

[Enclosure to Railway Board's Order No. 232 R. Stat., dated the
5th July 1907.]

INDIAN RAILWAYS.

**ABSTRACT RETURNS OF ACCIDENTS DURING THE TWELVE
MONTHS ENDED THE 31st DECEMBER 1906.**

ABSTRACT No. 1.

GENERAL TOTAL.

NUMBER OF PERSONS reported, during the TWELVE MONTHS ended the 31st December 1906, 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.	7	128	2	58	...	10	9	194
By accidents from other causes, including accidents from their own want of caution or misconduct	123	259	31	105	1	4	155	368
SERVANTS:—								
From accidents to trains, rolling-stock, permanent-way, etc.	30	69	7	60	2	19	39	148
By accidents from other causes, including accidents from their own want of caution or misconduct	257	341	82	106	2	4	341	451
OTHER PERSONS:—								
Whilst passing over railways at level-crossings	36	13	16	13	...	2	52	28
Trespassers	549	144	262	105	12	10	823	259
Suicides	121	6	31	3	2	...	154	
Miscellaneous, not included in either of the above	23	17	16	20	2	...	41	37
TOTAL	1,146	975	447	470	21	49	1,614	1,494

ABSTRACT

NUMBER of PERSONS reported, during the TWELVE MONTHS ended the 31st December 1906, as KILLED or INJURED in
PASSENGERS, RAILWAY SERVANTS and OTHER PERSONS, and classifying,

Serial Number.	RAILWAY.	PASSENGERS.																												
		From accidents to trains, etc.—See Abstracts Nos. 3 and 4.		FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ETC.												TOTAL PASSENGERS.		From accidents to trains, etc.—See Abstracts Nos. 3 and 4.		FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ETC.										
		Killed.	Injured.	1.—From falling between trains and platforms.	2.—Falling on to the platform, ballast, etc., when getting into or out of trains.	3.—Whilst crossing the line at stations.	4.—By closing of carriage doors.	5.—Falling out of carriages during the travelling of trains.	6.—Other accidents.	Total.	Killed.	Injured.	Total.	Killed.	Injured.	1.—Whilst coupling or uncoupling vehicles.	2.—By coming in contact, whilst riding on vehicles during shunting, with other vehicles, etc., standing on adjacent lines.	3.—Whilst passing over or standing upon buffers during shunting.	4.—When getting on or off, or falling off, engines, wagons, etc., during shunting.	5.—Whilst breaking, spragging, or chocking wheels.										
<i>5' 6" gauge.</i>																														
1	Bengal-Nagpur (a)	1	18	...	4	1	1	...	1	8	12	...	2	9	20	10	88	7	12	...	2	1	1	3	...			
2	Bombay, Baroda and Central India (b)	...	...	2	1	...	1	...	4	15	...	...	5	18	5	18	...	3	...	...	...	...	2	1	...	...		
3	Eastern Bengal State	2	1	...	2	1	...	...	3	4	...	...	6	5	6	7	1	1	1	2	...	...	...	...	...	...
4	East Indian (c)	4	29	9	6	5	7	4	6	...	3	21	31	6	8	45	61	49	90	10	17	2	7	1	2	...	3	1	1	
5	Great Indian Peninsula	3	2	2	2	...	1	...	1	4	14	2	3	11	20	11	23	2	7	...	1	...	...	2	...	...		
6	Indian Midland (d)	...	...	...	...	...	1	...	3	8	...	...	4	8	4	8	...	1	...	2	...	...	...	...	...	...
7	Madras (e)	1	52	...	3	1	2	9	1	...	2	14	3	66	6	14	...	3	1	1	1	...			
8	Nizam's Guaranteed State (f)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...		
9	North Western State (g)	...	21	5	...	3	2	2	1	...	27	85	1	1	38	89	38	110	4	12	11	15	...	7	7	1	10	...		
0	Oudh and Rohilkhand State (h)	1	1	...	2	3	1	1	17	3	23	4	24	...	2	...	1	1	...	2	1	1	3	...		
11	Tapti Valley	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...
TOTAL		7	126	17	15	16	19	9	9	6	71	196	10	14	123	259	130	385	30	69	15	83	8	3	9	9	5	24	1	9
Previous year		8	117	11	8	3	20	8	1	5	64	211	8	11	89	256	92	373	10	90	12	39	2	4	12	10	3	27	...	4
<i>8' 8 1/2" gauge.</i>																														
12	Assam-Bengal (i)	5	...	...	...	...	...	...	...	...	5	...	...	5	...	10	...	5	...	1	...	...	...	1	1	...
13	Bengal and North-Western (j)— Tirhoot section. Company's "	1	2	15	...	2	15	3	15	...	1	1	2	1	2	...	1	2	...	1	...			
14	Bengal Doonars (k)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	Bhavnagar-Gondal-Ju- nagad-Porbandar (l)	...	...	...	...	...	...	...	2	...	...	2	...	2	...	2	...	...	2	...	...	...	...	...	...	...
16	Purma	1	21	4	1	...	2	5	...	4	12	1	1	8	22	9	43	1	7	1	3	...	...	1	...	...		
17	Cawnpore-Burhwal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	2
18	Deoghur	...	10	...	...	...	...	...	...	...	...	...	...	...	...	10	...	1	...	...	...	...	...	...	...
19	Dibru-Sadiya (m)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	1	3	...	...	...	...
20	Eastern Bengal State (n)	5	...	...	...	...	...	1	3	8	1	1	4	10	4	15	3	1	1	1	...	...	1	...	1	...
Carried over		2	41	4	1	2	5	1	9	42	2	2	14	14	16	95	6	17	4	12	1	4	1	5	...					

(e) Including the Jubbulpore-Gonda extension, Mourlhanj, Parlakimedl Light and Raipur-Dhamteri (2' 6" gauge) railways.

(f) Including the Bezwada extension railway.

(g) Including the Bezwada extension railway, Jammu and Kashmir (Native State section), Ludhiana-Bajpura-Bhatnagar and Southern Punjab railways and the Garu-Kohat-Thal, Nowshera-Dargai and Dandot Light (2' 6" gauge) railways.

(h) Including the Jubbulpore-Gonda extension, Mourlhanj, Parlakimedl Light and Raipur-Dhamteri (2' 6" gauge) railways.

(i) Including the Bezwada extension railway.

(j) Including the Bezwada extension railway, Jammu and Kashmir (Native State section), Ludhiana-Bajpura-Bhatnagar and Southern Punjab railways and the Garu-Kohat-Thal, Nowshera-Dargai and Dandot Light (2' 6" gauge) railways.

(k) Including the Jubbulpore-Gonda extension, Mourlhanj, Parlakimedl Light and Raipur-Dhamteri (2' 6" gauge) railways.

(l) Including the Bezwada extension railway.

(m) Including the Bezwada extension railway, Jammu and Kashmir (Native State section), Ludhiana-Bajpura-Bhatnagar and Southern Punjab railways and the Garu-Kohat-Thal, Nowshera-Dargai and Dandot Light (2' 6" gauge) railways.

(n) Including the Jubbulpore-Gonda extension, Mourlhanj, Parlakimedl Light and Raipur-Dhamteri (2' 6" gauge) railways.

O. 2.

the TRAVELLING OF TRAINS OR THE MOVEMENT OF VEHICLES used exclusively upon RAILWAYS, distinguishing between noticeable, the nature and causes of the ACCIDENTS occasioning the DEATH OR INJURY.

INTE.

ACCIDENTS TO TRAINS, ETC.

OTHERS.

capitans, 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 overheads, 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-Whist attending to or by the failure of machinery, etc., of engines in steam. 13-Whist working on the permanent-way, sidings, etc. 14-Whist attending to gates at level-crossings. 15-Whist 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-Whist walking, etc., on the line on the way home or to work. 19-Miscellaneous.

Table with multiple columns for accident categories (Injured, Killed, etc.) and rows of data. Includes sub-totals for 'TOTAL SERVAZTS' and 'TOTAL OTHERS'.

Serial Number.

(A) Including the Hardwar-Dehra railway. (B) Noakhali (Bengal) railway. (C) Sagauli-Raxaul railway. (D) Bengal Doars extensions. (E) Dhrangadra, Jamnagar and Jetalsar-Bajkot railways.

(m) Including the Ledo and Tikak Margherita Colliery Branch railway. (n) Mymensingh-Jamalpur-Jagannathganj railway and the Banaghat-Krishnagar and Teesta-Kurigram branches, also the British Section of the Santalbhari extension (2 1/2' gauge) line.

NUMBER OF PERSONS reported, during the TWELVE MONTHS ended the 31st December 1906, as KILLED OR INJURED IN PASSENGERS, RAILWAY SERVANTS and OTHER PERSONS, and classifying, as follows:

Serial Number.	RAILWAY.	PASSENGERS.																					
		From accidents to trains, etc.—See Abstract Nos. 3 and 4.		FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ETC.										TOTAL PASSENGERS.		From accidents to trains, etc.—See Abstract Nos. 3 and 4.		FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ETC.					
		Killed.	Injured.	1.—From falling between trains and platforms.	2.—Falling on to the platform, ballast, etc., when getting into or out of trains.	3.—Whilst crossing the line at stations.	4.—By closing of carriage doors.	5.—Falling out of carriages during the travelling of trains.	6.—Other accidents.	TOTAL.	Killed.	Injured.	Killed.	Injured.	1.—Whilst coupling or uncoupling vehicles.	2.—By coming in contact, whilst riding on vehicles during shunting, with other vehicles, etc., standing on adjacent lines.	3.—Whilst passing over or standing upon buffers during shunting.	4.—When getting on or off, or falling off, engines, wagons, etc., during shunting.	5.—Whilst braking, springing, or chocking wheels.	Killed.	Injured.		
<i>5' 6" gauge.</i>																							
1	Bengal-Nagpur (a)	1	18	4	1	1	1	8	12	2	9	20	10	33	7	12	2	1	1	3	1		
2	Bombay, Baroda and Central India (b)	2	1	1	4	15	5	18	5	18	3	2	1	1	2	2	1	1	1	1	1		
3	Eastern Bengal State	2	1	2	1	3	4	6	5	6	7	1	1	1	2	1	1	1	1	1	1		
4	East Indian (c)	4	29	9	6	5	7	4	6	3	21	31	6	8	45	61	49	90	10	17	2		
5	Great Indian Peninsula	3	2	2	2	1	1	4	14	2	3	11	20	11	23	2	7	1	1	2	2		
6	Indian Midland (d)	1	1	1	1	1	3	8	4	8	4	8	1	2	1	1	1	1	1	1	1		
7	Madras (e)	1	52	3	1	2	9	1	2	14	3	68	6	14	3	1	1	1	1	1	3		
8	Nizam's Guaranteed State (f)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
9	North Western State (g)	21	5	3	2	2	1	27	85	1	1	38	89	38	110	4	12	11	15	7	7		
10	Oudh and Rohilkhand State (h)	1	1	2	2	3	1	1	17	3	23	4	24	2	1	1	2	1	1	3	1		
11	Tapti Valley	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
TOTAL		7	126	17	15	16	19	9	9	6	71	196	10	14	123	259	130	385	30	69	15		
Previous year		8	117	11	8	3	20	8	1	5	64	211	3	11	89	256	92	373	10	90	12		
<i>3' 6" gauge.</i>																							
12	Assam-Bengal (i)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		
13	Bengal and North-Western (j)—Tirhoot section. Company's "	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
14	Bengal Doonars (k)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
15	Bhavnagar-Gondal-Junagad-Porbandar (l)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
16	Purma	1	21	4	1	2	5	4	12	1	1	8	22	9	43	1	7	1	3	1	1		
17	Cawnpore-Burhwal	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
18	Deoghur	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10		
19	Dibru-Sadiya (m)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
20	Eastern Bengal State (n)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		
Carried over		2	41	4	1	2	5	1	9	42	2	2	14	14	16	95	6	17	4	12	1		

(a) Including the Jabalpur-Gondia extension, Mourbhanj, Parlakimed Light and Raipur-Dhamtari (2' 6" gauge) railways.
 (b) " Godhra Rutiam-Nasda, Nagda-Ujjain and Petlad-Cambay railways.
 (c) " Delhi-Umballa-Kalka, South Behar and Tarkeswar railways.
 (d) " Agra-Delhi Chord, Bhopal-Itarsi, Bhopal-Ujjain and Bina-Goonabaran railways.
 (e) " Kolar Gold-Fields, Madras (North-East Line), and Nilgiri and Shoranur-Cochin (3' 3 1/2" gauge) and Morappur-Dharmapuri and Tirupattur-Krishnagiri (2' 6" gauge).
 (f) Including the Bezwada extension railway.
 (g) " Jammu and Kashmir (Native State section), Ludhiana-Bhatinda, Rajpura-Bhatinda and Southern Punjab railways and the Beas-garu-Kohat-Thal, Nowshera-Durgal and Dandot Light (3' 6" gauge) railways.

NUMBER of PERSONS reported, during the TWELVE MONTHS ended the 31st December 1906, as KILLED or INJURED PASSENGERS, RAILWAY SERVANTS and OTHER PERSONS, and classifying, as follows:

Serial Number.	RAILWAY.	PASSENGERS.														FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ETC.—See Abstracts Nos. 3 and 4.													
		FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ETC.—See Abstracts Nos. 3 and 4.														FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ETC.—See Abstracts Nos. 3 and 4.													
		From accidents to trains, etc.—See Abstracts Nos. 3 and 4.		1.—From falling between trains and platforms.		2.—Falling on to the platform, ballast, etc., when getting into or out of trains.		3.—Whilst crossing the line at stations.		4.—By closing of carriage doors.		5.—Falling out of carriages during the travelling of trains.		6.—Other accidents.		TOTAL.		TOTAL PASSENGERS.		From accidents to trains, etc.—See Abstracts Nos. 3 and 4.		1.—Whilst coupling or uncoupling vehicles.		2.—By coming in contact, whilst riding on vehicles during shunting, with other vehicles, etc., standing on adjacent lines.		3.—Whilst passing over or standing upon buffers during shunting.		4.—When getting on or off, or falling off, engines, wagons, etc., during shunting.		5.—Whilst breaking, sprouting, or chocking wheels.
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.
	Brought forward	2	41	4	1	2	5	1	9	42	2	2	14	64	16	95	6	17	4	12	1	4	1	5	1	1	1	1	1
	3' 3 1/2" gauge—conold.																												
21	Hyderabad-Godavari Valley									3				3		3													
22	Jodhpur-Bikaner—(a) Jodhpur section									1	2	1	1	3	1	3													
	Bikaner "																												
23	Morvi																												
24	Rajputana-Malwa (b)	2	1	2	3	2		4	24				7	29	7	31	8	3											
25	Rohilkund and Kumaon Lucknow-Bareilly section, Company's	15				1		1				2		2	15	1	24					1							
26	South Indian (c)			2	2			2	10			4	12	4	12		2		5				1		2				
27	Southern Mahratta (d)				1			2	2			1	2	4	2	4	9		2				1						
28	Udaipur-Chitor					1							1		1														
	TOTAL	2	58	14	6	4	7	11	83	24	4	11	105	33	163	7	10	7	19	1	5	3	9	1	1	1	1	1	
	Previous year	7	1	5	5	4	2	1	16	86	2	26	96	26	103	2	21	8	19		1	4	1	5	2				
	Special gauges.																												
29	Baraset-Basirhat Light (2' 6")																												
30	Parsi Light (2' 6")																												
31	Behar Light (2' 6")																												
32	Cooch Behar (2' 6")				1								1		1														
33	Cutch (2' 6")																												
34	Gaekwar's Dabhoi (2' 6")								1				1		1				1										
35	Kalka-Simla (2' 6")																												
36	Powayan Light (2' 6")	2													2		2												
37	Rajpipla (2' 6")																												
38	Tarakeshwar-Magra Light (2' 6")																												
39	Muzapore-Balipara Light (2' 6")				1								1		1														
40	Darjeeling-Himalayan (2' 0")	2			1								1		3		1		1										
41	Gwalior Light (2' 0")	6								1			1		7														
42	Howrah-Amta (2' 0")																												
43	Howrah-Sheakhala (2' 0")																												
44	Jorhat (2' 0")																												
	TOTAL	10		3				1	1			1	4	1	14	2	19		2										
	Previous year	16				1			2	1			20	3	4														
	GRAND TOTAL	9	194	18	19	21	26	13	16	79	125	12	18	155	308	164	562	33	118	22	54	3	4	9	14	8	83	1	10
	Previous year	3	140	12	8	8	25	12	4	6	80	299	3	14	115	356	118	496	15	115	20	58	2	4	13	14	4	32	6

(a) Including the Jodhpur-Hyderabad railway (British section).
 (b) Ahmedabad-Dholka, Ahmedabad-Parant, Gaekwar's Mehsana, Jaipur State, Patanpur-Decan, and Vijapur-Kalol-Kadi railways.
 (c) Tanjore District Board and Tinnevely-Qullon (Travancore) railways.
 (d) Bellary-Rayadrug, Birur-Shimoga, Guntakal-Mysore frontier, Hindupur (Yasvantpur-Mysore frontier), Hospet-Kottur, Kolhar, Mysore-Nanjangud, Mysore section (Southern Mahratta) and West of India Portuguese railways.

