Mr. Lasbury and Mr. Johnstone had gone to send the concerned wires, the fire was so great that nothing could be done till about 7-30, when the fire subsided a bit. I had the gang coolies with buckets of water to save the sleepers as they were slightly burning. The permanent-way inspector arrived between 8-30 and 9 hours. I attended to the wounded passengers after the relief train arrived. After all the wounded passengers had been put in the relief train, it left, and I again attended to my train,

the light engine of 91 up local mixed came in order to proceed to the scene of accident and I attached the brakevan and bogie first, second and third class and took them back to Zeyawadi. Immediately on the train stopping I went out and looked for the lamp. I knew there was a lamp post there as the gang coolies informed me. At the time of my alighting from the brake one of the coolies had a hand lamp, and by its light I saw the bracket. There was only one hand signal lamp brought out from the gate but after the accident had happened. I saw the hand signal lamp before I examined the bracket.

In my opinion the hand signal lamp the coolies had was for their own use. I saw the man with the lamp come out through the door of the gate but, the light was white and the man came out and he put it on the green as he came down the steps. I came to the conclusion that the hand signal lamp with the coolies was for their own use because there was a fixed signal bracket there. In my opinion the coolies turned the light to green to hoodwink me.

I stopped at the bracket about two minutes. I went round my brakevan to the scene of fire. I was about a minute going round the brakevan, the brakevan and bogie first, second and third class were on the rails, the next bogie third class two back wheels were on the rails and the front wheels were on the rails, and the remaining bogies were derailed and smashed and capsized. I could not possibly say whether they were telescoped. I shouted to the coolies to bring water. As the water was too far I used sand and mud and tried to suppress the fire. The fire was blazing about three minutes after I came out of my brakevan.

I then pulled back the brakevan and bogie first, second and third class. I came back again and attended to the fire. I arranged for the protection of my train. The fire was so great that nothing could be done before 7-30. Immediately after the accident occurred Mr. Lasbury told me to go and protect my train. I did not go but sent a man. After I had pushed back the brakevan and bogie first, second and third class, I came back and attended to the horses and passengers. The train was travelling between 20 and 22 miles at the time of the accident. I entered in my journal the departure from Zeyawadi at 4-47 and I looked at my watch at the scene of accident before getting out of my brake, it was then 4-55 as noted in my journal. I saw the driver only at Rangoon; he appeared to be in a normal condition in every way; he had been driving with regularity and observing the signals throughout the journey. I remarked no excess speed during the journey. I was unaware of there being a restriction between Zeyawadi and Nyaungchidauk. Guards do not usually receive advice of restrictions on the line except in the case of an illiterate driver, where the train will stop at all stations, and any restriction will be explained to the driver by the station master and guard.

I have sometimes received advice of restrictions by being given a copy of the wire intimating the restriction to all concerned, and in no other way. I have seen advice of restriction in the fortnightly order.

The departure from Zeyawadi at 4-47 is given from the home signal. Home signals on the Burma Railways are always near the station building in the centre of the platform. I checked my watch with that of the driver and the clock of station platform at Rangoon. In my journal I show 540-20 as the mileage at which the train stopped at 4-55; this is a mistake for 140-20. I read the mileage on the telegraph post within 15 minutes after the accident. I did it with the help of my hand signal lamp. My brake was on the main line when the train came to a stop; it was on the Zeyawadi side of the level-crossing; it was between 140-18 and 140-19. The bogie first, second and third class was opposite 140-19, and I noted the mileage as 140-20 because that would be the

mileage of the middle of the train. Within 15 minutes of the accident occurring I went to ascertain the mileage and found it was 140-19 and noted it as 140-20. I was looking out the whole way out from Zeyawadi, and if there had been a light I should have seen it. I did not expect to see a light. When I came out of my brakevan I saw Mr. Lasbury looking out of the 1st class window, and heard him shouting. I did not see him come out to examine the lamp; he shouted "terrible accident," "terrible accident." Mr. Lasbury remained near the bogie first, second and third class shouting; he never came near the fire, or gave assistance. Anyhow I never saw him till long after. I would have seen him if he had come. Mr. Johnstone was near Mr. Lasbury. I did not see him near the fire. We both went up afterwards to save the passengers, *i.e.*, after hand shunting the vehicles back. I saw nobody in the debris. I looked in the debris and saw no one there; that was within five minutes of the accident occurring. I looked carefully round; a woman was crying saying she had lost her child; this was over an hour after the accident. At the same time I heard that a brakeman who was travelling as a passenger was missing.

My brakeman was injured, and I heard he had been hauled out of the debris at Pyu. I walked as far as the second bogie third class in front of my brakevan; there were three or four passengers in each bogie. I did not notice whether there were any in the third class of the bogie first, second and third class. I cannot say whether any passengers were travelling without tickets. I did not collect the tickets as Mr. Lasbury volunteered to do it. I have no evidence that Mr. Lasbury volunteered to collect the tickets.

Mosim Ali, 2nd fireman.—I was fireman of 239 up, engine J-240. We ran through Zeyawadi, picked up line clear, which the driver read and put in his coat pocket. I do not know what sort of line clear was given as I cannot read; the driver put on steam. He shut off steam at a bridge, and I stood near the brake. I did not understand why the driver shut off steam. I looked ahead and could see no light. I stood on the left side of the engine, when I would not see the right side of the line because the engine was in the way. We came to a curve and the engine turned over. I did not go over to the right side of the engine to look out. At the entrance to the diversion the train was going so slow that people could easily get off and on the train. The driver gradually applied the vacuum after passing the bridge and shutting off steam.

In rounding the curve the driver applied the vacuum. The engine gave one or two jumps and the driver applied the vacuum fully, and the engine turned over.

I cannot identify the particular bridge at which the steam was shut off. This bridge was, I think, over half a mile from the diversion; it has three spans.

After the accident I was stunned. I extricated myself after some time, sat down some distance off and eventually went away with the station master of Nyaungchidauk.

W. L. Johnstone, assistant station master, Toungoo.—On the morning of the 24th I was travelling as passenger by 239 up, leaving Rangoon on the 23rd evening. At about 4-45 I was smoking in the second class compartment when I felt a shock as if a sudden application of the brakes. I jumped off the seat making for the door, when a second shock told me that a derailment or other accident had occurred. I got out of the carriage, on the left side and ran towards the engine to see the extent of the damage. I saw the engine and vehicles overturned on the right side of the line, the engine was enveloped in steam, the passengers were

getting out of the overturned carriages and groans were issuing from those underneath. Having no boots on, I returned to the second class compartment to get them. When I heard Mr. Lasbury on the right side of the bogie first, second and third class shouting about a dreadful accident, I put on my boots and again went towards the engine to see for the driver, but could not find him. I then came along the overturned carriages doing my best to ascertain whether any were underneath, if so, to help and take them out. I had three gang coolies with me. When the groans had subsided owing to the injured passengers being taken out or rendered insensible, I went along closely inspecting underneath to see if any others were there. The fire then had broken out in the 3rd bogie third class from the engine which had run up over No. 2 bogie third class. I saw one Burmese man with a splinter of wood through his chest; he appeared to be dead. The bogie third class collapsed and the man fell into the flames. I again went to the brakevan and saw the driver Sunderam, who was very badly scalded; he remarked in my presence that there was no man with hand signal lamp. I then asked the guard whether he had seen his brakeman and he said no; he further remarked that he had three ponies in a horse box next the engine. We both went together, got two of the horses out with the help of the two syces. One pony was left in although not dead; it appeared to be very badly injured. The guard went away to protect his train, and I went to look for the brakeman. I got as near as possible to the brake compartment in the first bogie third class and through the framework saw the upper portion of Sheik Hazarat, brakeman, flames were coming in from both sides, and he was underneath the framework on the right side. No one could offer him assistance; he was quite sensible. I then came back to consult Mr. Lasbury about getting assistance, when he informed me that he would go by trolley to Zeyawadi. I told him that as all the wires were snapped, it was useless going that side, so I would go on to Nyaungchidauk on foot. The flames were now up about twenty feet high and everything except the sixth bogie third class was enveloped. The bogie first, second and third class and the brakevan had been cut off and pushed away by the gang coolies. In passing the fourth bogie third class again I saw the head and shoulders of a Madrassi woman right underneath, and I could not get at her, but she appeared quite dead. I then went on in the direction of Nyaungchidauk to obtain assistance, taking the second fireman with me. I arrived at Nyaungchidauk at 5-50. About one hour and ten minutes after the accident occurred I sent a concerned wire, and hearing that 178 down van goods was at Kywebwè, I ordered the train to be sent along without shunting to Nyaungchidauk. The train arrived and I took some spare vehicles from the yard with her engine to the scene of accident, the injured were placed in the vehicles after such treatment as those present could prescribe and were brought back to Nyaungchidauk where they were taken over by the Civil Surgeon who arrived by the accident special at about 9-15. When I returned to my carriage to put my boots on I saw guard Kelly coming out of his brake in a very dazed condition; it was then I asked him where the driver was.