2—concluded.

by the TRAVELLING OF TRAINS OR THE MOVEMENT OF VEHICLES used exclusively upon RAILWAYS, distinguishing between cable, the nature and causes of the ACCIDENTS occasioning the DEATH OR INJURY—concluded.

TO TRAINS, ETC.		OTHERS.																TOTAL ALL CLASSES.		Serial Number																														
Killed.	Injured.	Whist passing over the railway at level-crossings.	Trespassers.	Suicides.	Miscellaneous.	TOTAL OTHERS.		TOTAL ALL CLASSES.		Killed.	Injured.																																							
8	9	10	11	12	13	14	15	16	17	18	19	Total.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46											
4	1	4	2	1	1	3	1	3	5	1	1	1	2	7	7	44	56	50	73	2	2	183	61	20	1	8	6	213	70	279	238	1	9	21																
							1					1				4		4				2	1			1	2	1	2	1	9	7	22																	
		2							1				1	1	4	2	4	2		1		2	1	1			1	4	2		9	7	21																	
													8	9	17	13	17	21		1	2	40	23	8	1	5	10	49	36	73	84	24																		
	1	2	1						2							5	5	6	29			9	5	4			13	5	21	45	25																			
	2	2	1									2	3	9	16	9	18	9	9	4	19	13	1	1	1	1	29	19	42	49	26																			
	8	1							1				2	9	10	3	19	3	5	10	2			1		16	7	21	30	27																				
	4																												1		29																			
7	12	5	10				1	6	10											16	13	212	105	31	3	18	20	325	141	447	470																			
1	25	10	15	34	7	5	25	44	8	11	22	15	13	7	99	64	6	6	9	21	18	46	78	341	451	380	599	52	28	823	259	154	9	41	37	1070	333	1614	1494											
3	26	15	9	53	4	17	34	115	7	22	18	129	64	2	8	7	9	14	5	37	75	308	462	323	577	30	19	661	173	134	5	39	23	861	221	1305	1293													

ABSTRACT NO. 3.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, ETC., reported during the TWELVE MONTHS ended the 31st December 1906, as having occurred on the several RAILWAYS OPEN TO 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. (b)								NIZAM'S GUARANTEED STATE. (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 1890.	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 1890.	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 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	...	3	3	...	1	...	1	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
3. Collisions between goods trains or parts of goods trains	...	4	4	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
4. Collisions between light engines	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
5. Passenger trains or parts of passenger trains leaving the rails	...	13	13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	80	80	...	2	...	...	...	2	...	30	30	...	...	...	...	...	...	...	...	...	...	...	...	...	6
7. Trains or engines travelling in the wrong direction through points	...	6	6	...	...	...	...	...	...	...	6	6	...	...	...	...	...	...	...	...	...	...	...	...	...	7
8. Trains running into stations or sidings at too high a speed	...	24	124	...	...	...	...	...	...	...	148	148	...	...	...	...	...	...	...	...	...	...	...	...	...	8
9. Trains running over cattle on the line	...	12	12	...	...	...	...	...	...	...	6	6	...	...	...	...	...	...	...	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	...	5	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
11. Trains running through gates at level-crossings	...	39	39	...	...	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	11
12. The bursting of boilers of engines	...	71	71	...	...	...	...	...	...	...	42	42	...	...	...	...	...	...	...	...	...	...	...	...	...	12
12(a). Ditto of tubes, etc., of engines	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12(a)
13. The failure of machinery, springs, etc., of engines	...	21	21	...	...	...	1	...	1	...	5	6	...	...	...	...	...	...	...	...	...	...	...	...	...	13
14. The failure of tyres	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
15. Ditto of wheels	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
16. Ditto of axles	...	21	21	...	...	...	1	...	1	...	5	6	...	...	...	...	...	...	...	...	...	...	...	...	...	16
17. Ditto of brake apparatus	...	8	8	2*	...	...	1	2	1	...	5	5	...	...	...	...	...	...	...	...	...	...	...	...	...	17
18. Ditto of couplings	...	101	101	...	...	2	3	2	3	...	63	63	...	...	1	...	1	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	19							
20. Broken rails	20							
21. The flooding of portions of permanent-way	...	4	4	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	21
22. Slips in cuttings or embankments	...	53	53	...	...	...	...	...	...	...	13	13	...	...	...	...	...	...	...	...	...	...	...	...	...	22
23. Fire in trains	...	8	8	2*	...	...	1	2	1	...	5	5	...	...	...	...	...	...	...	...	...	...	...	...	...	23
24. Fire at stations, or involving injury to bridges or viaducts	...	101	101	...	...	2	3	2	3	...	63	63	...	...	1	...	1	...	...	...	...	...	...	...	...	24
25. Other accidents	...	547	547	2*	3	2	7	4	10	...	329	329	1	...	1	...	5	536	541	†	3	6	14	9	67	25					
TOTAL ALL CLASSES	...	547	547	2*	3	2	7	4	10	...	329	329	1	...	1	...	5	536	541	†	3	6	14	9	67	25					

(a) Including the Agra-Delhi-Moradabad, Bhopal-Itarsi, Bhopal-Ujjain and Bina-Gaona-Baran railways.

(b) Kolar Gold-fields, Madras (North-East line), and the Nilgiri and Shoranur-Cochin (3' 3 1/2" gauge) and Mysore-Dharmapuri and Tirupattur-Krishnagiri (3' 6" gauge) railways.

(c) Bezwada extension railway.

* Not (a) passenger(s).

† Of these, two were not passengers.

‡ Of these, one was not a passenger.

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.

	BENGAL AND NORTH-WESTERN (TIEBOOT AND COMPANY'S SECTIONS). (a)										BENGAL DOOARS. (b)										BEAUVAGAR-GONDAL-JUNAGAD-PORBANDAR. (c)										BURMA.										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 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.							
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	4	5	9	1	...	...	...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
3. Collisions between goods trains or parts of goods trains	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	
4. Collisions between light engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	
5. Passenger trains or parts of passenger trains leaving the rails	...	1	1	...	...	...	...	...	3	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	2	8	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	
8. Trains running into stations or sidings at too high a speed	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	
9. Trains running over cattle on the line	1	179	180	...	...	...	...	...	22	...	22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	
10. Ditto over obstructions on the line	...	6	6	...	...	...	...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	...	7	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12(a)	
13. The failure of machinery, springs, etc., of engines	...	15	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
14. The failure of tyres	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
15. Ditto of wheels	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
16. Ditto of axles	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
17. Ditto of brake apparatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
18. Ditto of couplings	1	15	16	...	...	...	...	...	5	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
20. Broken rails	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	...	29	29	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	2	10	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
TOTAL ALL CLASSES	12	279	291	1	1	1	6	29	35	3	49	52	33	440	478	1	21	1	7	2	28						

(a) Including the Sagauli-Hazari railway.
 (b) " Bengal Dooars extensions.
 (c) " Dhrangadra, Jamnagar and Jetalsar-Bajkot railways.

ABSTRACT No. 3.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1906, 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— <i>contd.</i>												Number of headings.								
	CAWNPUR-BURHWAL.				DROGHA.				DIBRU-SADIYA. (a)					EASTERN BENGAL STATE. (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.					
	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.	Killed.	Injured.	Killed.		Injured.	Killed.	Injured.	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	1	...	1	...	...	1	...	...	1	...	...	2	...	1	...	...	...	...	...	...	3
4. Collisions between light engines	4
5. Passenger trains or parts of passenger trains leaving the rails	1	...	10	1	...	1	...	10	...	...	...	...	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	...	6	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	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	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	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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

of PASSENGERS and OTHERS, and of RAILWAY SERVANTS KILLED or INJURED in each class of accident—*contd.*

	HYDERABAD-GODAVARI VALLEY.							JODHPUR-BIKANER (JODHPUR AND BIKANER SECTIONS). (a)							MORVI.							RAJPUTANA-MALWA. (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 1880.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	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
4. Collisions between light engines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
5. Passenger trains or parts of passenger trains leaving the rails	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
8. Trains running into stations or sidings at too high a speed	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
9. Trains running over cattle on the line	...	19	19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
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	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
TOTAL ALL CLASSES	6	21	27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	6	223	229	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	9	533	542	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(a) Including the Jodhpur-Hyderabad railway (British section).

(b) Ahmedabad-Dholka, Ahmedabad Parantij, Gaolwar's Mehsana, Palanpur-Dessa and Vijapur-Kolol-Kadi railway.

* Not (a) passenger(-).

† Of these, two were not passengers.

ABSTRACT No. 8.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1906, 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.*

	ROHILKUND AND KUMAON (LUCKNOW-BAREILLY AND COMPANY'S SECTIONS).								SOUTH INDIAN. (a)								SOUTHERN MAHARATTA. (b)								UDAIPUR-CHITTOO.								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 1890.	Other accidents.	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.	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.	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	2	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
3. Collisions between goods trains or parts of goods trains	1	...	1	...	...	1	22	1	22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
4. Collisions between light engines	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4								
5. Passenger trains or parts of passenger trains leaving the rails	...	20	20	...	...	...	...	...	6	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	...	5	5	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
7. Trains or engines travelling in the wrong direction through points	...	7	7	...	...	...	...	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
8. Trains running into stations or sidings at too high a speed	8								
9. Trains running over cattle on the line	...	63	63	...	...	...	...	...	521	531	...	3*	...	...	...	...	...	...	...	...	...	...	...	...	9
10. Ditto over obstructions on the line	...	3	3	...	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
11. Trains running through gates at level-crossings	...	1	1	...	...	...	...	...	5	5	3*	...	1	3	1	...	...	...	...	...	...	...	...	...	11
12. The bursting of boilers of engines	12								
12(a). Ditto of tubes, etc., of engines	...	8	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12(a)
13. The failure of machinery, springs, etc., of engines	...	30	30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
14. The failure of tyres	14								
15. Ditto of wheels	15								
16. Ditto of axles	...	1	1	...	...	...	...	...	7	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
17. Ditto of brake apparatus.	17								
18. Ditto of couplings	1	6	7	...	15	...	2	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	19								
20. Broken rails	...	2	2	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	...	2	2	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21
22. Slips in cuttings or embankments	5	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22								
23. Fire in trains	...	2	2	...	...	...	...	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
24. Fire at stations, or involving injury to bridges or viaducts	...	4	4	...	...	...	...	...	1	1	...	1*	...	1	...	...	...	...	...	...	...	...	...	...	24
25. Other accidents	7	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25								
TOTAL ALL CLASSES	2	150	158	...	15	1	24	1	80	...	572	572	3*	4*	...	2	...	17	537	564	...	5	...	...	14						

INDEX TO PART I, SHOWING 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.

	BARASAT-BASIRHAT LIGHT (2' 6").								SPECIAL GAUGES.								BUKHARIPORE-BERHAMPUR LIGHT (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 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. 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	4	...	4	1	...	1	5
6. Goodstrains or parts of goods trains, engines, etc., leaving the rails	6	
7. Trains or engines travelling in the wrong direction through points	7	
18. Trains running into stations or sidings at too high a speed	8	
19. Ditto over cattle on the line	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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. Ditto 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	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	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	4	2	6	...	...	...	...	...	1	...	1	...	...	...	...	...	...	1	...	1	...	...	...	...

ABSTRACT No. 3.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ended the 31st December 1906, 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.*

	COOCH BEHAR (2' 6").							CUTCH (2' 6").							GAREWAN'S DABHOI (2' 6").							KALKA-SIMLA (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 1890.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	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. 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	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	20	...	20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	4	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19
20. Broken rails	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
21. The flooding of portions of permanent-way	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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 RAILWAYS 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.												
	POWATAN LIGHT (2' 6").						RAJPIPRA (2' 6").							TARAKESHWAR-MAGRA (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 88 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 88 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 88 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. Ditto ditto and goods or mineral trains, engines and vehicles standing foul of the line	1	..	1	..	2	..	2	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
3. Collisions between goods trains or parts of goods trains	3
4. Ditto light engines	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
5. Passenger trains or parts of passenger trains leaving the rails	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	6
7. Trains or engines travelling in the wrong direction through points	7
8. Trains running into stations or sidings at too high a speed	8
9. Ditto over cattle on the line	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	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	..	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
14. Ditto of tyres	14
15. Ditto of wheels	15
16. Ditto of axles	16
17. Ditto of brake apparatus	17
18. Ditto of couplings	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	19
20. Broken rails	20
21. The flooding of portions of permanent-way	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	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	1	9	10	..	2	..	2	..	4	..	1	1	..	..	..	..	..	..	..	3	..	3	..	..	..

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.	
	HOWRAH-AMTA (2' 0").								HOWRAH-SHARAKALA (2' 0").								JONHAT (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 1890.		Other accidents.		Total.		Killed.		Injured.		Killed.		Injured.		Killed.		Injured.		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	1	...	1	...	...	...	...	12	...	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	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	10	...	10	...	...	...	...	...	4	...	4	...	...	...	...	...	...	2	...	2	...	...	...	...	5
6. Goods trains or parts of goods trains, engines, etc., leaving the rails	6	
7. Trains or engines travelling in the wrong direction through points	7	
8. Trains running into stations or sidings at too high a speed	8	
9. Ditto over cattle on the line	...	1	1	...	...	...	...	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	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. Ditto 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	11	1	12	...	...	...	...	12	...	12	4	2	6	...	...	...	...	5	...	5	...	...	...	...

ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ending the 31st DECEMBER 1906, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS.

STANDARD GAUGE LINES.

	TWELVE MONTHS ENDED THE 31ST DECEMBER 1906.												PREVIOUS YEAR.											
	Previous year.			Number.			Number of passengers and others.			Number of servants.			Total all classes.			Previous year.			Number.					
	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.	Total.	Killed.	Injured.	Total.	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.						
1. Collisions between passenger trains or parts of passenger trains	3	3	6	2	6	8	1	22	3	3	4	25	2	1	3	3	...	...	...		
2. Collisions between passenger trains and goods or mineral trains, engines, and vehicles standing foul of the line	14	20	34	19	15	34	2	69	7	12	9	81	6	11	17	17	11	...	...			
3. Collisions between goods trains or parts of goods trains	9	43	52	12	53	70	...	...	3	5	3	6	2	14	16	8	13	...	...			
4. Collisions between light engines	2	25	27	1	31	32	...	...	...	5	...	5	...	7	7	...	...	...	...	
5. Passenger trains or parts of passenger trains leaving the rails	16	33	49	15	31	46	...	2	...	2	...	4	23	30	53	34	40	...	...			
Goods trains or parts of goods trains, engines, etc., leaving the rails	5	263	268	3	290	293	1	4	...	1	1	5	2	92	94	5	90	...	...			
7. Trains or engines travelling in the wrong direction through points	6	60	66	4	66	70	...	...	...	1	...	1	3	23	31	7	77	...	...			
8. Trains running into stations or sidings at too high a speed	5	16	21	3	15	18	...	...	3	...	3	...	...	11	11	1	9	...	...			
9. Trains running over cattle on the line	1	1,501	1,502	1	1,756	1,757	...	...	...	1	...	1	12	1,742	1,754	5	1,837	...	...			
10. Trains running over obstructions on the line	12	77	89	10	90	100	†6	†5	1	1	7	6	3	87	90	7	69	...	...			
11. Trains running through gates at level-crossings	1	13	14	...	15	15	...	...	...	1	...	1	...	14	14	...	20	...	...			
12. The bursting of boilers of engines	...	1	1	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	
12(a). The bursting of tubes, etc., of engines	...	194	194	...	231	231	...	...	...	...	...	...	1	103	104	...	57	...	...			
13. The failure of machinery, springs, etc., of engines	...	591	591	...	489	489	...	...	1	...	1	...	1	211	212	...	216	...	...			
14. The failure of tyres	...	7	7	...	...	...	...	...	...	...	...	...	...	6	6	...	5	...	...			
15. Ditto of wheels	...	4	4	...	15	15	...	...	...	...	...	...	...	1	1	...	1	...	...			
16. Ditto of axles	1	28	29	...	32	32	...	...	...	...	...	...	9	29	38	6	36	...	...			
17. Ditto of brake apparatus	...	1	1	...	3	3	...	...	...	...	...	...	...	3	3	...	3	...	...			
18. Ditto of couplings	1	162	163	2	199	201	...	14	1	2	1	16	1	155	155	3	149	...	...			
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	3	3	...	3	3	...	...	...	...	...	...	...	1	1	...	...	...	...	
20. Broken rails	1	83	84	...	67	67	...	...	...	...	...	...	...	74	74	...	8	...	...			
21. The flooding of portions of permanent-way	4	47	51	9	54	63	...	...	...	...	...	...	34	48	92	24	100	...	...			
22. Slips in cuttings or embankments	1	40	41	3	43	46	...	...	1	...	1	...	6	10	16	5	21	...	...			
23. Fire in trains	1	149	149	3	97	100	3	2	1	1	4	3	1	61	62	...	52	...	...			
24. Fire at stations, or involving injury to bridges or viaducts	1	37	38	7	35	42	†2	...	3	5	5	5	1	18	19	2	17	...	...			
25. Other accidents	10	378	388	21	467	438	...	17	6	29	6	46	5	225	230	8	247	...	...			
TOTAL FOR THE TWELVE MONTHS ENDED THE 31ST DECEMBER 1906	115	4,108	4,223	115	135	30	69	45	204	135	3,174	3,308				
Previous year	94	3,778	3,872	7	124	10	60	17	214	117	2,993	3,111				
Mean mileage worked	15,985												12,082											
Number of servants employed	357,199												118,937											
Train-mileage of all descriptions	76,273,000												36,946,000											
Number of passengers carried	173,942,000												93,133,000											
Passenger-mileage	7,042,169,000												3,598,912,000											
Per mean mile open—																								
Train-mileage of all descriptions	4,772												3,058											
Number of passengers carried	10,881												7,709											
Passenger-mileage	440,549												297,876											
Total passengers—																								
Killed per million of passengers	0.040												0.021											
Injured per million of passengers	0.724												0.623											
Killed per million of passenger-miles	0.001												0.001											
Injured per million of passenger-miles	0.018												0.016											

* Of these, four were not passengers.
 † Not passengers.
 ‡ Of these, eight were not passengers.
 § Of these, nine were not passengers.

|| Of these, three were not passengers.
 ¶ Of these, seven were not passengers.
 ** Of these, one was not a passenger.
 †† Of these, five were not passengers.

31st December 1906, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, and of RAILWAY SERVANTS KILLED OR INJURED in each class of accident.

SPECIAL GAUGE LINES.													TOTAL ALL GAUGES.													
Previous year.		TWELVE MONTHS ENDED THE 31st DECEMBER 1906.											Previous year.		TWELVE MONTHS ENDED THE 31st DECEMBER 1906.											
Injured.	Total all classes.	Number.			Number of passengers and others.		Number of servants.		Total all classes.		Injured.	Total all classes.	Number.			Number of passengers and others.		Number of servants.		Total all classes.		Number of headings.				
		Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1850.	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 1850.	Other accidents.	Total.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.					
9	5	...	...	...	...	...	...	...	...	...	...	...	5	4	9	5	6	11	1	24	3	6	4	30	1
10	18	...	...	...	4	...	4	...	4	...	14	18	20	31	51	40	26	66	3	81	7	86	10	117	2
26	26	...	...	...	...	...	...	...	...	...	...	...	11	57	68	20	71	91	...	...	8	31	8	31	3
...	...	1	...	1	...	...	...	...	...	...	...	...	3	32	35	1	43	44	...	...	...	5	...	5	4
2	17	80	21	51	25	8	33	...	...	...	...	...	74	84	158	74	79	153	...	17	1	4	1	21	5
2	2	...	10	10	1	5	6	...	...	...	1	1	7	365	372	9	385	394	1	4	...	4	1	8	6
...	...	...	...	...	...	...	...	...	...	...	...	...	9	88	97	11	143	154	...	...	...	1	...	1	7
...	...	...	...	...	...	...	...	...	...	...	...	...	5	27	32	4	24	28	...	...	3	...	3	...	8
...	5	1	31	32	...	89	89	...	...	...	...	...	14	3,274	3,288	6	3,632	3,638	...	5†	...	1	...	6	9
3	23	...	1	1	1	3	4	...	2†	...	...	2	15	165	180	18	162	180	7†	27	2	4	9	31	10
1	1	...	...	...	...	...	...	...	...	...	...	...	1	27	28	...	35	35	3†	...	...	2	3	2	11
...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	12
...	...	...	1	1	...	...	...	...	...	...	...	...	1	298	299	...	288	288	...	...	...	...	...	...	12
...	...	2	11	13	...	21	21	...	...	...	...	...	3	813	816	...	756	756	...	...	1	...	1	...	13
8	8	...	...	...	...	...	...	...	...	...	...	...	...	13	13	...	5	5	...	...	3	...	3	...	14
...	...	...	2	2	...	...	...	...	...	...	...	...	...	7	7	...	16	16	...	...	...	...	...	...	15
1	1	...	2	2	...	3	3	...	...	...	...	...	10	59	69	6	71	77	...	...	1	...	1	...	16
2	...	...	...	...	1	...	7	...	...	...	...	...	...	4	4	1	6	7	...	...	...	...	...	...	17
2	17	...	18	13	1	6	7	...	...	...	...	...	2	330	332	6	353	359	...	29	1	4	1	33	18
...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	4	...	3	3	...	...	...	...	...	...	19
...	...	...	1	1	1	...	1	...	...	...	...	...	1	158	159	1	180	181	...	...	...	...	...	...	20
...	...	1	1	2	3	4	7	...	...	...	...	...	39	106	145	36	158	194	...	...	...	...	...	...	21
...	1	...	5	5	2	...	2	...	...	...	...	...	7	55	62	10	64	74	...	1	1	...	1	1	22
...	...	...	...	...	...	1	1	...	...	...	...	...	2	209	211	3	150	153	3	2	1	1	4	3	23
...	...	...	2	2	1	...	1	...	...	...	...	...	2	57	59	10	52	62	2†	...	3	5	5	5	24
7	10	3	2	5	2	7	9	...	6	2	4	2	10	18	603	623	31	721	752	...	26	8	10	8	66	25
0	12	129	42	97	139	...	12	2	19	2	31	292	7,479	7,671	2	...	1	39	148	59	364
1	3	36	...	...	38	103	141	...	16	3	4	3	20	...	...	...	249	6,874	7,123	8	155	15	115	23	270

740
3,148
1,335,000
8,998,000
46,984,000

1,804
5,403
63,492

.....
2,501

.....
0,218

28,807
479,284
114,554,000
271,063,000
10,688,095,000

3,977
9,410
371,024

0,033
0,718

.....
0,018

†† Of these, twenty-two were not passengers.
† Of these, fifteen were not passengers.
* Of these, eleven were not passengers.

†† Of these, six were not passengers.
††† Of these, twelve were not passengers.

ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, etc., reported during the TWELVE MONTHS ending the 31st DECEMBER 1906, distinguishing the different CLASSES of ACCIDENTS and the number of PASSENGERS.

	STANDARD GAUGE LINES.																
	Previous year.			TWELVE MONTHS ENDING THE 31st DECEMBER 1906.						Previous year.			1906.				
	Number.		Total.	Number.		Total.	Number of passengers and others.		Total all classes.	Number.		Total.	Number.				
	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1850.	Other accidents.		Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1850.	Other accidents.		Killed.	Injured.		Killed.	Injured.		Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1850.	Other accidents.	Accidents reported to Local Governments under section 83 of the Indian Railways Act, No. IX of 1850.	Other accidents.	
1. Collisions between passenger trains or parts of passenger trains	3	3	6	2	6	8	1	22	3	3	4	25	2	1	3	3	...
2. Collisions between passenger trains and goods or mineral trains, engines, and vehicles standing foul of the line	14	20	34	19	15	34	2*	69	7	12	9	81	6	11	17	17	11
3. Collisions between goods trains or parts of goods trains	9	43	52	12	53	70	...	...	3	5	3	5	2	14	16	8	13
4. Collisions between light engines	2	25	27	1	31	32	...	...	...	5	...	5	...	7	7	...	12
5. Passenger trains or parts of passenger trains leaving the rails	16	33	49	15	31	46	...	2	...	2	...	4	23	30	53	34	40
Goods trains or parts of goods trains, engines, etc., leaving the rails	5	263	268	3	290	293	1	4	...	1	1	5	2	92	94	5	90
7. Trains or engines travelling in the wrong direction through points	6	60	66	4	66	70	...	...	...	1	...	1	3	23	31	7	77
8. Trains running into stations or sidings at too high a speed	5	16	21	3	15	18	...	...	3	...	3	...	...	11	11	1	9
9. Trains running over cattle on the line	1	1,501	1,502	1	1,756	1,757	...	...	...	1	...	1	12	1,742	1,754	5	1,837
10. Trains running over obstructions on the line	12	77	89	10	90	100	†	6	†	1	1	7	3	87	90	7	69
11. Trains running through gates at level-crossings	1	13	14	...	15	15	...	...	...	1	...	1	...	14	14	...	20
12. The bursting of boilers of engines	...	1	1	...	...	...	...	...	...	...	...	...	...	1	1	...	...
12(a). The bursting of tubes, etc., of engines	...	194	194	...	231	231	...	...	...	...	...	...	1	103	104	...	57
13. The failure of machinery, springs, etc., of engines	...	591	591	...	489	489	...	...	1	...	1	...	1	211	212	...	216
14. The failure of tyres	...	7	7	...	...	...	...	...	...	...	...	...	...	6	6	...	5
15. Ditto of wheels	...	4	4	...	15	15	...	...	...	...	...	...	...	1	1	...	1
16. Ditto of axles	1	23	29	...	32	32	...	...	...	...	...	...	9	29	38	6	36
17. Ditto of brake apparatus	...	1	1	...	3	3	...	...	...	...	...	...	...	3	3	...	3
18. Ditto of couplings	1	162	163	2	199	201	...	14	1	2	1	16	1	155	156	3	149
19. Ditto of tunnels, bridges, viaducts, culverts, etc.	...	3	3	...	3	3	...	...	...	...	...	...	...	1	1	...	...
20. Broken rails	1	83	84	...	67	67	...	...	...	...	...	...	...	74	74	...	68
21. The flooding of portions of permanent-way	4	47	51	9	54	63	...	...	...	...	...	...	34	68	92	24	100
22. Slips in cuttings or embankments	1	40	41	3	43	46	...	...	1	...	1	...	6	10	16	5	21
23. Fire in trains	1	149	149	3	97	100	3	2	1	1	4	3	1	61	62	...	52
24. Fire at stations, or involving injury to bridges or viaducts	1	37	38	7	35	42	†	2	3	5	5	5	1	18	19	2	17
25. Other accidents	10	378	388	21	467	438	...	17	6	29	6	46	5	225	230	8	247
TOTAL FOR THE TWELVE MONTHS ENDING THE 31st DECEMBER 1906	...	...	...	115	4,108	4,223	†	15	§	30	69	45	204	...	...	135	3,174
Previous year	...	...	...	94	3,778	3,872	...	7	¶	10	60	17	214	...	...	117	2,993
Mean mileage worked	15,985									12,082							
Number of servants employed	357,199									118,937							
Train-mileage of all descriptions	76,273,000									36,946,000							
Number of passengers carried	173,932,000									93,183,000							
Passenger-mileage	7,042,169,000									3,598,912,000							
Per mean mile open—																	
Train-mileage of all descriptions	4,772									3,058							
Number of passengers carried	10,881									7,709							
Passenger-mileage	440,549									297,876							
Total passengers—																	
Killed per million of passengers	0.040									0.021							
Injured per million of passengers	0.724									0.623							
Killed per million of passenger-miles	0.001									0.001							
Injured per million of passenger-miles	0.018									0.016							

* Of these, four were not passengers.
 † Not passengers.
 ‡ Of these, eight were not passengers.
 § Of these, nine were not passengers.

¶ Of these, three were not passengers.
 ¶ Of these, seven were not passengers.
 ¶ Of these, one was not a passenger.
 ¶¶ Of these, five were not passengers.

On 31st December 1906, as having occurred on the several RAILWAYS open for TRAFFIC in INDIA, and of RAILWAY SERVANTS KILLED OR INJURED in each class of accident.

SPECIAL GAUGE LINES.											TOTAL ALL GAUGES.																	
ES.		TWELVE MONTHS ENDED THE 31st DECEMBER 1906.										Previous year.		TWELVE MONTHS ENDED THE 31st DECEMBER 1906.														
Number of accidents.	Total all classes.	Previous year.			Number.			Number of passengers and others.		Total all classes.		Number of accidents.	Total all classes.	Previous year.			Number.			Number of passengers and others.		Total all classes.		Number of headings.				
		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.			
9	5	...	...	...	...	...	...	...	...	...	...	...	...	5	4	9	5	6	11	1	24	3	6	4	30	1
10	18	...	...	...	4	...	4	...	4	...	14	...	18	20	31	51	40	26	66	8	81	7	36	10	117	2
26	26	...	...	...	...	...	...	...	...	...	...	...	...	11	57	68	20	71	91	...	...	8	31	8	31	3
...	...	...	...	...	1	...	...	...	...	...	...	...	...	3	32	35	1	43	44	...	...	...	5	...	5	4
2	17	...	...	...	30	21	51	25	8	33	...	...	...	74	84	158	74	79	153	...	17	1	4	1	21	5
2	2	...	...	...	...	10	10	1	5	6	...	...	...	7	365	372	9	385	394	1	4	...	4	1	8	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	88	97	11	143	154	...	...	...	1	...	1	7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	27	32	4	24	28	...	...	3	...	3	...	8
...	5	...	...	...	1	31	32	...	39	39	...	...	...	14	3,274	3,288	6	3,632	3,638	...	5+	...	1	...	6	9
1	23	...	...	...	...	1	1	1	3	4	...	2+	...	15	165	180	18	162	185	7	7	2	4	9	31	10
1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	27	28	...	35	35	3+	...	...	2	3	2	11
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	12
...	...	...	...	...	...	1	1	...	...	...	...	...	...	1	298	299	...	288	288	...	...	...	...	...	...	12
...	...	...	...	...	...	2	11	13	...	21	21	...	...	3	813	816	...	756	756	...	...	1	...	1	...	13
8	3	...	...	...	...	...	...	...	...	...	...	...	...	...	13	13	...	5	5	...	...	...	3	...	3	14
...	...	...	...	...	...	2	2	...	...	...	...	...	...	...	7	7	...	16	16	...	...	...	...	...	...	15
1	1	...	...	...	...	2	2	...	3	3	...	...	...	10	59	69	...	71	77	...	...	...	1	...	1	16
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	4	...	6	7	...	...	...	...	...	...	17
2	17	...	...	...	...	13	13	1	6	7	...	...	...	2	330	332	...	353	359	...	29	1	4	1	33	18
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	4	...	3	3	...	...	...	...	...	...	19
...	...	...	...	...	...	1	1	...	1	...	...	...	...	1	158	159	...	130	131	...	...	...	...	...	...	20
...	...	...	...	...	...	1	1	2	3	4	7	...	...	39	106	145	...	168	194	...	...	...	...	...	...	21
...	1	...	...	...	...	5	5	2	...	2	...	...	...	7	55	62	...	64	74	...	1	1	...	1	1	22
...	...	...	...	...	...	...	...	...	1	1	...	...	...	2	209	211	...	150	153	3	2	1	1	4	3	23
...	...	...	...	...	...	2	2	1	...	1	...	...	...	2	57	59	...	52	62	2+	...	3	5	5	5	24
7	10	...	...	...	3	2	5	2	7	9	...	6	2	10	605	623	...	721	752	...	26	8	10	8	66	25
60	129	42	97	139	...	12	2	19	2	31	...	292	7,379	7,671	2	...	1	39	148	59	364
21	36	38	103	141	...	16	3	4	3	20	...	249	6,874	7,123	8	155	15	115	23	270	

740
 8,148
 1,335,000
 3,998,000
 46,984,000
 1,804
 5,403
 63,492

 2,501

 0-213

28,807
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 114,654,000
 271,063,000
 10,688,095,000
 3,977
 9,410
 371,024
 0-033
 0-716
 ...
 0-018

... Of these, twenty-two were not passengers.
 + Of these, fifteen were not passengers.
 * Of these, eleven were not passengers.