I saw no light burning at the diversion. I did not look for a light. When I first saw guard Kelly at the brakevan it was from 3 to 5 minutes after the accident occurred, he did his best after that.

I saw only three bodies in the fire. I cannot say that there were not more, but I do not think so. The villagers when I asked them to come and help would not do so, they seemed to be scared. The gang coolies helped me.

The train was travelling at about 25 miles an hour at the time of the accident. Before leaving for Nyaungchidauk, guard Kelly told me the accident occurred at about a quarter to five. I then asked for the exact time and he said 4-55.

Many of the passengers got out of the train unhurt and walked on to Nyaungchidauk.

I saw some roof lamps burning in the wrecked carriages. In my opinion the fire originated from broken roof lamps.

Ram, ganger of gang No. II, at mile 140-18.—Mr. Scriven filled up the lamp with his own hands about 3 o'clock in the afternoon of the 23rd and instructed the man who was to be in charge of the lamp, whose name he does not know, to light the lamp at dark and place it in the points indicator. At dusk the lampman lit the lamp and placed it in the bracket showing green towards Zeyawadi.

I saw the lamp burning when 4 down and 3 up passed. 4 down passed first. The lamp had a burner as shown me and also a cowl. I saw the lampman light it with a cowl on, and it burnt properly. I went to bed at 8 o'clock and got up twice when 4 down and 3 up passed. I then went to bed again and woke on hearing the noise made after the accident occurred. When 4 down passed I went out, saw the lamp burning, and the lampman was sitting near the lamp. I told the man to take care of the light; he said he would. My ordinary equipment has two hand signal lamps. The permanent-way inspector gave me two spare point indicator lamps for the diversions. The lampman does not belong to my gang; he was brought by Mr. Scriven, shown how to handle the lamp, and given orders to rest in the day to be ready for night duty. The lampman slept in the gate hut in the day. My gang consists of ten men including myself. One of my men sleeps in the gate house with the gate man.

When I got out of my hut after the accident I got orders from the guard and another *Sakib* to help in hand shunting carriages. I then took *Sakib* by material trolley to Zeyawadi.

When Mr. Scriven filled up the lamp the first day it did not leak, but the day after the accident after Mr. Scriven again tried the lamp with oil it leaked; he then sent the burner by a man to Zeyawadi for repairing and gave him six annas. The lamp was returned at 6 o'clock in the afternoon without being repaired as the tinker could not be found. I then gave a hand signal lamp to one of my gangmen to show at night and also a small country lamp for his own use.

When I came out from my hut after the accident I did not think of looking for the lamp in the bracket, as I was called away by the guard to help in hand shunting.

The man in charge of the lamp the night of the accident has absconded; his name is *Bhemo*.

Suma, gangman.—The night of the accident I slept in a hut a mile away from the scene of accident. On my way to work in the morning I met the trolley that was going to Zeyawadi and joined it. I came back with it to the scene of accident; worked there at repairing the line till 2 o'clock; was sent to Zeyawadi to get the lamp repaired. I came back at 6 with the lamp unrepaired. I was given by my *mistri* a hand signal lamp to show at night. Another man was told off to help me at night.

The night we were on duty we showed a hand signal lamp, the small country lamp was not used for signalling purposes.

H. A. Starling, engine driver, Burma Railways.—I have had 15 years' experience of the working of the vacuum brake. I have worked trains of 17 to 18 units with the vacuum.

With such a train travelling at 30 miles an hour with the brake blocks in good order and the rails not greasy I could reduce the speed to 5 miles an hour in about 120 feet, in ordinary circumstances in 150 feet, and I could stop the

train in 150 feet. There would be no danger of derailment in the straight line nor on going round a sharp curve. If I had a caution at Zeyawadi to pass mile 140-19 at 5 miles an hour I would shut off steam at about 300 yards from 140-19. But I would approach from the station at 15 miles for an hour.

E. S. Wilks, engine driver.—I have had much experience of the work of the vacuum brake on this railway.

I have been working trains with 17 units every 11 days or so. With a train of 17 units and brake blocks in good order I could reduce the speed from 30 to 5 miles an hour in about 100 feet. As the trains are now I could reduce the speed from 30 to 5 miles an hour in about 130 feet, and I could come to a stop in 130 feet from the 30 miles speed.

I consider it would be safe to stop the train within that distance along the straight so long as the wheels don't skid. But round a sharp curve I am of opinion there would be danger. If I had a caution at Zeyawadi to pass mile 140-19 at 5 miles an hour, I would steam up from Zeyawadi for about a mile then look out for signals and reduce speed down to the restriction. If I had received no caution and found myself entering the curve like the one at mile 140-19, I would apply the emergency brake. From the full speed the train might derail but would not telescope. I would treat the diversion as a bad buckle. In my opinion the driver of 239 up on the 24th March 1909 had no time to put up the brake and this accounts for the telescoping.

J. S. Noble, loco. foreman, Toungoo.—Driver *Sunderam* is one of my drivers; he was on leave on medical certificate for a month prior to the accident.

On return from leave he produced a medical certificate of fitness and was sent to refresh his memory of the road on resuming duty. The trip of 239 up from Rangoon on the 23rd was his first up trip in charge of a train. *Sunderam* has been stationed at Toungoo running all sorts of trains between Rangoon and Yamethin. As a driver for about ten years, I have no reason to believe *Sunderam* was unfit for duty. He is a very good engineman. He is one of the best native drivers I have, to the best of my knowledge he has never been in trouble for running over speed or against signals. He does not smoke or drink. He reads English very well. I assisted Fireman *Hoesain*; he was in a dying condition in a wagon at Nyaungchidauk. He was just conscious when I saw him; he recognised me. I asked him how this accident occurred; he said there was no lamp, and afterwards he expired.

Sunderam had been suffering from plague while on leave; his medical certificate shows it. *Sunderam* had been in charge of 240 down from Toungoo to Rangoon leaving Toungoo on 22nd March.

Doctor F. H. Sheldon, district medical officer, Burma Railways, Toungoo.—Driver *Sunderam* was reported as being ill on the 4th of February 1909. He was visited by the Railway hospital assistant in his house in the bazar and was found to be suffering from plague. He was placed in quarantine and was not seen again until the 5th of March, on which date he reported to the dispensary and asked to be allowed to resume duty. I examined him and as his bubo was still discharging slightly and he had still to be regarded as infectious, his medical certificate was therefore extended and being endorsed "until released from quarantine." He reported again on the 18th of March with bubo soundly healed and was allowed to resume duty by me after personal examination. The quarantine referred to above was imposed by me in the interests of the railway staff and travelling public. This case of plague was a record one. I considered

Sunderam was quite fit for the duties of driver on the 18th of March. My reason for not allowing Sunderam to return to duty on the 5th March was not that he was physically inefficient, but he was still infectious on account of a small ulcer, the size of a 4-anna bit, on the left groin. In my opinion he was mentally and physically fit for duty on the 18th March. I would point out that driver Sunderam had a convalescence of one month after the acute stage of his attack. I consider it wholly unlikely that his attack of plague, having been recovered from, could affect his subsequent working when on duty.

He was treated professionally from first to last, not at the railway dispensary nor by any railway medical officer. I believe he was treated by natives not practising Western medicine.