... Of these, two were not passengers.
 ... Of these, six were not passengers.
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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 1906

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 3,023,143
1893 . . .	51	84	135,262,950	1 in 2,652,215	1 in 1,614,048
1894 . . .	1	85	145,462,546	1 in 145,462,546	1 in 1,711,521
1895 . . .	8	37	151,723,931	1 in 18,965,498	1 in 4,100,000
1896 . . .	24	93	159,162,589	1 in 6,631,775	1 in 1,711,521
1897 . . .	22	128	150,618,092	1 in 6,846,277	1 in 1,270,000
1898 . . .	6	66	150,567,899	1 in 25,094,649	1 in 2,281,000
1899 . . .	8	89	169,542,715	1 in 23,220,388	1 in 1,891,000
1900 . . .	14	85	175,667,916	1 in 12,547,707	1 in 2,060,000
1901 . . .	3	47	177,852,204	1 in 59,284,068	1 in 3,700,000
1902 . . .	127	184	189,056,511	1 in 1,488,634	1 in 1,021,000
1903 . . .		116	210,231,000	1 in 4,204,620	1 in 1,811,000
1904 . . .	11	83	227,097,000	1 in 20,645,182	1 in 2,736,000
1905 . . .	3	140	243,157,000	1 in 82,719,000	1 in 1,771,000
1906 . . .	9	194	271,063,000	1 in 30,118,111	1 in 1,397,000

Appendix I to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint enquiry held on the 30th March 1906, at the site of the accident, to investigate the circumstances of the derailment of No. 1 Up mixed train at mile 74-3, between Nangalkot and Laksam stations, Assam-Bengal railway, on the 29th March 1906.

The committee was composed of the following officers:—

L. D. HORNE, <i>Acting Locomotive and Carriage Superintendent.</i>	President.
A. J. COOPER, <i>Acting Traffic Manager.</i>	} Members.
W. B. VENTERS, <i>Acting District Engineer, Chittagong.</i>	
H. R. WALTON, <i>Government Inspector of Railways</i>	Present.

DESCRIPTION.

No. 1 Up mixed train, consisting of H class engine No. 84, 14 iron covered goods wagons loaded, 2 bogie iron covered goods loaded, two wooden high-sided loaded, one powder van partly loaded, 5 passenger bogies and 2 brake-vans, left Nangalkot (mile 72½) at 12 hours 7 minutes. Between mile 74-2 and 74-3, at about 12 hours 15 minutes, the leading 17 goods vehicles were derailed. The road was completely wrecked for a length of 187 feet, rails being bent and twisted and sleepers scattered and destroyed. The engine came safely to rest, the leading wheels of the tender only being derailed; the coaching vehicles were not derailed. Four passengers were slightly cut and bruised. The rolling-stock was considerably damaged.

The line between Nangalkot and the site of the accident is straight; grades from the centre of Nangalkot yard are 6,680 feet of level, 600 feet of 1 in 300 down, 2,640 feet of level. On receiving news of the accident, relief trains were promptly sent out. A diversion was put in to pass trains until the main line could be cleared and the road re-laid; this was completed by the 2nd April.

EVIDENCE.

A. D. Arathoon, driver of 1 up.—I left Nangalkot at 12-7, or about 23 minutes late. I had a full load. When I reached mile 74-1 my engine started oscillating badly. I at once shut off steam and put on the vacuum brake. My speed was about 15 miles an hour. The engine came to a stand. I told the fireman to jump off the engine. I got off on the right; on looking back I saw a cloud of dust. I came round after it subsided on the left side of the engine. After examining my engine I found one leading wheel of the tender derailed and the axle box broken. I went along the train to see if any one was hurt. I met Mr. Richardson, Probationary Assistant Traffic Superintendent, and enquired if any one was hurt. He said no one was killed. One or two were slightly hurt. The passengers got out of the train. I noticed nothing wrong with the road. At the time my engine started oscillating, I was watching my fireman. I rerailled my engine and took her on to Laksam. I pulled my train up in about two telegraph posts. I have only worked an H class for seven months. I attribute the accident to the buckling of the line. I had experience of a similar engine on the Burma railways. I am over the road every day. Running on this piece is good.

station at about 11 o'clock, and I saw nothing wrong with the road. I have never taken the fish plates off. I loosened the nuts and oiled the bolts. I have been 5 or 6 years on this length.

Kamiriddin.—I have been keyman on this length for three or four years. I have never taken the fish plates off in oiling. I have loosened the nuts and oiled the bolts.

E. T. Sweeney, permanent-way inspector, Hinguli.—I have been in charge of this length for a month. I was last over this piece of road on the 22nd. The condition of the road is good; in fact the best on my length. The gang worked on this piece about 15 days ago. The fish plates have not been taken off in my time. I have a special gang working up from mile 54, taking off and oiling fish plates. I cannot say when these were last taken off. I have travelled with driver Arathoon. I have never reported him for reckless driving. In my opinion the accident was due to fast driving. I am of opinion, judging from the wreck, that the driver was travelling over speed.

Amiruddin, gang mate.—I packed up this piece of road about three weeks ago, and the line was in excellent condition. The three pegs in the road at the edge of the sleepers were put in three months ago to prevent the road shifting. I worked at mile 74-22 in the morning. The keyman patrolled the line and reported that it was all right. I went to Nangalkot

H. T. Richardson, Probationary Assistant Traffic Superintendent.—I was travelling on 1 up on day of accident and can state definitely that the driver was not travelling over speed. I should think he was going about 15 miles an hour.

P. J. Connolly, guard.—I was the guard in charge of the No. 1 up mixed train on the 29th March 1906 from Chittagong to Akhaura.

After leaving Nangalkot station, at mile 74-1, there was a recoil in the train. On receiving the first shock I tried to get up, but was knocked down again by the recoil. The train came to a standstill. I applied my brake and jumped out. The travelling ticket checker, Mr. Muirhead, was travelling in my brake-van at the time. I went and examined my train and found that all the goods vehicles had gone off the line. I knew an accident had occurred. I examined all the passengers' vehicles and the passengers in them and made all the passengers alight. Mr. Richardson, Probationary Assistant Traffic Superintendent, was travelling in the first class, and I asked him what was to be done. He immediately deputed Mr. Muirhead to go to Nangalkot and to send an all-concerned wire. Mr. Richardson and I then had a look to see what was the cause of the accident, but could find no trace. Mr. Richardson told me to protect my train in rear and in front.

I did so by deputing two gatemen to protect the train with the help of detonators and hand signal flags. Mr. Richardson then told me he would go to Nangalkot himself to send all necessary messages. About 3 quarters of an hour later I received a Memo. from Mr. Richardson stating that he was arranging for No. 2 down to be allowed on a caution order to the scene of accident to tranship the passengers of No. 1 up and 2 down. When 2 down arrived to tranship the passengers of 1 up into 2 down and those of 2 down into 1 up. I worked 2 down back to Lakesam. I worked my train through to Akhaura.

At the time of accident my load consisted of 33 vehicles in all, bogies count as two. There were 5 bogie coaches and 2 brakevans, 14 I. C. G. loaded, 2 B. C. G. loaded, 2 H. S. loaded, and 1 P. V. loaded.

The accident took place at 12-15 hours. My train started 3 minutes late from Chittagong and ran late the whole way after the scene of accident. My train was running about 15 miles an hour when the accident took place.

FINDING.

An examination showed that the road on either side of the site of the accident was in good order, except that at some distance further away a few of the joints were closed up. The road for 187 feet was destroyed to such an extent as to preclude us from giving a definite opinion as to the precise cause of the accident. We think it probable that there was a slight buckle in the road which set up the oscillation the driver mentions, and the sudden application of all engine brakes on a long non-vacuum braked train caused the derailment of the powder van (a very lightly loaded vehicle) and subsequently wrecked the train.

We would draw attention to the fact that the accident happened at noon on a particularly hot day.

Remarks by the Government Inspector of Railways.

The accident, in my opinion, was the result of the too sudden application of the vacuum brake by driver Arathoon. The committee's finding describes what must have happened. The speed of the train, judging by results, was probably somewhat greater than 15 miles an hour. I had the opportunity of questioning driver Arathoon on the night of the accident and at the joint enquiry; he made no statement to the effect that he had personally observed a buckle in the road, though he attributed the accident to this cause; he suddenly found his engine oscillating very violently and, concluding that something was wrong with the road, shut off steam and put his vacuum brake "hard on"; he cannot be blamed for this, but undoubtedly he committed an error of judgment and, had he applied his brake gradually, the probabilities are that no damage would have occurred to the road or to the train. The H class engine in working order weighs 57½ tons, and 12 engine and tender wheels loaded with 50 tons are vacuum braked. The remainder of the train, weighing about 350 tons, was unbraked (the guard had evidently no time to apply his own brake).

The state of the permanent-way on either side of the scene of the accident points very strongly to a probable buckling having occurred through tight fishing; the buckle cannot have been very much, or the engine would scarcely have remained on the rails. The sun temperature on the day of the accident and for several days before was abnormally high. The left hand rail at either side of mile 74-3 has a lead of 9 or 10 inches, fish plates being often jammed tight up against the spikes of the joint sleepers; the sleepers themselves are also marked by the fish plates, indicating that considerable "creep" has occurred; expansion joints were found quite irregular, often 3 or 4 consecutive rails were found butting tight, fish bolts being jammed and free expansion being stopped in consequence. At mile 74-11 seven consecutive rails were found all butting tight, with the exception of 1-16 inch play at one joint; the lead here was about 6 or 7 inches and the condition of the road seemed to invite a buckle. In the past, rail joints have failed to receive the attention they require, as a reference to recent inspection reports will show. The mere opening out of the nuts on the fish bolts, oiling and re-tightening will not suffice. The fish bolts are in many cases jammed in the bolt holes, creep has occurred, expansion joints are quite irregular and free expansion is rendered impossible. The work of remedying these defects in the permanent-way must now be faced; special gangs, each with an intelligent permanent-way inspector or sub-inspector in charge, should be put on to go through the district from end to end and correct expansion joints where necessary; spiking and packing of sleepers where required can at the same time receive attention. Generally, as pointed out in the last Inspection Report, the standard of maintenance on district No. 1 is not a high one; on the partially ballasted road it is not safe to run the heavy H class engine at more than 20 miles an hour, and it would be preferable to run slow goods trains with this engine until such time as the road can be got into good order. Within a little over 3 months two derailments, due to bad road (that near Mantala on 27th December 1905 and that now under report), in both of which H class engines were involved, have cost

the Railway Company over Rs. 17,000. It is very evident that the road is not receiving the close attention it requires at the hands of the Engineering Department, and the Agent's attention is being invited to the necessity of taking early action to secure satisfactory maintenance of the road.

CHITTAGONG :
The 22nd April 1906.

H. R. WALTON,
Government Inspector.

Document accompanying.—Annexure No. 1 —Remarks by the Acting Agent.

Remarks by Senior Government Inspector of Railways, Calcutta.

I am unable after a perusal of the papers to satisfy myself as to the exact cause of the accident ; for if the road had buckled, it is difficult to understand why the engine was not derailed. The Government Inspector's remarks show that the maintenance of the road was defective and the Agent will be requested to reduce the speed of goods trains run with H class engines until the road is in better order.

CALCUTTA :
The 3rd May 1906.

R. W. EGERTON,
Senior Government Inspector.

**Annexure 1 in appendix I to the abstract return of accidents on
Indian railways for the twelve months ended the 31st December
1906.**

*Acting Agent's remarks, dated 18th April 1906, on the proceedings of joint enquiry into the
accident to No. 1 up mixed train at mile 74-3 on the 29th March 1906.*

The driver attributes this accident to buckling of the line; but he gave, and apparently was not asked to give, details as to whether he observed a buckling of the rails ahead of him during broad day-light.

Amiruddin, mate, states in his evidence that the line was in excellent condition and admitted he had never taken off fish plates and he has been 5 or 6 years on that length.

Kamiruddin, keyman, had been 3 years on the length and had never taken fish plates off.

Sw eney, permanent-way inspector, only a few months in service, suggests accident due to fast driving.

The probationary assistant traffic superintendent, Mr. Richardson, gives the speed at about 15 miles an hour while he was travelling in the train at time of accident.

I understand the driver made a statement that he saw, when too late, that the rails ahead of him were buckled. If this was so, this testimony ought to have been included in his statement.

It is clear that for five or six years no fish plates had been taken off on this length and I am strongly of opinion that, owing to the hot weather which had just commenced then, there had been a buckling. There was nothing to show the nature of the buckling, as the permanent-way was in too damaged a condition. It is regrettable that this matter of fish plates should not have been seen to. I refer to this matter of opening out fish plates periodically which has not been done hitherto, and I have now to point out, even if a few extra men have to be put on to attend to this, that this be put right at once and all fish plates taken off and examined and rails so placed as to preclude jamming. The heavy damage caused to rolling stock was due to the driver putting on his vacuum brake too suddenly and thus causing the whole of the wagons to be piled up within a length of 180 feet.

The Locomotive Superintendent should bring this to the notice of all drivers. If the brake had been put on carefully the damage would have been slight.

I am not inclined under the circumstances to blame the driver, although his action is to be regretted.

The manner and time in which the road was cleared and a diversion put in by the District Engineer was creditable.

18th April 1906.

J. STUART,
Acting Agent.

Appendix II to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry which assembled on the 20th October 1906, to investigate the cause of the derailment of No. 34 Down goods train at mile 51-17, near Fazilpur station, Assam-Bengal railway, on the 19th October 1906.

The committee was constituted as follows:—

L. D. HORNE, *Acting Locomotive and Carriage Superintendent* *President.*
W. VENTERS, *Acting District Engineer* }
F. C. LITTLE, *Acting District Traffic Superintendent* } *Members.*

DESCRIPTION.

While rail drawing was in progress on the 19th October 1906 between miles 51 and 52 No. 34 Down goods disregarded signals and got derailed at mile post 51-17 at 7-50 hours.

The accident resulted in damages to permanent-way and rolling-stock to the aggregate value of Rs. 7,400.

EVIDENCE.

N. A. Tanning, permanent-way inspector, Hinguli.—My orders for endorsement on line clears to station masters were as follows—"Caution drivers and guards to keep a keen look out during day-light for signals between mile 55 to 52. Rail joints being opened; acknowledge reply."

My orders about signals at site of rail-drawing work are: when the drawing operations start, the signal in rear of the working gang should be at least half a mile away—the danger signal is a red flag with a detonator on either rail about one telegraph pole still further away from the gang. The signal in front of the operation is the same, but eighteen telegraph posts away from the site of the work; when the gang has done rail-drawing work for a distance of six telegraph posts, these signals are replaced at the above distances.

I go out to the site of the work every second or third day and I have found that these signals are correctly placed.

Yesterday from the marks on the rails only one detonator had been exploded. The spot where the detonator had been placed for down trains was at mile 52-8 or 15 telegraph posts away from the work.

The last orders given to the station masters for endorsing line clears were issued on the 12th instant. I understood I was still working within the 52nd mile and I consider my caution order extended up to the 51st mile post.

A red flag is also displayed at the site of the work.