A. E. Burke, traffic inspector, Pyuntaza.—On the 23rd March 1909 I travelled by 239 up in inspection second 2497, the last vehicle on the train. After passing the cutting approaching Kyauktan there was a sudden application of the vacuum brake that brought the train to a stop in about 200 yards. Looking out on the right hand side I found the outer signal at danger, the front of the rear brakevan being about abreast of the outer signal. On looking out on the left hand side I saw the home signal at danger, which practically at the same time was changed to green. I returned to the right hand side. As I did so the outer signal was lowered, the train then whistled, and started. In passing through Tawa it travelled about ten miles an hour when there was a caution of 5 miles through the station yard. From Pegu to Pyuntaza the train cautions, of which I am aware. Pegu to Shwehli two cautions Pyagyi to Pyinbongyi one caution, were observed. The train went in slow 3 to 4 miles an hour. I reported this running against signals to the district traffic superintendent by letter as I did not consider it as an accident as the train did not foul the station section. From the fact that the vacuum was applied long before the outer was reached, the outer must have been at danger when the driver passed it. I did not notice any excessive speed on the journey, except that which has been recorded. The outer and home at Kyauktan were both burning brightly. My statement is corroborated by the porter, but not by the station master on duty at Kyauktan. Under instruction from traffic manager I am now reporting this running against signals as an accident. I saw nothing of the guard on looking out at Kyauktan.

Bindasari, Porter, Kyauktan station.—On the night of the 23rd at about 11 o'clock I heard an engine whistle. I asked the station master for orders. He told me the train had left Tongyi and to lower the signal; the engine was then standing outside the south outer. I lowered both signals and the train proceeded on its journey, the driver picking up line clear at the platform from the station master. The train is the new night passenger train. I saw the traffic inspector's carriage behind the brake of the train. I have since seen the traffic inspector at Toungoo, who asked me whether the train entered within the outer signal before I lowered it. I told him it did not do so.

Confronted with the traffic inspector, the porter still adheres to his statement that the engine stopped outside the outer. The porter saw the engine light on his right and the signal light on his left as he was looking. On being further confronted with the traffic inspector the porter says the engine stopped 203 cubits inside the outer.

Maung Po Mon, sergeant, Railway Police.—I got into the train at Pyuntaza at 1 o'clock on the morning of the 24th to return to Toungoo. The train was wrecked at 140.9 between Zeyawadi and Nyaungchidauk. I was travelling in the bogie third class next the bogie first, second and third class. There were people in the front

part of this carriage; they were slightly hurt. There were about 15 people in that carriage; they all got out and went away. I did not see any light at the entrance to the diversion. I asked the Pegu station master what was up; he told me I'll go and have a look, and he went to the south and said there was no light. This was about 3 minutes after the accident. I went to the station master almost immediately after the accident. I did not go to enquire about the light. The train was travelling fast from Zeyawadi; it was travelling at the same pace to the scene of the accident. It was dark; I could not see whether there were any people inside the overturned carriages. At first there was much screaming; it soon subsided. The fire started from the middle of the train where the carriages were piled up. I think the roof lamps were broken, but saw no lamps burning. I could not see any of the lamps inside the carriages. I looked into the train at Pyuntaza. A lot of people got off at Nyaunglebin. At Pyu there were about 10 people in the bogie third class next the horse box, 4 in the second bogie third class, 8 in the third, 15 in the fourth, 15 in the fifth, and 7 or 8 in the sixth bogie third class. I made a list of 26 people that got out of the train (about an hour after the accident) including both injured and non-injured. Some of the people hired carts from Pyaunghè. I think about 20 people ran away before I took account. I think about 5 people were burnt. I saw 3 people burnt. I hear that a trader from Pegu is missing, and an old woman, native of India, says the elder sister of the Kanyutkwín station master is missing.

Moonusawmy, driver.—I was driver of 183 up goods train on the night of 23rd from Pyuntaza to Toungoo. I passed over the diversion at mile 140.19. I received a caution ticket from Zeyawadi station to proceed at 5 miles an hour over the diversion. It was dark when I got to the diversion at 2.40 A.M. When I arrived about one telegraph post away from the diversion I saw a very dim green light. I was then going at 18 miles an hour. I saw no one near the light, although I looked to see. My load was 45 empties, and with the engine brake I managed to reduce speed to 5 miles an hour at the light. I did not report the dim light.

Herbert French, driver.—I was the driver of 3 up mail on the night of 23rd instant from Rangoon. I picked up a caution line clear at Zeyawadi, ordering me to observe a restriction of 5 miles an hour over diversion at mile 140.19. I arrived at the diversion about 1.40 A.M. on 24th. I found a green light burning which I could see half a mile away. I reduced speed and passed over the diversion at 5 miles an hour. I saw a man standing at the signal lamp at the entrance to the diversion. I have no fault to find with the light.

C. M. Prout, assistant foreman, Toungoo.—I acknowledge my signature in service message delivery sheet of Toungoo station against message 13 from Zeyawadi on 22nd March.

I obtained the signature of all out-going drivers in acknowledgment of this telegram.

I did not obtain the signature of driver Sunderam. I went off duty at 18 hours on the 22nd.

I did not make over this telegram to Mr. Conway when going off duty.

I left the telegram in the file as usual. There is a special file for the purpose, which it is the duty of assistant loco. foreman to consult.

T. Conway, assistant foreman, Toungoo.—I know of a file which is kept in the loco. foreman's office for custody of telegrams on which assistant loco. foremen have to obtain drivers' acknowledgments. A copy of Zeyawadi telegram 13 of 22nd March 1909 was not on the file on the

night of the 22nd. I first saw it on the file on the night of the 23rd. If it had been on the file on the night of the 22nd, I would have obtained driver Sunderam's signature. I made no enquiry on finding the telegram had reached the file a day late. I proceeded to take drivers' signatures on it on the 23rd.

Maung Po Sein, sub-inspector, Railway Police, Toungoo.—On the 24th after I arrived at the scene of accident, having been informed by Mr. Noble, loco. foreman, that gangman Suma had absconded. I instructed the *thuyyi* of the adjacent village and my policeman to search for him. I have received no report yet of his having been found. If he had been found I would have received a report.

Mr. L. P. Johnson, loco. superintendent, Burma Railways.—We use nothing but petroleum oil with a flash point of 250°F. in the burners of our roof lamps. I believe this to be the safest petroleum oil that could be used for the purpose. In this case the lamps would be lighted for 239 up at or before 20-30 hours at Rangoon in accordance with the departmental orders in force, and the reservoirs would be getting empty at 4-55 A.M.

Sunderam, engine driver, Burma Railways.—I received the line clear at Zeyawadi, with endorsement to observe caution of 5 miles an hour at diversion at mile 140-19. I ran on through the station of Zeyawadi after reading the line clear. I put the line clear in my pocket, put on the regulator, and went at 25 miles an hour. I ran for 1½ mile with the regulator open, and then shut off, the train rolled along without steam; it is a little down hill there. I saw no signals, I therefore looked at my line clear again, thinking they had made a mistake. I looked at it by the light of the gauge glass lamp. I asked the fireman whether he saw any light, and at that time the engine went over, the fireman fell on my thigh and I, before I got up the engine, tumbled over, the gauge glass burst and I and the fireman got burnt. I had one hand on the vacuum brake at the time I was reading the line clear by the gauge lamp. I applied the brake, but my hand fell off from the handle when I fell down.

When I got up I found the guard, Mr. Kelly, Mr. Lasbury, and Mr. Johnstone, and asked them all to witness there was no light and no man present at the bracket. I did not see what kind of lamp was in the bracket, nor did I lift it out as my body was all burning.

I asked Mrs. Lasbury for some cocoanut-oil to assuage my pain, and give me some water which she obtained for me after 6 o'clock.

It was the curve that the fireman was thrown on my leg.

I entered the diversion at 10, 12, or 13 miles an hour.

The engine did not appear to me to run along the sleepers after the derailment, but turned over immediately. I do not think the line was packed properly. The engine very slowly capsized and took a long time to go over.

I saw the fire start from the horse box roof lamp.

This statement was taken in hospital with the permission of the medical authorities. Sunderam did not wish it read over, neither was he able to sign on account of injured hands. The statement was made by him in English and in the presence of the three officers of the committee and of the Government Inspector of Railways.

G. T. Scott, district traffic superintendent, Toungoo.—I travelled by 240 down on the night of the 23rd and passed mile 140-19 at 0-5 early in the morning of the 24th. I saw a bright green light burning in the indicator at this mileage. I also saw the standard lamp case in the bracket of the indicator.

Mr. Scott's signature could not be obtained.

Note by the committee.—The committee requested Government Inspector of Railways' opinion on the applicability of Agent's circular No. 4 of 1907, to the diversion at mile 140-19 to 141-8, and his reply was that—

Paragraph 1 of correction slip No. 1, dated 17th February 1908, down to the word "adopted" in line 8, paragraph 3, down to the word "certificate" in the 3rd line, paragraphs 4, 5, and 7 down to the word "accordingly," also paragraph 9, apply. The second portion of paragraph 8 being apparently contingent in the first portion of the same paragraph, he is unable to express any opinion as to whether this second portion would apply to this particular case.