Shaik Khanah, assistant permanent-way inspector.—My head quarters for the present are at Feni. I left Feni at 6-0 hours on the 19th instant by trolley, and got to mile 51-17 at 6-30 hours. I gave Chundoo, blacksmith, one fog signal at once and instructed him to lay it on the rail between 52-8 and 52-9 telegraph posts. I saw Chundoo put down the fog signal. I then went to 52-5 telegraph post and instructed Khunkoo, trolleyman, to stand there with a red flag. I left him standing there. I then went to the spot where my work lay, and proceeded with it. Between 7-30 and 8-0 hours I saw a goods train approaching from Feni. As it approached the red flag shewn by my trolleyman, I noticed that the driver had not slackened his speed. Just at that time I had a small piece of rail out of the line which I was about to put in. Seeing that the driver was running against signals, I put up my hands to

danger and stood in the middle of the track. The time-keeper just then arrived from Fazilpur, and he seeing that the train was not obeying signals cut off his trolley at once and also stood on the track with his arms raised to danger. The only notice the driver took of all these signals was to signal to us with his arm to get off the line; and as he approached closer I heard him shout "Hut jao, hut jao." The guard of the goods train also shewed a red flag from his brake-van, which apparently the driver never looked at. When I found that the engine was about to pass over the portion of the line where a piece of rail was out, I got off the track and ran off to a position of safety. Shortly after the engine got derailed.

To Locomotive Superintendent.—The train was travelling at about 15 or 16 miles an hour when it was derailed.

To District Engineer.—My orders from the permanent-way inspector are to put down two detonators. I, however, put down only one at a time so as not to use up many. On this occasion I only put down one.

To District Traffic Superintendent.—I cannot say when the engine crew left the engine. I saw them about 10 minutes after the accident. I merely asked the driver what he had done. He did not reply. Before the accident I looked back more than once to make sure that the trolleyman was still where I left him with his red flag, and found he was. Chundoo, the blacksmith, came away with me after he put down his flag signal. I have never before had an accident of this kind since I have been on this special work during the past four or five months. When I raised my arms to danger in the middle of the track I told Torab Alli, my mate, to go ahead and shew a red flag.

Chundoo, blacksmith.—Khana Babu told me to lay a fog signal between telegraph posts 52-8 and 52-9 yesterday morning as we were going to work. I did so and then accompanied Khana Babu further. At telegraph post 52-5 he instructed trolleyman Poteena to station himself there and to shew a red flag towards Feni. When Khana Babu noticed that No. 34 Down goods train had passed over the detonator and had knocked down the red flag at telegraph post 52-5 he told Torab Alli to take a red flag and go towards the coming train. Khana Babu and all of us raised our arms to danger, but the

driver took no notice of us or our signals and got his engine and wagons derailed. Bhowani Babu, the timekeeper, and his trollymen also shewed danger signals to the driver.

To Locomotive Superintendent.—I stood the whole time on the left side of the line facing Fazilpur. I saw the fireman of the engine on my side of the line waving to us to get off the line, while the driver did so on the other.

Bhowani Churn Chowdhury.—This witness corroborates the evidence given by Khana, except that he can say nothing as to the laying of the fog signal, and that the red flag placed at telegraph post 52-5 was shewn to him after the accident.

To Locomotive Superintendent.—The morning was a perfectly clear one. There was no fog.

W. H. Evans, driver.—The line clear given to me at Feni had an endorsement on the back to the effect that rail joints were being opened from mile 55 to 52, and that I was to keep a sharp look-out for signals. I was driver in charge of No. 3½ Down and left Feni at 7-35. I kept a sharp look-out for signals the whole way. When I came to mile post 51-22 I noticed no signals, but some men standing on the track a few telegraph posts ahead, and a trolley off the track. I blew my whistle and as I passed another telegraph post I saw a banner signal put up against me. It was too late to stop, and my engine and train got derailed.

To the Locomotive Superintendent.—I did not signal to the permanent-way inspector's men, but my fireman did. He told them to get off the road. Just before I got derailed I heard men shouting "Rail nai hai, rail nai hai."

To District Engineer.—I first noticed that there was going to be an accident when I was about two telegraph posts off the place where I got derailed. I was going about 6 or 7 miles an hour at the time I was derailed. I never left my engine. I got off my engine after it turned over. My fireman jumped off just before the engine turned over. My native fireman jumped off the tender as it turned over. I did not pass over any fog signal.

To District Traffic Superintendent.—The only red flag I saw was the one I met when I got to two telegraph posts off the site of accident. I have never passed over a fog signal since I have been on the line.

To District Engineer.—I have never before this had to stop between stations owing to rails being hauged.

To Locomotive Superintendent.—The morning was a clear one. The rails were however wet.

To District Engineer.—I had been 17 hours on duty at the time of the accident. I left Akhaura at 18-45 hours the evening previous.

Recalled.—Just before the accident took place I noticed a large number of men on both sides of the line.

T. R. Leigh, fireman.—I have been a little over 3 months on the Asam-Bengal railway. I am fireman to engine 85, driver Evans. We worked 3½ Down out of Feni station on the morning of the 19th. When we were about 8 or 10 telegraph posts from the scene of accident, I had just finished putting on a fire, and I noticed my driver shut off steam and whistle. After we had passed about 3 or 4 telegraph posts from the spot where my driver shut off steam, I noticed danger signals exhibited, by means of red flags. One was at the scene of accident and another about four telegraph posts from that spot. My driver applied his vacuum but was unable to bring his train to a stand, and hence we were derailed.

To District Traffic Superintendent.—I did not jump off. I was shot off. I was standing on the foot-plate between the two stations. My driver told me when we were leaving Feni that there was a caution order on the line clear to proceed cautiously between miles 55 and 52. I do not know at what speed we were travelling when we were derailed. I did not hear any fog signal go off before we were derailed.

To District Engineer.—When I met the first red flag it was held by a man who held it out. There were only about half a dozen men at the scene of accident when I saw the red flag.

The Committee here sent for trolleyman Khunkoo who acknowledged that he is known by two aliases, i.e., Poduna, and Kala Deen.

Kally Kumar Dutt, brakesman.—I was guard in charge of 3½ Down yesterday morning. I first heard the noise of a fog signal going off. I then looked out and saw red flags and danger signals, and I shewed a red flag also. My driver paid no attention to the signals and got derailed. My train was travelling at about 20 or 22 miles an hour when it was derailed.

To Locomotive Superintendent.—I did not protect my train after the accident. I did not lay down any fog signals.

FINDING.

Having carefully studied the evidence we find

(1) That this accident was due to the driver not having kept a proper look-out for signals, which caused him to miss the first red flag which was put up against his train, resulting in his inability to pull up in time after he saw the second red flag.

(2) That the driver had been 17 hours on duty owing to the nature of the traffic, and hence was not as well fitted for keeping as keen a look-out as he would have been had he not been quite so long on duty.

(3) That a fog signal had been put down and exploded, but that from the evidence it is not possible to say whether it was laid for No. 3½ Down or for any previous or subsequent train.

(4) That the endorsement on the reverse of the line clear, although in no way affecting this particular accident, was injudiciously worded, as, considering the working had gone beyond the 52nd mile post, the permanent-way Inspector should have taken the precaution to advise the station masters of Feni and Fazilpur to warn train staff to be on the look-out for signals up to some point beyond the 52nd mile post. We recommend that in future banner flags measuring at least three feet across be invariably used as danger signals while and where rail drawing is in progress, and that all trains be brought to a dead halt where such banner flags are exhibited, or at any specified point where rail drawing is in progress. We further recommend that all endorsements on line clear messages shall in future be so worded as to leave no doubt in the minds of the train staff as to where they should come to a dead halt, and that, with this object in view, the mile post next before that at which work is in progress shall be the one named for the staff to stop dead at.

Remarks by the Senior Government Inspector of Railways.

It is clear from the evidence that the sub-permanent-way inspector in charge of the work did not protect the line in accordance with General Rule 218 and he must therefore be held responsible for the accident.

While rail drawing work is going on it seems desirable under the term of General Rule 217 (1) that either the permanent-way inspector himself should be present or a competent sub-inspector appointed for this purpose by either the Chief or by the District Engineer.

The question of excessive hours on duty of drivers is being taken up with the Agent.

R. W. EGERTON,

Senior Government Inspector of Railways.

Documents accompanying—

Annexure 1.—Copy of Agent's remarks on finding.

Annexure 2.—Copy of Chief Engineer's remarks on the finding.

**Annexure 1 in appendix II to the abstract return of accidents on
Indian railways for the twelve months ended the 31st December
1906.**

*Agent's remarks on the proceedings of the joint enquiry into the accident which occurred at
mile 51-17 on 19th October 1906 to No. 34 Down goods train.*

I agree generally with the finding and the driver may be dealt with by the Locomotive Superintendent. There are circumstances in his favour in regard to time on duty and as the gang were working beyond the mileage given in the endorsement, otherwise he would have been dealt with summarily.

The Chief Engineer should give orders for the use of banner flags spanning across both rails fixed to posts on either side when such work is in progress, and make it quite clear that the restrictions for endorsement on line clears completely cover the mileages on which such special gangs are working.

The Traffic Manager must take up at once the matter of the guard not protecting his train after the accident and deal with the matter departmentally.

**Annexure 2 in appendix II to the abstract return of accidents on
Indian railways for the twelve months ended the 31st December
1906.**

*Remarks by the Chief Engineer on the finding of a committee of joint enquiry into the
accident to No. 34 Down goods train at mile 51-17 on 19th October 1906.*

I agree with the finding of the committee. In face of the loss to the Company in two recent accidents, this and that at mile 565, caused by disobedience of or neglect in showing signals in strict accordance with Rules 218 (11), I would recommend the supplementing of General Rules on this subject and, if no simpler solution can be found, would go so far as to recommend that a representative of the Engineering Department travel on the engine over such places, and that on the caution orders there be an instruction to pick this man up.

Appendix III to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry which assembled at Diphu station, Assam-Bengal railway, on the 17th January 1907, to investigate the cause of a collision between a Down special coal train and an Up special goods train at that station on the 23rd December 1906.

The committee was composed of the following officers:—

G. H. STEVENSON, <i>District Engineer.</i>	President.
G. H. ROBOTOM, <i>District Traffic Superintendent.</i>	} Members.
J. A. FRASER, <i>District Locomotive Superintendent.</i>	

The Sub-Inspector, Government Railway Police, was present.

DESCRIPTION.

A down special coal train was received on to the main line at Diphu station and was being shunted over the south facing points into the loop siding. An up special goods train came in at the same time, passed the distant signal and collided with the down train about half way between the points and the distant signal. The accident occurred at about 17 hours 47 minutes and resulted in damage to engines and rolling stock estimated to cost Rs. 1,730.

EVIDENCE.

Asgar Ali, driver.—I was driver of the down coal special on the evening the accident occurred.

I arrived here at 17-33 hours; my load was 17: 15 coal trucks and 2 brake-vans.

When I arrived there was no other train in the station. The signals were correct for me and both lamps, home and distant, were lighted. I was not aware that trains were to cross here. I arrived on the main line and stopped at the water column.

The station master and pointsman came to my engine and told me they were going to detain me and put my train in the siding.

There were three wagons in the siding. I was told I could take water after I was in the siding.

I drew ahead till the brake had cleared the points, when the station master and pointsman signalled me to stop. Just as I was reversing the wheel, I saw the head lights of a train approaching, and as I opened the regulator the collision occurred. After I was signalled to stop and until the collision occurred I was not signalled to go back. After the collision I saw that the brake and 3 or 4 trucks had gone back on to the main line and not to the siding.

I did not see how the signals for the other train were.

Recalled. Denies that he told the pay clerk that the loco. was in fault as the signals were all at danger.

A. T. Borthakur, driver.—I was driver of the up goods special on the occasion of the accident.

I had no information that trains were to cross at Diphu.

I left Langsoli at 16-50. I looked at my watch before coming to the distant signal and it was 17-45. I saw the distant signal on coming round the curve and it was showing green. After passing the distant signal I saw the engine lights of the other train and did my best to stop my train. After the collision I got off my engine and saw that the home signal showed green. Within two minutes I looked again and saw that the signal was showing red.

Robert Newberry, guard.—I was guard of the down coal special on the day the accident occurred.

I arrived at 17-33. The signals were lighted and lowered for my train. It was just dusk. The home signal was raised to danger after I arrived. I did not know trains were to cross at Diphu. The driver stopped at the water column. As soon as the train stopped I went to the station to sign the arrival report. I heard the station master tell the driver to draw ahead. I was in the station when the collision occurred. The assistant station master was in the station too. The pointsman was at the points. No body was at the signal levers. The assistant station master took me to the signal capstan immediately after the collision and showed me that the distant signal chain was slack; there was no chain on the roller; nobody was standing near the signal. I could not see the distant signal. The home signal was at danger. The home signal was burning.

After the arrival of the train I went straight to the station and remained in the building till I heard the crash of the collision. The space of time was about four minutes.

B. B. Moitra, station master.—I was station master of Diphu at the time of the accident. My assistant received the out report of the up goods special at 16-50, which should make her due here at 17-50. The down coal special arrived here at 17-33. I received the down coal special on the main line as the loop was occupied by three wagons.

I started to shunt the down train into the siding over the Lunding end facing points. I was at the points myself with the pointsman, superintending the shunting. My assistant was in the station office; my chowkidar was also in the office standing at the door. All my signals were lighted. I saw this myself. I can see the back lights of the Lunding end distant signal. When the signal is up it shows white. I saw the back light of the distant signal before the collision happened. I heard the down train engine whistle first and immediately after the up train engine whistled, and then within a minute the collision occurred. The signals are only lowered under my instructions and in my presence. I always lower the distant signal first and the main signal afterwards. When I went to the points I left instructions with my assistant that he was not to lower the signals for the up train till I

showed him a green light from the points. I also told the chowkidar that he was not to lower the signals without the assistant station master's orders.

When one train only is coming to my station I do not light the distant signal in the opposite direction from which the train is coming. Just at dusk the pointsman first lit the Lumding distant signal because it was very jungly then, and he then lit the Tinsukia distant signal; the pointsman took the section misty with him when he lit the signals.

I have seen General Rule 187 and know it.

K. C. Ganguli, signaller and assistant station master.—When the station master and pointsman went to give instructions about shunting to the coal special driver, the station master instructed me to give the in report of the down coal special and to ask line clear for the up train.

He also told me not to lower the distant signal till he signalled me from the points. He did not signal me from the points. The chowkidar lowers the signals. The chowkidar at the time was at the foot of the main signal.

The signals had been lighted on this occasion by the pointsman; neither the chowkidar nor myself lowered the signal. Immediately after the accident I showed the down coal special guard the signal levers as well as the chain which was slack; I am in the habit of lowering the signals only when I hear the train whistle. I lower the main signal first and then the distant signal.

A. C. Sen, pay clerk.—I was in the front brake-van, which was next the engine of the down coal special.

I was asleep and was wakened up by the collision; when I got on to the platform I saw that the home signal was showing a red light.

I then went off towards the distant signal thinking I might be asked afterwards to give evidence about it. I met driver Asgar Ali of the down coal special, and he told me it must be Loco.'s fault as both signals were at danger. I then met the guard of the up train, and he said the distant signal was still lowered. I then went to the distant signal myself and saw that the signal was up and that there was no light. It was about 10 minutes after the collision occurred that I examined the distant signal.

Aghona, fireman.—I was fireman of down coal special on the evening the accident occurred.

Home and distant signals were lit and correct for my train.

I did not notice how the signals were for the other trains.

The train came in on the main line and stopped with the engine at the water column.

The station master and pointsman came to the engine and told the driver that the train was to be drawn ahead and backed into the siding. The pointsman gave the signal and we drew ahead. The pointsman gave the signal for the train to back. I did not see the other train till the collision occurred.

Enait Ali, fireman.—I was fireman of the up goods special. I whistled when I came round the curve and saw that the distant signal was showing green, but I did not see the signal arm. I did not see the home signal at the time, but some time afterwards I saw that it was showing red.

Ginoor Ali, brakesman.—I was in my brake (the front one) when the collision occurred. I saw the other engine coming before my train quite stopped and shouted to the driver. I did not look at the home signal at the time of the collision, but some time afterwards when it was showing red. After the collision I saw that the rear brake-van and 5 H. S. trucks had been pushed back on to the main line.

Botoaha Ram.—I was in the station with the assistant station master when the accident happened.

When the station master went to the points he gave me no orders.

I do not do any signalling till I get orders from the station master or the assistant station master.

Distant and home signals were at danger for train from Lumding.

I lit the home signal and the pointsman lit both distant signals.

Chandi Ram, pointsman.—I went with the station master to the points to do the shunting of the down coal special. When I left the station with the station master I did not hear him give any orders to the chowkidar or assistant station master. I did not hear the up train whistle till just before the collision. The main signal was showing red. The back light of the distant signal was showing white. I first lit the Tinsukia distant signal and then the Lumding distant signal, but I usually light the Lumding one first. A pumper went with me to light the Lumding distant signal. Gonesh Mistri saw me going.

Kasim Ali, brakesman.—I was in the front brake of the up goods special. I looked for the distant signal light, but I could see no light. It was too dark to see the signal arm.

I did not see the home signal.

Gonesh mistri.—I was in my quarters at the time of the accident.

I met the pointsman coming from the Lumding distant signal with a hand lamp, but do not know if he lit the signal or not.

Amanuddin Ahmed, guard.—Train left Langsoliet at 16-50. When driver whistled I looked for the distant signal, but could see no light, and I put my brake on hard. I waited for about three minutes looking for the signal before putting on my brake. I did not see the home signal. I was standing in my brake at time of the collision and got hurt. I looked at my watch when the driver whistled and it was 17-35; my load was 24.

Recalled.—Does not remember telling the District Locomotive Superintendent the morning after the accident that he saw that the distant signal arm was lowered though the lamp was out.

J. A. Fraser, District Locomotive Superintendent.—I hereby state on my honour that guard Amanuddin Ahmed did tell me at Langsoliet the morning after the collision that the arm of the distant signal was lowered when his brake-van passed it, but that the light was out.

FINDING.

We find the station master did not act with the discretion required of him in accordance with Rule 187 of the General Rules when he drew the down special out over the points in the direction of the up goods special of which he had received the out report some 43 minutes previously.

From the unbiased evidence of the pay clerk and the weight of the remaining evidence we are of opinion that the distant signal was not alight when the up train passed it. Whether it had been lighted it is impossible to say.

We are of opinion that from the evidence it would appear that the distant signal arm was at danger when the driver passed it.

We do not believe the station master's statement that he saw the back light of the distant signal burning when he was at the points and are of opinion that if the lamp was lighted at all it had gone out before this.

We strongly recommend that in the new rules there should be a rule prohibiting shunting in the direction of an incoming train.

We are of opinion that the system of lighting distant signal lamps only when trains are expected is bad and that they should be kept alight from sundown to sunrise.

G. H. STEVENSON,

District Engineer.

I agree with the above finding excepting only the last recommendation. I cannot see any utility or advantage to compensate for the enormous extra expenditure in oil and the consequent cost. If lamps are alight when trains are due it seems to be all that is necessary.

G. H. ROBOTOM,

District Traffic Superintendent.

I agree with the finding except that I believe the distant signal arm was lowered when the up train passed it. I base this belief on the statement of the guard, which he made to me at Langsoliet station early on the morning following the collision and on the statement which he made to the pay clerk immediately after the accident.

J. A. FRASER,

Acting District Locomotive Superintendent.

Remarks by the Senior Government Inspector of Railways, Calcutta.

This accident was in my opinion due to the action of the station master at Diphu in permitting shunting operations being carried out in the direction of an approaching train in defiance of General Rule 187 and without complying with the Company's subsidiary rule 92 (3). There can be little doubt, I think, that the distant signal lamp was unlit.

The necessity for shunting in the direction of the approaching train would have been obviated had not the loop been used for stabling detached wagons. This practice should be forbidden at all stations unless those stations are closed for crossing trains.

The three officers composing the joint enquiry committee have each submitted an independent finding. The Traffic and Locomotive Officers appear to have failed to recognize that their attendance on such committees is for the purpose of arriving at a unanimous conclusion as to the facts and of fixing the blame on the people in fault, and that they are not there to hold a brief for their respective departments. The Traffic Officer expresses the opinion that if signal lamps are lit when trains are due "it seems to be all that is necessary." He might be referred to General Rules 90 (1) and (2) which prescribe that these lamps shall be kept alight from sunset till daylight in the absence of any special instructions to the contrary. As no such special instructions have been issued on the Assam-Bengal railway, the General Rule should be obeyed.

It is clear that the distant signal is located far too close to the facing points. It should be moved and if then invisible from the station an electric repeater provided.

R. W. EGERTON,

Senior Government Inspector.

CALCUTTA:

The 11th February 1907.

Document accompanying—

Annexure.—Remarks by Agent, Assam-Bengal railway.

**Annexure 1 in appendix III to the abstract return of accidents on
Indian railways for the twelve months ended the 31st December
1906.**

Remarks by Agent, Assam-Bengal railway, on joint enquiry proceedings.

I agree generally with the finding and believe from the evidence that the distant signal was set against the up goods special but that the light was out. The statement of guard A. Ahamed who told the District Locomotive Superintendent that the signal arm was lowered, but forgot all about this at the enquiry is evidently not worth much.

Even if the signal arm had been lowered the fact that the light was out and the signal out of order should, under General Rule 99, have been sufficient warning to the driver to stop. The driver is therefore primarily to blame and should be prosecuted.

The station master however, knowing that the up goods special was coming in, showed gross carelessness not only in shunting the coal train in face of the approaching goods, but in not examining his signals or taking any precautions. He has moreover given false evidence at the enquiry in trying to protect himself. He should therefore be severely punished departmentally.

**Appendix IV to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.**

*Report of the proceedings of a joint committee of enquiry which assembled at
Goilkerā station, Bengal-Nagpur railway, on the 27th November 1906, to
investigate the cause of a collision which occurred at mile 484-18 on the
20th November 1906, between a light engine and 10 run-away rail trucks*

The committee was composed of the following officers:—

D. SCANLON, <i>District Traffic Superintendent</i>	. . . . .	<i>President.</i>
J. WATKINS BALL, <i>District Locomotive Superintendent</i>	. . . . .	} <i>Members.</i>
C. V. SHOTLAND, <i>District Engineer</i>	
J. N. D. LATOUCHE, <i>Government Inspector of Railways</i>	. . . . .	} <i>Present.</i>
C. ISMAY, <i>Superintendent of Transportation</i>	

DESCRIPTION.

Goilkerā is a station at mile 214½ from Howrah on the single line portion of the Bengal-Nagpur railway between Chakardarpur and Jharsuguda. A grade of 1 in 100 down begins 210 feet from the points, and continues for about 2½ miles; there is then a short stretch of level over a bridge, and a rising grade also 1 in 100.

The following are brief particulars of this case:—

Shunting was being done with material train in Goilkerā yard at about 19 hours.

It was the intention of the points jemadar to place 10 loaded rail trucks on the main line, but when the engine with the rail trucks in front had cleared points No. 1 the driver insisted that the trucks should be cut off there to enable him to take his engine and clear a jam at points B. The guard (Cross) weakly consenting to the driver's proposition to cut the trucks off at points No. 1, the engine eased up to slacken couplings, the coupling was removed and the bump from engine caused the detached rail trucks to roll down the gradient. From the evidence of the jemadar and pointsman brakes were thrown down, but this did not stop the trucks rolling and as they got further away they gained speed. The driver without any authority followed them up with his engine but could not catch them up. The trucks got as far as a cutting on an up grade near gate lodge at mile 416 and then started to roll back. The jemadar who stuck to the run-away trucks threw down two more brakes making five in all and then mounting the brake handle of the last brake thrown down accompanied the trucks on the return journey, when suddenly they pitched into the engine; the shock threw him off but he was not seriously hurt. Four rail trucks were wrecked and 6 others suffered slight damage. The engine was seriously damaged.

The estimated cost of damage to rolling-stock is about Rs. 14,125 and to permanent-way about Rs. 940.

EVIDENCE.

Dhookia Ghesai, points jemadar.—The material train was shunting at 7-30 p.m. on the 20th November.

There were 18 wagons of rails in front of the engine, and four wagons at back of tender. From these 18 wagons eight were cut off in the siding. These wagons were fouling the Scotch Block, they were pushed back and then jammed the line. They were left in this position and the engine went back and cut off four wagons. The intention then was to go ahead to facing points No. 1, back into main line, cut off 10 rail trucks, go round by points No. 2 to loop line, pick up the 4 wagons previously cut off, take them into the main line, and then to return and clear the jam. When I got to points No. 1, the driver said "what are you going to do?" I replied "I am going to take you into the main line." The driver said "no, cut me off here so as I can clear the jam." and the guard came up and repeated the order. The

driver went ahead to slacken couplings and I uncoupled the 10 rail trucks, which immediately began to move away; I ran up and threw down a wagon brake which I mounted, and accompanied the run-away wagons. I took my lamp with me and showed a red light to the engine which I saw following. The wagons ran away till they got to up gradient at a cutting and came to a stand when I got off and put down another brake. The wagons then started to roll back in the direction of Goilkerā, and I rode on the brake handle holding on by a wire lashing of the rail truck, and showing a danger signal with my hand lamp in the direction of Goilkerā. Suddenly the trucks collided with the engine near some gangmen's huts in a cutting. I did not see the engine approach as she had no lights. I cannot say if the engine was approaching or was stationary. I was thrown off the wagon with the force of the impact and the engine was driven back about 150 yards.

The red glass in my lamp was broken in the collision. I sustained no injury except a bruised knee and elbow.

I did not see to the wagon brakes being put down before cutting off the engine. Pointsman Binda Tewaree threw down 2 brakes before the rail trucks began to move away, and I threw down one brake. When the run-away wagons stopped at the cutting I threw down 2 more brakes—not one. There were altogether 5 brakes down on the 10 run-away wagons.

The pointsman threw down 2 brakes on the south side and I threw down 1 on the south side when the trucks began to roll. The wagons were cut off about 60 feet from facing points No. 1.

Binda Ram Tewaree, pointsman.—I am pointsman at Goilkera. On the day of the accident I was on duty at points No. 1. When the engine was detached from 10 rail trucks, I threw down 2 brakes on the south side. While in the act of throwing down the third brake, the wagons got away. There was a dispute between the driver and jemadar. The jemadar wanted the driver to go into the main line and detach the 10 rail trucks, whereas the driver insisted on cutting them off the points.

A. A. Saul, driver.—I was the driver of material train at Goilkera on 20th instant. It was the jemadar's intention to detach 10 wagons of rails in front of my engine outside the points. He asked me to ease up so as to get the coupling off. I did so and the wagons were detached and started running away in the direction of the tunnel. The jemadar jumped on to the run-away wagons and called out to me to bring my engine, and he also waved a green light. I followed up after the run-away wagons had gone about 8 truck lengths, but they had got a high speed on them and got out of sight round a curve. My intention was to pick the trucks up, before they got over the hill and ran into Posaita, but they had got too much way on them. I then stopped and put back and went back slowly, just then I heard a faint hum, and saw the trucks approaching me at a very high rate of speed. I then gave the engine full steam, but I was too late and the trucks pitched into me and carried me back 50 yards. I saw a red light on the trucks, as they were approaching me. I told the jemadar to be careful when detaching the trucks outside facing points as there was a falling gradient of 1 in 100, but he paid no attention. I followed the trucks without any authority in good faith, with a view to saving the trucks and avoiding a probable collision. The guard was on the foot plate of my engine. I did not drop the guard when I came to a stand. The guard was superintending the shunting. I did not inform the station master that the trucks had run away. My only thought was to clear the line. There was no wind, but it was pitch dark. I was aware of the rule prohibiting me from going out

on the line outside signals, without authority, but I did it in good faith. I have passed an examination in driver's duties. I tried to stop the trucks just as they started running away, but did not succeed in doing so. I did not know the brakes were off. Had there been light I would have saved the trucks. The engine head lights were burning at the time of the collision.

Thomas Cross, guard.—I was the guard in charge of material train working at Goilkera on 20th. I was superintending the shunting with the jemadar. When the engine had gone ahead with 10 wagons, the jemadar gave the order to detach the wagons which were clear of points No. 1. The jemadar protested with the driver against cutting off the wagons outside points, as it was on a steep gradient, but the driver said "go on with it." It was the driver's suggestion that the wagons should be cut off outside the points. The jemadar wished to cut them off on the main line (in yard). There was a dispute between the driver and jemadar about cutting off these wagons and I heard the driver abuse the jemadar several times. I did not see the driver get off the engine to assault the jemadar. The driver forced the jemadar's hand by insisting on cutting off the wagons outside points. I was aware that there was a falling gradient outside Goilkera. The driver in easing up to take off coupling, gave the wagons a bump, which started them moving. I ran after them to put brakes down, but the ballast being up and the wagon flaps being down, I did not succeed. The pointsman on the other side, lowered from 3 to 5 brakes and I saw him pinning them down. I at the same time looked around to see if I could find a sprag, so as I could sprag the wagons. I followed the wagons from 50 to 70 yards, and on returning I found the driver following them up. I jumped on to the engine to ask the driver his intention and I could not jump off as the ballast was up. The driver did not stop and back his engine. When the collision occurred he was going ahead slowly. I told the driver that he was wrong in going out on line without line clear. My train was due back in Goilkera at 18 hours, and I returned at 17-40 and signed the "In" report. I cannot say what words the jemadar used when he protested with the driver. I saw no red lights on the approaching trucks.

Amir Ali No. 5, fireman.—I was fireman on engine No. 104 B with material train on 20th instant. There was no dispute between the driver and jemadar about cutting off wagons outside points. The driver simply hurried up the jemadar to get on with the shunting quickly. I do not know who gave the order to cut off the wagons and the driver followed up the wagons and when we passed the bridge 216, the run-away wagons which were returning, pitched into the engine. The driver was going ahead at the time at a speed of 5 to 7 miles an hour. The engine was under steam.

FINDING.

We, the undersigned, are of opinion that—

1. The cause of accident was due to driver Saul following up run-away wagons from Goilkera yard without authority from the station master.

The jemadar whose evidence was given in a clear and straightforward manner protested against the wagons being cut off outside points No. 1 but the guard (a new hand with 4 or 5 months' service) allowed himself to be overruled by the driver and weakly consented to cut the wagons off at this dangerous spot. He was not quite acquainted with the gradients and is responsible for the escape of the wagons.

The major portion of blame however attaches itself to the driver who dominated both guard and jemadar and then recklessly followed the wagons without any authority.

Had the station master's permission been obtained and the line blocked the time occupied in this would have been sufficient to have brought the wagons to a stand, but knowing that there was a falling gradient for 2 or 3 miles up which the run-away trucks would go and return again he (the driver) failed to act with due caution and his plea of acting in good faith does not cover his rashness in running on with steam, up the rising gradient from mile 48½ and thus courting and meeting disaster.

2. The persons in fault are—

- (1) The driver for following up run-away wagons without authority and colliding with the wagons rolling back;
- (2) the guard for permitting wagons to be cut off outside facing points on a falling gradient of 1 in 100.

J. WATKINS BALL.

C. V. SHORTLAND.

D. SCANLON.

Remarks by the Government Inspector of Railways.

I agree with the finding of the joint committee.

It was found that there was a down grade of 1 in 250 from the points at which the accident happened to the gradient post marking the commencement of the 1 in 100 down grade, a distance of 210 feet. This defect, a serious one, should be remedied at this and at any other station at which it may be found to occur.

The failure of five wagon brakes (which however were not pinned down) to hold ten loaded wagons on a grade of 1 in 100 is worth remark. Sprags have been found untrustworthy, as they break if subjected to a shock. The only effective method I have seen of holding up a wagon is the handled chock used on the ferry inclines; a supply of these to guards and to station masters at stations situated similarly to Gailkera would, I consider, be of service.

J. N. D. LATOUCHE,
Government Inspector of Railways.

CALCUTTA;
The 3rd January 1907.

Remarks by the Senior Government Inspector of Railways, Calcutta.

I agree with the finding of the committee.

R. W. EGERTON,
Senior Government Inspector.

CALCUTTA;
The 22nd January 1907.

**Appendix V to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.**

Report of the proceedings of a joint committee of enquiry which assembled at Sini station, Bengal-Nagpur railway, on the 27th November 1906, to investigate the cause of an accident which occurred to No. 1 down mail at that station on the 27th November 1906.

The committee was composed of the following officers :—

D. SCANLON, <i>District Traffic Superintendent</i>	. . . . .	<i>President.</i>
J. WATKINS BALL, <i>District Locomotive Superintendent</i>	. . . . .	} <i>Members.</i>
C. V. SHORTLAND, <i>District Engineer</i>	
J. N. D. LATOUCHE, <i>Government Inspector of Railways</i>	. . . . .	} <i>Present.</i>
C. ISMAY, <i>Superintendent of Transportation</i>	

DESCRIPTION.