Note by the president.—The burner said to have been in use on the night of the accident was produced by Mr. Scriven, permanent-way inspector, before the committee and identified by him as the one issued by him for use in the indicator bracket, the condition of the burner as seen by the committee was unsatisfactory, it leaked badly, when lit before us by Mr. Scriven it smoked badly, the cause of this being that the wick-holder was not to standard to suit the coal employed.

Report handed in by Doctor Sheldon, district medical officer, Toungoo, at the enquiry into the accident at mile 140-19 on 24th March 1909.

DERAILMENT AT MILE 140-18 ON 24TH MARCH 1909.

I received the first intimation of this at 10 A.M. on 24th March 1909 at Yamethin, and after wiring instructions to hospital assistants at Toungoo and Pyuntaza to proceed with necessary stores, etc., returned to Toungoo by 94 down.

On arrival at Toungoo, I found that Captain Beit, I.M.S., civil surgeon, Toungoo, and hospital assistant Banerjee had returned from the derailment with the injured and such of the dead as could be extricated from the wreckage.

I went to the civil hospital to render such assistance as I could, and later visited, with the civil medical officer, a Mr. Grant of Toungoo, who was reported as having been injured. A detailed examination of this gentleman's injuries was made by me next day and a report submitted to the civil medical officer. I am at present attending Mr. Grant professionally on behalf of the Railway Company.

I have made two visits to mile 140-18 and have directed the work of searching for human remains, and can state definitely producing evidence, that five persons perished there. Investigations are still proceeding, but I do not anticipate the discovery of any other casualties.

The complete casualty list at the time of writing is as follows:—

I.—(i) Dead, unrecovered, at mile 140-18	5
(ii) Dead, brought to Toungoo	... 2
(iii) Died, in hospital, Toungoo	... 1
II.—In-patients, Toungoo hospital	... 8
III.—Out-patients, being attended at their homes	... 1
Out-patients attending hospital	... 3
IV.—Other slight injuries	... 8
	TOTAL 23

Of the cases sufficiently severe to be treated as in-patients, three are acutely ill but may recover.

A certain amount of used metal, apparently gold and silver, was recovered from amongst the group of bones which are probably the remains of the woman known to have been cremated at the scene of the accident.

The metal in question was forwarded this morning to the Agent for disposal.

FINDING.

We the undersigned having carefully considered all the evidence in this case, do find as follows:—

The driver left Zeyawadi station for Nyaungchidauk having a line clear and caution ticket with the restriction in force entered thereon.

2. The accident at mile 140-19 was caused by excessive speed on entering the diversion contrary to the orders on the line clear and caution ticket received by the driver.

3. The contributory causes were—

(a) Absence of a light to indicate the entrance to the diversion, which light had been arranged for by the engineering staff as is usual on this railway;

(b) that the burner of the lamp was not in good condition;

(c) that Agent's circular No. 4 of 1907 was not complied with in its entirety.

We hold that—

(a) Driver Sunderam is responsible for non-observance of the orders to reduce speed to 5 miles an hour given him by the station master, Zeyawadi. He thereby contravened General Rules 301 (b) and 312 (2).

(b) The absence of the light was due to the neglect of gangman Bhemo appointed for the purpose of seeing that the light provided was burning brightly during the night. He thereby contravened General Rules 229, 231 and 237.

(c) The imperfect condition of the lamp was due to the permanent-way inspector Mr. G. M. Scriven not having arranged for one of suitable and sound condition in contravention of General Rule 234.

(d) Agent's circular No. 4 of 1907 applies in full to the opening of this diversion so far as the Railway Department are concerned. It is left to the Government Inspector of Railways to reject any provision considered unnecessary by him. The district engineer, Mr. Kenny, did not comply in full with the provision of this circular, for which he is responsible. The assistant engineer, Mr. Pocklington, inspected the work and issued the safety certificate, for which he is responsible.

5. We recommend that—

Driver Sunderam and gangman Bhemo be prosecuted under Section 101(c) of the Railways Act, and that the other railway employees be dealt with departmentally.

6. We are unable to express an opinion as to the condition of the permanent-way at mile 140-19-20 prior to the accident owing to damage caused by the wreckage and fire.

7. We further consider that—

(i) Mr. Kenny, the district engineer, might reasonably expect that if in the Government Inspector's opinion any signalling was necessary, he would have called for it before sanctioning the opening of the diversion. We do not agree with the opinion of the Government Inspector that certain portions of Agent's circular No. 4 of 1907 do not apply to the opening of the diversion.

(ii) A superelevation on the curve of 500 feet radius at the entrance to the diversion suitable to a speed of 16 miles an hour would have conduced to safety in the event of the driver exceeding the restriction ordered and could have had no undesirable effect at the speed of 5 miles an hour.

(iii) The telescoping of the vehicles proves that the driver had not got the vacuum brake on at the moment of derailment, nor did he apply it in time before the engine toppled over.

(iv) The fire originated in the roof lamps breaking.

(v) The railway servants present at the accident did all that was possible to save life and assist the injured.

(vi) The evidence of police sergeant Maung Po Maung is of great value in indicating the approximate number of passengers in the train at the time of the accident.

A. DESPEISSIS, *President.*
L. P. JOHNSON,* } *Members.*
N. M. CARNELL,* }

The 30th March 1909.

* Subject to my rider attached.

Rider by Mr. L. P. Johnson, Locomotive Superintendent.

I concur generally in the above finding as to the causes of the accident, with the exception that in my opinion the primary cause was the absence of an indicating light for which the gangman was responsible; and that the principal contributory cause was the excessive speed for which the driver was responsible. I agree that the driver should be prosecuted (if he recovers), because even without an indicating light he should have been driving more cautiously than he was in the vicinity of the restriction he had been ordered to obey. I hold, however, that he had a right to expect the exhibition of a light to indicate to him the locality of the diversion at night. I cannot bring myself to believe that the authorities, who had the full safety of the public in view so far as human foresight could ensure it when framing the General Rules, contemplated that a restriction to 5 miles an hour should be imposed on a driver by a "caution order" without any indication by suitable signals by day, and by night especially, of the locality concerned. I hold it to be a physical impossibility on a dark night for an ordinary driver to locate his position with accuracy such an order demanded for the safety of the public without a signal. My own reading of the intention of the General Rules is, that either Rules 337 and 340 apply to such cases as this, or that where there has been time to make proper provision of fixed signals, then the note to Rule 218 applies. I therefore consider that the General Rules leave it open to doubt whether signals are required in such a case as the present. The words in General Rule 3 "controlling the movements of trains in all cases" may conceivably be held to cover local restrictions of speed between stations, but I do not think they do.

2. I consider a further extenuating circumstance in the case of the driver is that he received no advice of the opening of the diversion prior to his leaving either Toungoo on his down journey of the 22nd or Rangoon on the 23rd with 239 up as is customary in the circumstances under my department regulations. The blame for this omission rests with my department (*vide* evidence of the two assistant foremen at Toungoo).

3. I also desire to record, as an extenuating circumstance in the case of the driver, my separate opinion (since the other members of the Committee do not agree with me) that the handwriting of the restriction on the line clear and the caution ticket is not as clear as it ought to be to ensure that it shall be readily and correctly read by an ordinary driver at night. When it had been handed to the President Mr. Despeissis I called the committee's attention to his apparent difficulty in reading it. Mr. Despeissis afterwards explained that his difficulty was confined to the first word "Reduce."

Rider by Mr. N. M. Carnell, Officiating Traffic Manager.

In regard to paragraph 3 (a) above the General Rules do not direct that any "light" or "signal" is to be provided at such a place as the diversion at mile 140-18 to mile 141-8. It is consequently doubtful if the absence of such a "light" or "signal" through any reason can be held to be a contributory cause to an accident when such has taken place.

I doubt if the absence in the General Rules of orders that such a "light" or "signal" must be provided can be held to mean that it is permissible for the engineering officers concerned to arrange for such a "light" or "signal," and if such a "light" or "signal" has been arranged for, that its absence (the General Rules not providing that such "light" or "signal" is to be arranged for) is a reason for holding that the culpability of a driver who has been running at excess speed resulting in an accident is thereby reduced.