Facing points Nos. 1 and 3 to receive No. 1 down mail on the platform line were locked by the assistant station master and jamadar after the passage of 12 up passenger, and were duly examined by the station master, after line clear had been given to the train. When the train approached, however, the engine and leading vehicles instead of taking the platform line for which the points (No. 3) were locked, took the main line. The engine and the 3 leading vehicles kept the road on the main line, the next five carriages were derailed, the 3 following carriages also kept the rails on the main line, and the next carriage had its leading wheels on the main and trailing wheels on the platform line, lastly came a luggage van and rear brake which having come to rest short of the points kept the track.

Sini Junction is an important station at mile 171 from Howrah on the single line portion of the Bengal-Nagpur railway. The approach on the side on which the accident happened is straight. The station is not interlocked; the points are secured by a bolt and cotter through the tongue rail close to its tip; the cotter can be padlocked, and the key is kept in the station master's office.

The estimated cost of damage to rolling-stock is about Rs. 500 and to permanent-way about Rs. 675.

EVIDENCE.

M. Carroll, Traffic Inspector.—I was present at Sini when an accident occurred to 1 down mail at 2-18 on the morning of 27th November. I was called out at 3-15 A.M. and went down to points No. 3 where the derailment occurred. I found the engine, 1 S. tyre van, front brake-van, and 1 luggage van standing on the main line, close to the water column; two bogie thirds, 1 postal van, 1 Great Indian Peninsula railway first, and 1 Bengal Nagpur railway first, all derailed. Next came 1 Bengal-Nagpur railway first, 1 second, and 1 third, all on main line; 1 Bengal-Nagpur railway inter-class with the leading wheels on the main, and trailing wheels on the platform line; behind this there was a luggage van and a brake-van, the last vehicle was standing on the points No. 3. The guard informed me that the points were in the same position as when I viewed them, that is, set for the platform line. The lock and bolt were in the guard's possession and he stated he had found them near the left hand tongue rail, outside the stock rail. The bolt was broken through cotter way. The head portion of bolt was missing and when looking for it, the points were turned over (a chook) point rod plug, was found between the stock and tongue rails. The left hand tongue rail was gaping about an inch from stock rail. The right hand tongue rail was open for 3 inches. The points lever was correctly set for platform line.

The coupling between the vehicles on line and those derailed had given away.

D. M. Godbole, station master.—The assistant station master gave line clear for 1 down mail of 27th November and I went to see points locked. Points Nos. 1 and 3 were set and locked for the platform line. I did not notice if the levers of the points were in their proper positions, but I examined the locks. The keys were at the station with the assistant station master.

It is the practice for the assistant to lock the points after passage of 12 up passenger, and I examine them. After the accident I went down to points No. 3 and found the points lever in the correct position, and the points set for the platform line. The bolt was found broken in two pieces. It was picked up by the mail guard, and the lock was fastened as now (before Committee.)

The left hand tongue rail was found gaping about $\frac{1}{4}$ of an inch from stock rail. The right hand tongue rail was 3 inches from stock rail.

I was at the points when they were thrown over and a point rod plug was found between the tongue and stock rails. I did not test the points after the point rod plug was found to see whether it acted as an obstruction and kept the tongue rail from fitting flush with the stock rail. When I went to see if points were locked I did not notice any gaps in them. The pointsman was at points No. 3 on each occasion that I went down to the points.

The accident occurred at 2-18 and the train was running to time.

The rear brake-van was clear of points No. 3. The broken bolt produced has been in use with these points (No. 3) for over 3 years.

Baran Singh, pointsman.—I was on duty at points No. 3 when the derailment of No. 1 down mail occurred. The points were locked for the platform line by the assistant station master and jemadar.

Immediately after the accident the guard inspected my points and found them set and locked correctly. My foot was on the points lever when the derailment occurred. I felt no jerk of any kind. The points lever faced *Amda*.

I was not asleep when the mail came in. I never told the mistry that I was asleep.

B. Radha Krishna, assistant station master, Sini.—I locked points Nos. 1 and 3 for No. 1 down mail after passage of 12 up passenger. The jemadar actually put in the bolt and cotter and locked the points and I tested the lock. There was no difficulty in fixing the bolt and cotter.

Mowjee, points jemadar.—I went with the assistant station master to lock the facing points for

No. 1 down mail. I fixed the bolt and cotter into the points. There was no difficulty in fixing either bolt or cotter. There was no "gaps" between tongue and stock rail, the tongue rail fitted flush. The handle of points faced Sini.

Digumber, permanent-way mistry.—I was working on the line when I heard the Sini pointsman talk of the accident which was due to the pointsman being asleep. Baran Singh, the pointsman concerned, was with the other pointsman when they talked of this. I also overheard the pointsmen say that after two or three wagons had passed the points, he reversed the points lever.

Driver Moore questioned by Mr. Ismay, Superintendent of Transportation, and by the Government Inspector, stated that he entered Sini station at about 10 to 12 miles an hour. He felt nothing more than a slight jerk as he went over the points. He saw green lights at all the facing points as he came in, and at points No. 3 where the accident happened, the pointsman was actually standing with his foot on the lever.

When he came back and spoke to the pointsman after the accident the latter stated that as the engine passed his foot was thrown off.

FINDING.

We, the undersigned, are of opinion that—

(1) the cause of accident was due to split points causing No. 1 down mail to take two roads.

(2) After eliminating all impossible theories, the only conclusion is, that the pointsman Baran Singh reversed the points lever, and thus caused the points to split, but there is no direct evidence to prove that this was done. The points bolt being broken, and there being no other points bolt of the same kind in yard, it is not certain whether there was any slack between the cotter and stock rail.

J. WATKINS BALL. C. V. N. SHORTLAND. W. A. R. SCANLON.

Remarks by the Government Inspector of Railways.

I agree with the finding of the joint committee. From the marks which I observed on the point of the left hand, and on the heel of the right hand tongue rail, as well as on the adjoining main line rail on the right side, I conclude that the left leading engine bogie wheel got between the tongue and stock rails on that side, and broke the locking-bolt; that the right leading wheel ran up between the tongue and stock rails, but being pulled over by the left hand tongue, broke the heel fishplate and mounted the heel rail, guiding the engine and the three following vehicles down the main line. These vehicles were fourwheelers, and were held straight by the engine; but the next coach had bogies which were not so held, and were twisted and derailed by the wrecked points.

From the fact that the right tongue was undamaged, excepting a chip taken out near its point, while the left tongue was only very slightly bent I conclude that the points had not been burst through in the trailing direction. The evidence also disproves this theory.

As there was no difficulty in getting the cotter in when the switch was locked by the assistant station master, I am persuaded there was nothing between it and the stock rail.

I have found on examining other points in this and in other stations that in some cases the tongue can be opened about $\frac{1}{4}$ inch after locking the points; this would, I think, not be sufficient to allow the engine flange (which I examined subsequently and found in excellent order) to enter; but I have noted that loose points can be sprung a little further open if the lever is suddenly thrown over, than if it is turned gently. In my opinion the theory that the pointsman (a new hand, and by no means an intelligent man), was drowsy, and threw the weight over in the confusion of waking with the engine close by, thus springing the points open and allowing the engine flange to enter, is the correct one.

I consider that unless very carefully fitted no form of cotted bolt is fit for holding main-line facing points. The one in question consisted of merely a bolt with a cotter fitting in a slot, the latter held in by a padlock. The other bolts in the same yard have a nut, which must be run up against the rail before the cotter is got in, but by running the nut back against the cotter I managed in one case to get an opening of quite $\frac{3}{8}$ inch. If the cotter is fitted so as to allow only half a turn back of the nut after insertion, the points are well held up; and as this allows the cotter to be got in easily, the pointsmen have no reason to meddle with it. Still this method is hardly satisfactory, and I consider that some trustworthy lock

such as Robertson's, Annett's, or the List Morse should be applied to all main-line facing points at non-interlocked stations. I may add that the Agent's attention has been drawn to this, and that he agrees with my suggestion.

J. N. D. LATOUCHE,
Government Inspector.

CALCUTTA,
The 4th January 1907.

Remarks by the Senior Government Inspector of Railways, Calcutta.

I agree with the finding and the recommendation of the Government Inspector that some more satisfactory points lock should be used on main line facing points.

R. W. EGERTON,
Senior Government Inspector.

CALCUTTA;
The 22nd January 1907.

Appendix VI to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint enquiry held at Rangoon station on the 26th January 1906, to investigate the causes which led to the collision between No. 150 Down goods and Down goods special at the distant signal, Rangoon station, Burma railways, on the 19th January 1906.

The committee was composed of the following officers :—

C. P. Colvin, *District Traffic Superintendent* . *President*,
G. Roberts, *Officiating District Engineer* } *Members.*
J. Nicol, *Assistant Loco. Superintendent*

DESCRIPTION.

At about 3 hours on the morning of the 19th January 1906, the 150 Down goods train with a load of eight, was run into by a Down goods special from Pazundaung. The 150 Down goods train left Pazundaung for Rangoon at 0-40 hours. This train was detained at the Rangoon distant signal until about 2-45. The cause of this long delay was that the station was blocked. The signals were then lowered to admit the train and it had just started to move when the Down goods special ran into it from the rear.

There was no loss of life nor injury to any person, and only slight damage to rolling stock.

EVIDENCE.

W. DeRosa, assistant station master, Rangoon.
—On the morning of 19th January 1906 I was the assistant station master on duty. At about one hour on 19th January 1906 signaller M. Aruland Nathan told me that Pazundaung had advised him that 150 Down would leave immediately. I ordered the signalman to ring the bell and went out into the yard to attend to the shunting of the Royal Special. No. 10 Down was then received on the platform line at about 1-30. I again went into the yard and attended to the Royal train, which eventually left for Kemmendine at a little past two. The stock of 201 Up was then standing on the main line and 203 Up was on the 3rd line. The fourth line was being used for shunting and other purposes such as stabling damaged vehicles. The two shunting engines had gone into the locomotive shed for water and were not available. The yard was therefore blocked and 150 Down could not be admitted. No. 203 Up left at about 2-40 or 2-45. After witnessing the departure of this train, I came back to the station and then saw by the repeater board opposite the office that the Home signal for 150 Down was lowered. The signaller at this time asked me if 150 Down had arrived. I replied in the negative, and he then informed me that Pazundaung had given the departure of down goods special and asked me to look at the book. I at once went to the train wire instrument, inspected the in-report book, Form L. C. 1 B, and found that no arrival report for 150 Down was entered in it, but that the out-report of down goods special from Pazundaung had been entered by signaller Aruland Nathan.

I then asked Pazundaung by telegraph why he had started the down goods special before the arrival of 150 Down. He, the assistant station master, Rungasawmy, said that he had received the arrival report of 150 Down and that there was a chance of a collision, and that I ought to go to the spot and see if anything could be done. I then went, walking to the Stockade road bridge. I arrived at about 3 o'clock and found that a collision had occurred.

The Distant and Home signals were at this time lowered.

150 Down was standing with its engine a few feet north of the Stockade road bridge. The down goods special had drawn back after the collision by the time I got there.

The guard and driver of 150 Down and the guard and driver of down goods special were standing on the line near the brake-van of 150 Down. I did not

notice whether the brake-van lamps of 150 Down were lit or whether there were any brake-van lamps at all.

I asked the driver of 150 Down why he had not observed the distant signal being lowered and had not gone into the station. He said that he had just observed it and was just in motion when the collision happened. I asked the driver of down goods special why he had not observed the brake-van lamps of 150 Down. He said that he had observed no light, and that from enquiries he found that none had been lit on the brake-van of 150 Down. I did not look myself to see whether there were any brake-van lamps on 150 Down.

At about 5 hours, on 150 Down coming into Rangoon station, I noticed that the brake-van had one side lamp. The lamp was complete and I don't know whether it had been lit or not.

As a rule the assistant station master on duty, unless he is too busy, orders the lowering of the signals. If the assistant station master does not do it, the signalman does it after taking the assistant station master's orders.

On the morning of the 19th January the signal man came to me while I was standing near the second line, and told me that the distant signal at the east end of the yard was correct for the admission of 150 Down.

I observed the disc and then told him to lower the signals.

On the evening of 18th January before leaving home to come on duty I found that I had lost my printed private number sheet. I therefore made out a manuscript one and used that only on the night of 18th January.

When I am on duty I always keep my private number sheet in my own possession.

Recalled.—After I had returned from the scene of accident I spoke to the assistant station master Rungasawmy of Pazundaung on the telephone. I told him that I had given no arrival report for 150 Down. Rungasawmy said that the signaller might have given it. I said that the matter remained to be seen.

Aruland Nathan, signaller, Rangoon.—As regards the "in-report" of 150 Down, shown in the Pazundaung book as sent by me from Rangoon, I never sent this message.

R. Rungasawmy, assistant station master, Pazundaung.—I was on duty on the morning of the 19th January.

150 Down goods left Pazundaung for Rangoon at 0-40 hours.

Down goods special arrived at Pazundaung at 2-30 hours. All the loads were detached at Pazundaung and the engine and brake-van were kept on the platform line waiting for the arrival report of 150 Down. Signaller Joseph was asking Rangoon for this arrival report, but Rangoon told him to wait. At 2-48 the signaller called out to me that Rangoon was signalling the arrival report of 150 Down. I went and stood by the instrument and heard the in-report of 150 Down actually signalled. I then made out the starting ticket for down goods special and started the train at 2-50.

About five minutes after this I was called upon the telephone by the Rangoon signaller, who told me that 150 Down had not yet arrived and to stop departure of down goods special. I told him that I had got arrival report for 150 Down and that the down goods special had left. I remained in the office attending to work for about ten minutes and then assistant station master DeRoza of Rangoon telephoned saying that there must have been an accident. I again said that I had got arrival report of 150 Down. He said that he had given no arrival report, but that perhaps the signaller had given it by mistake.

Rather more than a quarter of an hour after this he called me on the telegraph and blocked the line on account of the collision.

Joseph, signaller, Pazundaung.—150 Down left Pazundaung at 0-40. First down goods special arrived at 2-30. When the down goods special was ready to leave, I asked Rangoon for the in-report of 150 Down. The Rangoon signaller said "wait," and about 15 minutes afterwards he gave the arrival report and I received it and wrote it out in Form L. C. I. A.

Rajah, driver of down goods special.—I arrived at Pazundaung at about 3 o'clock, detached all my load there and brought my engine and brake-van on to the platform line opposite the station office. My guard asked for line clear and was told by the assistant station master that he would get it shortly. The assistant station master then went to the telephone but was recalled by the signaller to the telegraph instrument. The starting ticket was then made out and handed over, and we started.

On approaching Stockade road bridge I whistled. A little further on I noticed that the Rangoon distant signal was lowered, and a little further on again found a train ahead of me with no brake-van lamps lit or signals of any kind. I shut off steam, applied brakes and reversed, but collided very slightly with the brake-van of the train in front of me. I found that the guard and three Burmans were asleep in the brake-van of 150 Down. The guard, on finding what had occurred, at once started to light the one brake-van lamp that was on his brake-van.

Mahomed Yassim, guard.—On 19th January 1906 I was the guard of down goods special. We arrived at Pazundaung at about two hours and detached all wagons. The engine and brake-van came on to the platform line and were kept waiting for the starting ticket. I saw the assistant station master go to the telephone, and then heard the signaller call him and say that the "in-report" of 150 Down had been received. We then got starting ticket and left. After passing over the bridge between Pazundaung and Stockade road I saw that Rangoon home signal was lowered. I did not notice the distant signal. Almost immediately after this I was badly jolted in the brake-van owing to a collision having taken place.

Haji Shah, driver.—I was driver of 150 Down on the morning of 19th January 1906. After the collision I went back to the brake-van of my train. At the time the brake-van lamp was not alight. One lamp was alight on the left side of the brake-van before leaving Pazundaung. I noticed it and am sure of it.

I had arrived at Rangoon distant signal at 0-30. It was at danger until about 2-45 and I then sent my fireman to the station to see why we were being detained. The signals were lowered at about 3-5 and I at once started, but before the engine had moved more than one or two feet the collision took place.

Burkut Alli, 1st fireman.—On 19th January 1906 I was first fireman on 150 Down. We arrived at the Rangoon distant signal at 0-45 and were detained there. About 15 minutes later the guard called to me. I went to his brake-van and he gave me a detention memorandum for the driver. At this time a brake-van lamp on the left of the brake-van was alight.