2. General Rule No. 218 prescribes that a line clear and caution ticket must be issued by station masters advising drivers that a restriction of speed is in force when they are advised to this effect by a responsible engineering employee.

The note to General Rule 218 clearly contemplates the provision of "fixed signals" in the case of long continued repairs, but no direct orders to this effect appear in the General Rules. General Rule 218 also arranges for, when "fixed signals" have been provided and been notified by the traffic department, the discontinuance of the issue of the line clear and caution ticket.

The "intention" under the reading of the General Rules would be that a driver's responsibility is fixed under a "line clear and caution ticket" only when "fixed signals" are not provided, but when "fixed signals" are arranged for and notified, his responsibility is to obey such "fixed signals" and restrict speed as directed in the notification by the traffic department, the issue of the line clear and caution ticket ceasing on such fixed signals coming into use.

Remarks by the Agent, Burma Railways.

This accident was due to the opening of a new temporary diversion which needed very cautious driving. The position of the diversion was indicated by a light at either end; and the need for very cautious driving was indicated on the "line clear and caution ticket" given to the driver of the train. One light went out.

There was no one looking after it. The train was not travelling cautiously. And disaster ensued.

2. The General Rules framed under Section 47 of the Indian Railways Act, IX of 1890, do not take specific cognizance of new temporary diversions. They could do so under Section 47 (1) (g) which states that "every Railway Company shall make General Rules consistent with this Act for the following purposes, *i.e.*, generally for regulating the travelling upon and the use, working and management of a railway." But as a fact, the General Rules are silent on the subject of new temporary diversions. In view of this accident I think it would be better if the General Rules were amended.

3. New temporary diversions are governed by the "Rules for the opening of a railway" framed under Section 17—22 of the Indian Railways Act, IX of 1890. These rules also have force of law. Chapter VI of these rules lays down the procedure to be followed in opening a new diversion. Such a work cannot be opened until the Government Inspector has satisfied himself either with or without previous personal inspection that "in his opinion the work can be opened for the public carriage of passengers without danger to the public using it," and has given permission in writing to the opening of such diversion. If the Inspector has not personally inspected the work, he sanctions its opening on a safety certificate given by the engineer in charge of the work.

4. The whole principle underlying Chapter VI of the Rules for the opening of a railway is that engineers in charge of new minor works, deviation lines, temporary diversions, etc., are competent men capable of judging whether a work is safe or not. This principle is expressly recognized in Section 21 of the Indian Railways Act, which allows a railway servant, in case of accident, to open new works on his own safety certificate in the absence of the Government Inspector. Similarly under Chapter VI of the "Rules for the opening of a railway" it is customary on Indian Railways for the Government Inspector to accept the safety certificate of the engineer in charge, for all ordinary simple works like this diversion. There are standard printed forms in which the railway servant in charge of the work certifies in writing to the Government Inspector that in his opinion the work can be opened for the public carriage of passengers without danger to the public using it. I do not advocate a change of the law in this respect. Because if the law compelled a Government Inspector personally to inspect every new diversion, and every minor new work, etc., prior to opening, the working of railways would be seriously hindered, as such works are numerous and widely scattered.

5. In this instance the usual procedure was followed. The district engineer wrote to the Government Inspector saying:—

"I have the honour to forward herewith, for favour of your inspection, approval and return, plan and section of the proposed diversion at mile 140-19 and 141-8 in order to carry out the work in connection with the raising of the existing embankment and bridging. A speed restriction of 5 miles an hour will be imposed."

The Government Inspector replied:—

"I have the honour to return duly approved the plan and section of the above. The work may be opened on your safety certificate."

I note that the system of signalling to be used was not specified on either side.

6. When the diversion was ready, the safety certificate was written by the engineer in charge. The station masters on either side of the diversion were duly informed that a restriction of 5 miles an hour must be entered on the "line clear and caution ticket" at the mileages indicated. And the diversion was opened with a light at either end to indicate to a driver where the diversion was. And so used have the staff grown to this procedure that, had the light not gone out there is a practical certainty that the accident would not have occurred. Several trains had passed over previously that very night in perfect safety, while the light was burning. Thus the provisions laid down by law were fulfilled. But disaster ensued because the ganger whose duty it was to stand by the light and to see that it did not go out, disobeyed his orders and went to bed.

7. When giving evidence the district engineer and the assistant engineer had been spending sleepless nights, and their evidence is incoherent. The fact remains that they had provided lights to indicate the position of the diversion, and that if one of these lights had not gone out, the disaster, in all probability, would not have occurred.

8. Personally I consider that one light at either end of the diversion itself is not an adequate safeguard. I consider that the principal or the emergency signals prescribed in Rule 340 of the General Rules is a much safer guide to follow, and that one "green over red" caution light should be shown at an adequate distance short of a new diversion requiring very cautious driving; that another "green over red" caution light should be provided at the diversion itself; and that a green "proceed" light should be shown when a train has traversed such diversion. This is my personal opinion, and I am bringing it into force on the Burma Railways. But this procedure

is not prescribed by law. And the fact remains that several diversions have been opened in past years on the Burma Railways exactly as the present diversion was, i.e., with only one light at either end of a diversion, and without any accident.

9. Long immunity from accident seems to have lulled the engineering staff concerned into a false sense of security; it seems obvious from their evidence, incoherent though it be, that they had not realized, to its full extent, their responsibility to the public. Their action falls short of the zeal and keenness that should have been displayed. Zeal filters downwards from officers to subordinates. I hold that if proper zeal had been shown on this occasion an accident would not have been caused, as both lights exhibited at the diversion would then have been in such good order that, in all probability, neither would have gone out; and that even if one had gone out, the ganger in charge would have remained at his post instead of going to bed. Had the district engineer truly realized his responsibility he would not have left this matter to the assistant engineer. Had the assistant engineer truly realized his responsibility he would not have left matters to the permanent-way inspector, and he would not have left the diversion at 4.30 p.m. He would have waited till nightfall to see that the lamps were burning brightly in thoroughly good condition; and that reliable gangers were looking after them. Similarly the permanent-way inspector would not have left the work at 5 p.m., and he would not have depended on gang cooly Suma and ganger Bhemo. He would have waited till nightfall and would have made matters as secure as possible before going. Probably the ganger would then have remained at his post at night. In leaving his post the ganger committed a criminal act, which led to the accident. I base my remarks on the fact that this was the *first* night on which the diversion had been opened. It would be absurd to expect officers, night after night, personally to superintend the lights. But on *first* opening, before drivers have grown used to a diversion too great care cannot be taken.

Further, the district engineer did not carry out in full the orders given in Agent's circular No. 4 of 1907. Had he done so a copy of the rules for working this diversion would have come before me *prior* to opening. I would then have had a chance of changing the rules if I wanted to. But I got no chance. I travelled over the diversion a few hours before the accident while the lights were burning, without knowing that the diversion existed.

10. I am new to this railway myself, but I observe that Agent's circular No. 4 of 1907, dealing with the opening of new works, places no responsibility on the head of the engineering department, i.e., the superintendent, way and works. The entire responsibility is thrown on the district engineer. This circular has not, of course, the force of law, but it is binding on the Railway Company's staff.

11. Without doubt the public have a right to expect and demand that such a state of affairs, as is disclosed in the evidence, must cease, and I am taking strong measures to attain this end.

12. I have issued the following Subsidiary Rules to General Rule 337:—

- (a) When on completion of any work mentioned in General Rule 337 above the necessity *continues* for a train to proceed cautiously, a ganger must remain at the spot as long as the necessity for cautious driving continues, and shall be responsible throughout that the caution signals prescribed in Rule 340 are shown.
- (b) If such temporary necessity for a train to proceed cautiously outside station limits is likely to continue for three days or more—
 - either* (i) with the least possible delay the Railway Administration must provide fixed signals, under approved special instructions, at an adequate distance to secure the safe working of trains;
 - or (ii) with the least possible delay special arrangements must be made by the Railway Administration, under approved special instructions, to secure the safe working of trains.

NOTE.—The special arrangements which it is proposed to make must be reported in writing and in full detail to the Government Inspector.

When *either* the fixed signals prescribed in sub-paragraph (i) above, have been brought into use, or when the special arrangements prescribed in sub-paragraph (ii) above have been brought into use, the ganger may leave the spot and the exhibition of the hand signals prescribed in Rule 340 shall cease.

- (c) When the need can be foreseen well before hand, for putting in any new work, such, e.g., as a temporary diversion, which will make it necessary for a train to proceed cautiously outside station limits, the procedure shall be as follows.

Such new work shall not be undertaken, nor shall such new diversion be opened to passenger traffic until—

- either* (i) The Railway Administration has provided fixed signals, under approved special instructions, at an adequate distance to secure the safe working of trains;

or (ii) The Railway Administration has made special arrangements, under approved special instruction, to secure the safe working of trains.

NOTE.—The special arrangements which it is proposed to make must be reported in writing and in full detail to the Government Inspector.

13. Agent's circular No. 4 of 1907 is being re-written. This will take some time. Meanwhile telegraphic instructions have been sent to the engineering department that in opening new works the necessary documents must be submitted to the Government Inspector by the superintendent, way and works, and not by district engineers. A copy of the telegram has been sent to the Government Inspector. The new Agent's circular will make provision for the exhibition of lights mentioned in paragraph 8 above, and for two railway servants to look after them at either end of the diversion.

14. These revisions in the rules and in the system of working should provide far greater safety than has obtained hitherto in the opening of diversions.

15. The action that it is intended to take in regard to the staff responsible for the accident is as follows:—

- (a) *The district engineer and the assistant engineer* will be severely censured for failing to realize their responsibility to its full extent. As a mark of censure they will be removed from their present charges and will be transferred to less important ones.
- (b) On the evidence the *permanent-way inspector* is less blameworthy than his superior officers; he will be punished for slackness.
- (c) *The assistant foreman at Toungoo* will be punished for slackness.
- (d) I have ordered the prosecution of *ganger Bhemo* for his flagrant violation of orders.

Driver Sunderam.—This unfortunate driver has been dangerously hurt. Without doubt he was in fault in driving at 25 miles an hour when there was a speed restriction on his "line clear and caution ticket" for a site *only two miles* distant from the station where he received the ticket. He ought not to have driven off at speed till he was quite satisfied in his own mind what he had to do. Even though the writing on it might not have been easily legible at a glance, yet the "line clear and caution ticket" was clearly proclaimed as such by the *red lines* printed on the piece of paper. Thus immediately he received this piece of paper and before he had even read it, the driver knew that it meant *caution*. This is the deliberate object of printing the red lines on "caution" tickets. Ordinary line clear tickets are printed on *plain* paper. Yet knowing full well that he must exercise caution, the driver went off at 25 miles an hour. I quite agree with the locomotive superintendent that there are many extenuating circumstances for the driver and that it is impossible for a driver accurately to locate himself on a dark night merely by means of telegraph posts in the absence of light. I consider, therefore, that the driver, in this instance, was in a very tight place. Had he only been driving at cautious speed he would have been free of blame for any accident. Probably no accident would then have occurred. But he did not drive cautiously. Therefore, in the interests of the public safety and of discipline, I am obliged to order his prosecution. But if he is convicted I trust, in view of all the circumstances, that his sentence may be a light one.

J. WILLCOCKS, M. INST. C.E.,
Agent, Burma Railways.

RANGOON;

The 6th April 1909.

CONCLUSION.

The Agent has dealt with this case very fully, and I concur with his views.

J. H. HEAP,
Junior Government Inspector of Railways,
Circle No. 1.

MAYMYO;

The 10th April 1909.

Remarks by the Senior Government Inspector of Railways.

1. I agree generally with the able and full remarks of the Agent, except in so far as follows:—

2. The Agent has not touched on one matter which it seems to me was probably one of the main causes of the accident, *viz.*, the omission of superelevation on the 500 feet curve.

The road on the diversion was new and no doubt somewhat uneven but with the proper amount of superelevation provided there is no apparent reason why a train travelling at 25 miles an hour should have left the rails.

I consider that it was a grave error to omit the proper amount of superelevation calculated for the maximum speed sanctioned for the section. Such superelevation would not in any way have affected a train observing the 5 miles an hour restriction while the frequency with which restrictions of speed are ignored on all railways is well-known.

3. I attribute the accident therefore to—

- (1) No signal visible.
- (2) No restriction of speed observed.
- (3) No superelevation provided.

4. With regard to the signals provided at the diversion there is no General Rule which definitely prescribes these, and the caution speed-board and lamp erected at each end of the diversion by the staff in this case is in keeping with the practice on other railways, except that they should have been, as in my experience they invariably are, placed at an adequate distance short of the commencement of the diversion. If hand signals had been shewn this would have been incumbent, *vide* Rule 340 (1) and (2), which rule, however, does not unfortunately definitely apply to fixed signals.

The note to Rule 213 also indicates that such signals should be placed "at an adequate distance, etc."

The speed-boards and lamps were thus not placed in accordance with the spirit of the rules.

The accident was due, however, as the Agent points out, so far as the signals were concerned, to the fact that the light was out. Had the lamp been lit, presumably it would have been visible to the driver at a sufficient distance to enable him to reduce his speed according to the caution order on his line clear ticket.

5. With reference to the concluding sentence in paragraph 2 of the Agent's remarks, I do not consider that any rule especially providing for diversions is called for. As pointed out by the Agent a new diversion, temporary or permanent, cannot be brought into use until sanction to do this has been obtained from the Government Inspector. Once this sanction has been obtained, however, the diversion becomes part of the open line, and if it be necessary owing to curves, grades or its unfinished state to protect it, the General Rules for open lines in connection with obstructions between stations should fully cover such protection.

All obstructions *between stations* are dealt with by the engineering staff by either (a) a block involving "danger" signals and a dead-stop, or (b) a restriction of speed involving, if the restriction be a heavy one, caution signals.

The first of these, *viz.*, (a) a block is fully provided for by Rule 340 (3), (4) and (5) of the General Rules, together with special instructions to be issued in accordance with 340 (3).

The second, *viz.*, (b) a restriction of speed, of which the case in which we are now concerned is an instance, is but vaguely provided for by the rules as shewn in paragraph 4 of these remarks.

6. It seems to me therefore that if Rule 340 (1) and (2) were modified to cover fixed caution signals as well as hand signals, that this would meet the case.

CHARLES PRATT,
Senior Government Inspector of Railways,
Circle No. 1.

CALCUTTA;
The 17th May 1909.

Annexure No. 1 in Appendix IV to the abstract returns of accidents on Indian Railways for the twelve months ended the 31st December 1909.

The following is a list of the rolling-stock damaged at the accident at mile 140-19 on the morning of the 24th March 1909 and estimated cost of repairs:—

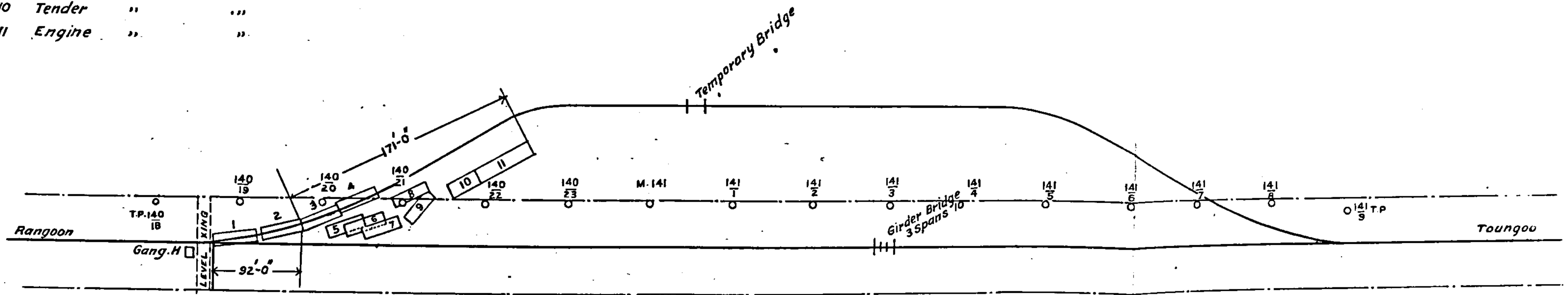
	Rs.
Engine J 240	6,200
Horse box 2983 wholly burnt up	4,800
Bogie third class with brake 3920 wholly burnt up	11,000
Bogie third class 5404 wholly burnt up	11,000
Bogie third class 6254 wholly burnt up	11,000
Bogie third class 6275 wholly burnt up	11,000
Bogie third class 5407 wholly burnt up	11,000
Bogie third class with brake 3938 wholly burnt up	12,000
Total	<u>77,000</u>

The figures given for the repairs of the engine are based on previous experience of the damage done in similar derailment. The true condition of the engine cannot be ascertained until it has been lifted and examined in shops. The figures given for the vehicles is the average cost of similar stock when new, as they must be wholly replaced.

ANNEXURE No. 2 IN APPENDIX IV TO THE ABSTRACT RETURN OF ACCIDENTS ON INDIAN RAILWAYS FOR
THE TWELVE MONTHS ENDED 31st DECEMBER 1909.

SKETCH OF ACCIDENT AT MILE $\frac{140}{19}$ ON 24-3-09

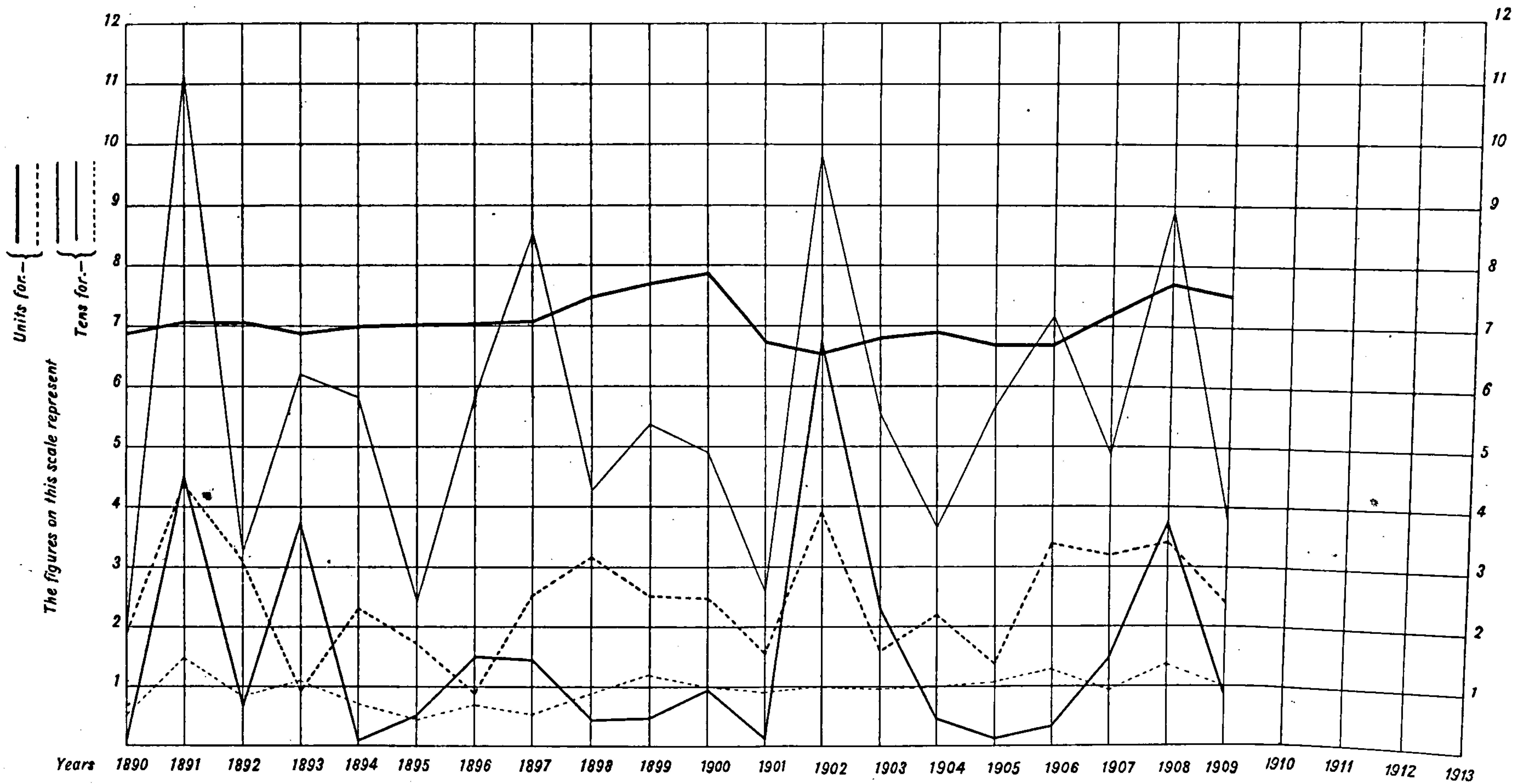
- No 1 B.V. . . on line
- 2 B.F.S.T. on line
- 3 B.T.C. on line but could not be detached
- 4 B.T.C. Just off line on West side
- 5 " Capsized on East of line under N^o 6
- 6 " " " on top of N^o 5
- 7 " " on East of line
- 8 " " "
- 9 Horse box " "
- 10 Tender " "
- 11 Engine " "



R. H. POCKLINGTON
Assistant Engineer
Toungoo

INDIAN RAILWAYS.

DIAGRAM SHOWING FOR EACH YEAR FROM 1890 TO 1909 CERTAIN STATISTICAL RESULTS RELATING TO ACCIDENTS.



- Accidents per 100,000 train miles.
- Passengers killed by accidents to trains per 100,000,000 carried.
- Passengers injured by accidents to trains per 100,000,000 carried.
- Railway servants killed by accidents to trains per 10,000,000 train miles.
- Railway servants injured by accidents to trains per 10,000,000 train miles.

The casualties under the head "Others" were as follows:—

Years.	Killed.	Injured.	Years.	Killed.	Injured.	Years.	Killed.	Injured.
1890.....	1.....	6.....	1900.....	1.....	8.....	1910.....		
1891.....	9.....	11.....	1901.....	13.....	14.....	1911.....		
1892.....	2.....	3.....	1902.....	13.....	13.....	1912.....		
1893.....	3.....	—.....	1903.....	12.....	7.....	1913.....		
1894.....	9.....	7.....	1904.....	6.....	15.....			
1895.....	5.....	14.....	1905.....	5.....	15.....			
1896.....	9.....	12.....	1906.....	11.....	22.....			
1897.....	7.....	12.....	1907.....	16.....	41.....			
1898.....	7.....	12.....	1908.....	10.....	29.....			
1899.....	4.....	9.....	1909.....	19.....	29.....			

Report by the Railway Board on accidents which occurred on the railways in India for the twelve months ended with the 31st December 1910, with an abstract of the returns relating thereto submitted by the several railway administrations.

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

Accidents to trains, rolling-stock, permanent-way, etc., as shown under Abstract No. 4 on pages 18 and 19 of the accompanying Abstract Returns, caused the death of 55 persons and injury to 335 persons, against 79 and 287, respectively, during the previous year.

II.—Accidents to passengers from causes other than accidents to trains, rolling-stock, permanent-way, etc., including accidents from their own want of caution or misconduct; accidents to persons passing over level-crossings, trespassers, and others.

2. Of the 1,456 persons killed and 827 injured shown under this heading in Abstract No. 1, 184 of the former and 475 of the latter were passengers, the remainder being persons passing over level-crossings, trespassers, suicides, and others. Details of the killed and injured will be found in Abstract No. 2.

III.—Accidents to servants in the employ of Railway Companies or contractors caused by the travelling of trains or the movement of vehicles used exclusively upon railways.

3. Of railways' or contractors' servants 361 were killed and 545 injured, in addition to 37 killed and 108 injured included in the figures in paragraph 1. Details of these will be found in Abstract No. 2.

4. Altogether the number of persons killed and injured on Indian railways in the working of public traffic during the year 1910, as compared with the previous year, was as follows:—

	1909.		1910.		INCREASE.		DECREASE.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
	MEAN MILEAGE WORKED 81,320 MILES.		MEAN MILEAGE WORKED 81,886 MILES.		566 MILES.		—	
PASSENGERS—								
From accidents to trains, rolling-stock, permanent-way, etc.	29	127	3	184	...	57	26	...
By accidents from other causes	161	487	184	475	23	...	...	12
SERVANTS—								
From accidents to trains, rolling-stock, permanent-way, etc.	81	131	37	108	6	...	...	23
By accidents from other causes	334	531	361	545	27	14	...	...
OTHER PERSONS—								
Persons passing over railways at level-crossings.	47	36	37	26	...	...	10	10
Trespassers and suicides	1,303	231	1,193	276	...	...	110	5
Miscellaneous, not included in the above	26	30	42	50	16	20	...	...
TOTAL	1,931	1,623	1,857	1,664	...	41	74	...

IV.—Number of persons killed and injured by accidents to trains, rolling-stock, etc., during the year 1910.

5. The following is a summary of the number of accidents, as classified in Abstract No. 4, which occurred on the several railways and which resulted in loss of life or injury to persons :—

Railway.	Number of accidents reported during the year 1910.	PASSENGERS AND OTHERS.		SERVANTS.		TOTAL.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
5' 6" GAUGE.							
Bengal-Nagpur	11	2	7	4	10	6	17
Bombay, Baroda and Central India	1	...	8	...	...	...	8
Eastern Bengal State	8	1	9	1	...	2	9
East Indian	34	1	55	3	28	4	83
Great Indian Peninsula	15	1	31	3	18	4	49
Indian Midland	2	...	...	...	8	...	8
Madras and Southern Mahratta	3	2	13	...	...	2	13
Nizam's Guaranteed State	1	1	...	...	...	1	...
North Western State	13	3	15	5	26	8	41
Oudh and Rohilkhand State	5	...	21	1	3	1	24
South Indian	2	...	2	...	1	...	3
Tapti Valley	1	...	...	3	...	3	...
3' 3½" GAUGE.							
Assam-Bengal	2	...	2	...	...	...	2
Bengal and North-Western	7	...	6	1	2	1	9
Burma	3	...	3	...	1	...	4
Eastern Bengal State	2	1	1	4	3	5	4
Hyderabad-Godavari Valley	1	...	...	4	...	4	...
Jodhpur-Bikaner	2	...	1	1	...	1	1
Madras and Southern Mahratta	5	2	16	1	2	3	18
Rajputana-Malwa	2	1	4	...	1	1	5
Rohilkund and Kumaon	2	...	...	6	1	6	1
South Indian	4	2	5	...	...	2	5
SPECIAL GAUGES.							
Gaekwar's Dabhoi (2' 6")	1	1	7	...	...	1	7
Kalka-Simla (3' 6")	1	...	...	...	2	...	2
Shahdara (Delhi)-Saharanpur Light (2' 0")	1	...	17	...	...	...	17
Gwalior Light (2' 0")	1	...	1	...	...	...	1
Howrah-Amta Light (2' 0")	2	...	3	...	2	...	5
TOTAL	127	18	227	37	108	55	335
Previous year	124	48	156	31	131	79	287

6. The total number of persons of all classes killed by causes beyond their control was 55 against 79, and the number injured 335 against 287. Out of a total of 372.11 millions against 333.70 millions of passengers travelling, and of

13,434.85 millions of miles against 12,396.31 millions of miles travelled, 3 passengers were killed and 184 injured against 29 killed and 127 injured. This gives an average of one fatal casualty in 124.04 millions against one in 11.51 millions of persons travelling, and an average of one in 4,478.28 millions against one in 427.46 millions of miles travelled in 1910 and 1909, respectively.

7. A brief description of the more serious accidents resulting in loss of life, injury to persons, or serious damage to rolling-stock, is given below :—

Bengal-Nagpur railway.—On the 21st March 1910, at Vizianagram station, an up manganese special train from Donkinavalasa ran against signals and collided with No. 225 down goods train which was leaving the station. Three railway servants were killed, and three passengers and six railway servants injured.

Eastern Bengal State railway (5' 6" gauge).—On the 5th August 1910 the engine, tender and the next three carriages of No. 35 up passenger train were derailed at mile 163/2, near Faridpur on the Eastern section, due to the line having been breached. Nine passengers were injured and the permanent-way and rolling-stock were damaged.

East Indian railway.—On the 2nd May 1910 the up Punjab mail, when entering Delhi station, came into side collision with the empty rake of a North Western State railway train at Delhi central cabin, due to the pilot engine having drawn out the rake beyond the clearance board, thus fouling the up main line. A passenger was slightly injured and the rolling-stock considerably damaged.

On the 11th November 1910 an up Tarkessur branch passenger train was put on to a wrong line at Seoraphuli station, owing to the points having been incorrectly set, and collided with some wagons standing on that line. Nineteen passengers were injured.

Great Indian Peninsula railway.—On the 2nd July 1910, at Niphad station, the down mail train collided with a down goods train, owing to the driver of the former disregarding all signals at danger. Ten passengers were slightly injured and the rolling-stock and permanent-way damaged.

Madras and Southern Mahratta railway (5' 6" gauge).—On the 27th September 1910 an engine, which had been lit up, escaped from the locomotive yard at Bitragunta station and ran out on to the traffic lines and then into the Bitragunta-Kavali section. It collided, at mile 136/2, with the rear brake-van of No. 5 down mixed train proceeding to Kavali station. Thirteen passengers in the train were slightly bruised in the collision.

North Western State railway.—On the 12th June 1910 No. 25 up goods train, which had been brought to a stand on a grade of 1-in-25 on account of the failure of one of the engines, on being re-started after a detention of fifty minutes, ran back into the slip siding at the lower end of Hirok station, owing to the vacuum having been allowed to leak off during the stop and to the driver being unable to re-create vacuum sufficiently quickly to regain control of the train when the backward movement began. The engines and rolling-stock were seriously damaged. Three railway servants were killed, and three railway servants were seriously, and three slightly, injured. One passenger was killed and one slightly injured.

On the 18th August 1910 the engine of No. 37 up mixed train capsized and six vehicles on the train were derailed at mile 83/1, between Joya and Jamlara stations, owing to the erosion of the bank by flood water. One railway servant was killed and thirteen passengers and three railway servants were injured. The rolling-stock was considerably damaged.

Oudh and Rohilkhand State railway.—On the 8th September 1910 No. 24 down mixed train, while entering Bbitaura station, collided with No. 125 up goods train, causing slight injuries to eight passengers and three railway servants.

Tapti Valley railway.—On the 13th June 1910 the bank behind the west abutment of culvert No. 245, at mile 122/10 between Sindkheda and Dondaiche

stations, gave way owing to heavy rain, causing the engine of No. 12 up goods train to fall between the west abutment and the bank. Eight Bombay, Baroda and Central India railway wagons next to the engine were piled up above the latter and nine Great Indian Peninsula railway wagons loaded with bullocks were wrecked. Three railway servants were killed and the rolling-stock was considerably damaged.

Eastern Bengal State railway (3' 3½" gauge).—On the 11th May 1910 the engine with four wagons of a ballast train were derailed at Manihari Ghat station on the Behar section, due to split points. Seven coolies were injured, four of whom died subsequently.

Hyderabad-Godavari Valley railway.—On the 13th September 1910 the engine, tender and one bogie carriage of No. 48 down passenger train fell into the Sectha river at mile 220/13, between Mugat and Mulkehel stations, owing to the collapse of the bridge which had been under-repaired. Four railway servants were killed and the permanent-way and rolling-stock considerably damaged.

Madras and Southern Mahratta railway (3' 3½" gauge).—On the 19th March 1910 two vehicles attached to No. 91 up mixed train were derailed and seven carriages overturned at mile 160/13, between Yesvantpur and Yelahanka stations (chord line), due to the buckling of the road owing to the excessive heat of the weather. Fifteen passengers were slightly hurt and the rolling-stock and permanent-way damaged.

Rohilkund and Kumaon railway.—On the 27th March 1910 a down loaded boulder train from Kathgodam to Mailani was derailed at mile 12/23, close to bridge No. 2 between Bhojepura and Deoranian stations, owing to the buckling of the line. The tender, engine, a wagon of fuel, an intermediate and third class carriage, the front brake-van, five B class wagons and ten open trucks were derailed on the bridge. Six railway servants were severely injured and subsequently died, and considerable damage was caused to the rolling-stock, bridge and permanent way.

Gaekwar's Dabhri railway.—On the 21st November 1910 a lower class carriage on No. 311 down mixed train caught fire at Palra, owing to a box of crackers, which a passenger was secretly carrying as personal luggage, having suddenly exploded. Seven passengers were injured and a female child was killed.

Shahdara (Delhi)-Sikharanpur Light railway.—On the 21th June 1910 a package containing fireworks belonging to a marriage party burst while the party were alighting at Baghpat Road, and resulted in injury to seventeen passengers.

SIMLA;
Dated the 3rd May 1911. }

R. C. F. VOLKERS,
Secretary, Railway Board.

Documents accompanying.

1. Abstract returns of accidents for the twelve months ended with the 31st December 1910, with appendices thereto.
2. Diagram showing for each year from 1890 to 1910 certain statistical results relating to accidents.