Some time after this, at about 3-30, I went from the engine to Rangoon station to find out the cause of the detention. While I was away down goods special collided with 150 Down.

Oanga Pershad, guard.—I was guard of 150 Down on 19th January 1906. We left Pazundaung at 0-40 hours and were detained at Rangoon distant signal. As we were detained there a very long time, the firemen was sent in to Rangoon to find out the cause of the detention. The signals were then lowered for 150 Down and the engine whistled. At this time down goods special was coming behind us from Pazundaung. At first I thought it was only shunting, but subsequently realized that it was coming on to us and I exhibited a danger signal. I was standing on the ground to the left of my brake-van. The left brake-van lamp was alight. I had only received one lamp at Pyuntaza as there were no others then available. Three Burman cattle merchants were in my brake-van. They were accompanying their cattle to Rangoon.

There was a bright moon on that morning. My brake-van lamp was not extinguished by the collision and it remained alight until we got into Rangoon.

FINDING.

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

That the accident was due to the arrival report of 150 Down having been sent by Rangoon, although the train had not actually arrived.

The only evidence that leads us to think this, rather than that Pazundaung started the down goods special without having received the arrival report of 150 Down, is that the Rangoon assistant station master can only produce a manuscript private number sheet. Pazundaung shows 20 as the private number received from Rangoon on the arrival report. Rangoon points to the fact that No. 20 is not the next number on his sheet. If this private number sheet were a printed one, this would clear Rangoon of responsibility; but, being a manuscript one, it is open to the belief that the printed one had No. 20 as the next number on it to 2, and that the assistant station master therefore destroyed it and devised the manuscript one.

We do not think that the evidence is sufficiently conclusive to warrant prosecution, and therefore recommend departmental punishment.

As to whether there were any red lights visible from the brake-van of 150 down the evidence is too conflicting to allow of a decided opinion being arrived at.

G. ROBERTS,
Offg. Dist. Engineer.

J. NICOL,
Asst. Loco. Supdt.

C. P. COLVIN,
Dist. Traffic Superintendent.

Remarks by the Agent, Burma Railways Company.

I agree with the finding. The assistant station master has been fined Rs. 10.

Remarks by the Senior Government Inspector of Railways, Burma.

I agree with the finding. I think that the assistant station master of Rangoon destroyed his private number sheet in order to be in a position to deny the private number which assistant station master of Pazundaung would quote against him. This deception is always practised, and it points to a weak feature in the private number system. Since the occurrence of this accident, the Traffic Manager has issued an order that private number sheets shall be in duplicate, the counterfoils being retained by the Traffic Inspectors. That is a very useful reform, and one which will strengthen the value of the private number system.

Seeing that the departmental view is that the assistant station master issued an arrival report of a train that had not arrived and destroyed his private number sheet, I think that the punishment awarded is quite inadequate. The line in question is double and is worked on the absolute block, and an in-report from Rangoon is, therefore, equivalent to a line-clear. The efficiency and dishonesty of this man are appraised at a fine of Rs. 10—a fairly large sum perhaps when compared with the man's pay, but a sum which men of this class would gladly compound for in such serious circumstances. In such cases, I think that the punishment ought to be deterrent and that its effect on the rest of the staff ought to be taken into consideration. A non-deterrent punishment is an encouragement to slack working.

J. E. DALLAS,
Senior Government Inspector.

RANGOON ;
The 15th March 1906.

Appendix VII to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.

Report of the proceedings of an inquiry held at Baidyanath Junction on the 6th September 1906, to investigate the cause of the derailment of No. 7 Up mixed train, at mile 2, chain 13.75, Deoghur railway, on the 31st August 1906.

DESCRIPTION.

No. 7 Up mixed consisted of tank engine No. 5, two brake-vans, three goods vehicles and 8 passenger coaches. The order in which the vehicles were marshalled on the train cannot be ascertained, but it is known that the three goods vehicles were next to the locomotive separated by one brake-van from the passenger coaches and the second brake-van was attached to the end of the train. The accident occurred near the end of a curve of half a mile radius, left handed, facing towards Deoghur, on a falling gradient of 1 in 100. The locomotive was overturned and lay upside down on the side of the bank on the inside of the curve. The three goods vehicles, the leading brake-van and the first three passenger coaches were also derailed and all were more or less damaged. Traffic over the line was suspended for some days. The driver of the locomotive was badly scalded and succumbed to his injuries two days after the accident. Three passengers were seriously and seven passengers slightly injured.

EVIDENCE.

Bidhoo Bhusan Sen, permanent-way inspector.—I trolled down with the station master to the scene of the accident. I saw the injured driver lying down and the injured passengers; the driver was not in a condition to give any account of the accident. I examined the road; it was blocked with carriages, 4 of which were derailed and the 3 rearmost ones were on the road. I gauged the road in front of and behind the site of the accident and found it correct, the super-elevation of the outer rail was $1\frac{1}{2}$ inches. At the site of the accident some of the sleepers were broken, the rails were bent, and the road was generally wrecked. I then returned to the site of accident and began clearing the line. To the best of my knowledge there was nothing wrong with the road to account for the accident. There had already been 6 trips, 3 each way, with the same engine on that day. The rails have only one spike on each side of the rail per sleeper. I have not sufficient spikes to double spike the outer rails of curves. This is the only derailment that has occurred on this line since it was opened for traffic in 1882, except one caused by the failure of one tire of a goods vehicle; this happened about 1898. Owing to the wear of tires the flanges of the wheels of some of the rolling stock strike the heads of the fish bolts. No gang had been working anywhere near site of accident on that day to my knowledge.

Peari, fireman.—We started No 7 Up at 12.50 from Baidyanath Junction. We were going at the usual pace. The driver told me to put on the brake when we reached the falling grade approaching the Dewara Bridge. The train was going at normal speed. The engine overturned without any warning and I was thrown out senseless; when I came to I saw the driver pinned under the cab of engine and he was being scalded by steam from the safety valve which was broken.

Panchu Singh, brakesman.—I was in the rear brake-van of No. 7 Up. We started to time 12.50 from Baidyanath. We travelled at the usual speed. When we reached the falling grade approaching the Dewara Bridge we were travelling a little faster

than usual. I put on the brakes gently as we approached the falling grade. When the accident happened my brake-van came to a standstill suddenly with a bump. It remained on the rails. I have no knowledge of the order in which the carriages were marshalled on the train, but I know the three goods were next to the engine, then a brake-van and then 8 passenger carriages. The front brake-van was not mauled. I have no book of Rules.

Monghi Mea, driver.—I was working on the day previous to the accident. I made seven trips each way and I noticed nothing wrong with the road on the spot where the accident occurred. I have driven No. 5 engine, which I found a little more powerful than No. 4, which I usually drive. It is usual to take a run at the rising gradients by getting up a good speed on the falling ones. With No. 4 engine I could take a full train up from Dewara Bridge to Deoghur, starting from rest. I have a Rule book printed in Hindi which I can read.

J. Francis, in charge of locomotive and rolling stock.—I found the permanent-way inspector's men examining the line, which was blocked and wrecked; some sleepers were broken and rails bent, and I saw the fireman and he told me that the driver applied the brake suddenly and thereby caused the accident. The present condition of the tires of the goods and passenger stock shows signs of wear. I am in the habit when they get badly worn of taking them out as soon as I can get new wheels from Howrah and replace them.

Shrish Chundra Gupta.—I was travelling Intermediate to Deoghur. I thought the train was travelling at a much higher speed than usual. As the accident occurred we felt a very sudden jerk, as though the brakes had been applied suddenly, and then a crash, and on getting out of the train discovered that the engine and many carriages had left the rails. I received a slight injury to the left knee.

I am of opinion that the derailment was caused by a too sudden application of the brakes on the engine, the impact of the following vehicles, which were unbraked, forcing the engine off the metals. It is not in my opinion proved from the evidence that the speed of the train

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I am of opinion that the derailment was caused by a too sudden application of the brakes on the engine, the impact of the following vehicles, which were unbraked, forcing the engine off the metals. It is not in my opinion proved from the evidence that the speed of the train

was excessive, the only witness (Babu Shrish Chundra Gupta) giving evidence to this effect having been introduced at the inquiry by the permanent way inspector, doubtless with a view to clearing himself from any imputation of neglected maintenance.

I noticed that the tyres of the rolling-stock were in a worn condition; a larger reserve of spare wheels and axles is in my opinion desirable in order that the worn tyres may be sent into Calcutta for repair more frequently than is at present the custom.

R. W. EGERTON,
Senior Government Inspector.

CALCUTTA:

The 1st October 1906.

Appendix VIII to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry which assembled at Chooadangah station, on the 26th February 1906, to investigate the cause of a collision between No. 133 Up goods train and a ballast train on the 23rd idem, at mile 80, between Chooadangah and Jayrampur stations on the Eastern Bengal State railway, Eastern section.

The committee was composed of the following officers:—

H. B. TAYLOR, <i>Officiating Engineer-in-Chief.</i>	<i>President.</i>
MAJOR W. J. McELHINNY, <i>R.E., Officiating Traffic Superintendent.</i>	} <i>Members.</i>
T. A. HINDMARSH, <i>Locomotive Superintendent.</i>	
J. H. WHITE, <i>Government Inspector of Railways.</i>	
A. O. TODD, <i>Inspector, Government Railway Police.</i>	<i>Present.</i>

DESCRIPTION.

On the night of 22nd February 1906 a ballast train was stabled at Chooadangah station.

At 9 A.M. on the 23rd idem the guard gave the station master a written notice that after the departure of No. 3 Up mail he wished to work with his ballast train on the up line between Chooadangah and Jayrampur for one-and-a half hours, returning to Chooadangah when unloading was finished.

At 9-30 A.M. the ballast train was drawn out of the down refuge siding to the water column, and, after the departure of No. 3 Up, was taken from the down to the up line.

At about 10-7 hours the guard with the verbal permission of the station master, started his train on the up line and proceeded in the down direction to mile $\frac{80}{4}$.

At about 10-30 hours, while the ballast train was working on the up line, at mile 80 it was run into by a goods train causing considerable damage to rolling stock, completely demolishing seven wagons of the goods train and damaging the permanent-way. The driver of the goods train and a few coolies of the ballast train were injured.

EVIDENCE.

M. L. Halder, station master, Chooadangah.—

On the morning of 23rd at 7-30 the ballast train guard Earl, brought me a written memo. to say that after departure of 3 Up mail, ballast train would work between this and Jayrampur for 1½ hours on up line, returning here when unloading was finished. (The original document was handed to the committee by the station master (Exhibit A). I ordered the ballast train to shunt out of the down dead end to the down main line for engine to water. This was about 9-30.

On getting information from Munshiganj that 50 down had left, I ordered ballast train on to the up line. I personally signalled the driver and told him to clear the godown siding points to permit a wagon to be taken out to be attached to 50 down.

I saw the driver pulling the train on and the brake was just near the up water column and having set the points for the wagon to be shunted and whilst this wagon was being hand shunted, the engine of 50 down having out off with some wagons I saw that the ballast train was proceeding down on the up line without permission instead of stopping just clear of the godown siding points.

I intended to place this train in the up refuge siding as soon as I had finished my work with 50 down. As the train did not stop I sent my watch-

man Asgar Khan with flags to stop the train and I ordered the signaller to lower the up Distant signal and told the driver and guard of No. 50 down to run with all possible speed towards Jayrampur and to tell the ballast train to back and to give any information to any up train that may be coming. 50 down left here at about 10-20. Before giving information to the driver and guard of 50 down I wrote out a telegram to Jayrampur and Daruna to protect any up trains that may be coming. This message was coded about 10-15 (Exhibit B). My signaller was calling Jayrampur but he replied "wait 10 minutes." I received this message myself. I also tried the through wire to get Banpur, but could only get Ranaghat and so left the instrument disengaged. It was then I came out and started 50 down, whilst I was talking to the driver of 50 down my signaller Sha Suddin Mullick came and told me that warning for 133 up was received, this was about 10-18 or 10-19. Then 50 down left and 64 down entered this station. After some time I enquired about in-report of 50 down, but meanwhile I had got out-report of 133 from Jayrampur. It was about 10-23. After waiting half-an-hour I thought something was wrong and detaching engine of 64 down I went with this engine to see what was the matter, and found that the ballast train had collided with 133 up at mile 80.

The ballast train stabled at Chooadangah on the night of 22nd February 1906, but the guard gave me no instructions as to work to be done on 23rd until 7-30 on the morning of the 23rd. It is not customary to get advice the day before. I warned the guard of the ballast train that he had to await arrival of 133 up and go into up refuge siding. I was then standing near the points close to north water column. The train was then backing. Contractor Kishen Dass was in the van and heard and my Jemadar Kashi Ram Pandey repeated my message in Hindustani.

The guard nodded an acknowledgment. This was about 9-45 or later. The ballast train actually left my station at 10-12. It was when I got the out-report of 50 down from Munshiganj that I ordered the ballast train to come to "Up" line so as to clear my down line.

When the guard gave me the written notice (Exhibit A) I told him that sometimes 133 up comes after 3 Up. The guard had asked me this question.

From the same place as I warned the guard I also warned the driver that he would have to clear my points and stop on the up line. I did not tell him he would have to shunt for 133 up. No. 3 up arrived at Chooadangah at about right time.

As my signallers change duty at 10 hours, I asked the man on duty just before 10 to find out the whereabouts of 133 up and he told me that the train had left Bagoola at 9-28.

The signaller's name is P. K. Pramanick. One of the signallers at Jayrampur, L. B. Mukerjee is often abusive. He has been reported by me and my staff and by Duruna to the D. T. S. and the Inspecting Telegraph Signaller who also reported this man for his irregular method of working. Besides abuse he delays in receiving messages.

I did not use the danger signal D. D. D. when calling Banpur neither did I order my signaller to use this signal to Jayrampur. In my experience on this railway I have not used D. D. D. but I made use of it on the single line working on the East Indian railway.

Recalled.—I know the code D. D. D. but was bewildered at the time. I was talking to the driver of 50 down when my signaller came and said that Jayrampur was giving warning for 133 up. I said accept it as then he may accept our urgent message.

I understand that accepting warning is the same as giving line clear.

When I came to the scene of the accident I did not take hold of the guard's hands or if I did I do not remember as I was not in my proper senses at the time.

I first gave orders for the down refuge siding to be used for the ballast train, but thinking that 50 down goods was sometimes delayed more than nearly 2 hours at my station doing shunting and unloading van goods, I decided to save detention to the ballast train to place it in the up refuge siding. I told my jemadar, this whilst the train was on the crossover.

I did not see the guard of the ballast train, give the starting signal.

The head office are very particular about No. 50 down and 49 up running to time so I gave preference to dealing with No. 50 in place of the ballast train.

Pran Krishna Pramanick, signaller, Chooadangah.—I was trained at Sealdah at the Signalling School.

My hours of duty are 8 hours on and 16 hours off. I was on duty from 2 to 10 A. M. on 23rd of February.

I asked Bagoola where 133 up was and got reply that 133 up had left Bagoola at 9-28. I informed the station master; station master had told me that the ballast train would start but after arrival of 133 up at this station.

I left duty exactly at 10 and went to my quarters and was having a bath when I heard much noise and shouting. This might be 16 minutes after 10. I afterwards discovered it was because the ballast train had left without permission.

S. S. Mullick, signaller, Chooadangah.—I was trained at the signal class at Sealdah. I was on duty on the 23rd February from 10 to 18 hours. The station master first told me to enquire "where is 133 up." I asked Bagoola and he replied "left this 9-28." I told this to the station master at about 10-3.

At 10-12 I saw the ballast train going out on the up line. I looked up my file and found no block message so I personally went to station master to report this and asked for orders. The station master came with me and gave me the message (Exhibit B) at 10-15.

I rolled Jayrampur and signaller L. B. Mukerjee replied "Wait" I was rolling continuously but after 2 minutes he gave warning for 133 up. I then verbally told him not to allow 133 up as ballast train was going by up line. He replied "Refused" and only after giving out report of 133 up he took my message (Exhibit B). The station master was with me and rolling for Banpur but did not get it. About 10-35 or 10-37 I received a message (Exhibit C) that "your message received too late, 133 up has left this."

The station master was in my office when I got warning and also out-report. I did not use the danger signal D. D. D. as I did not know of it. I sent my message X. R. I was examined in the Licensed Telegraph Code and got a certificate before I left the training class.

The signaller at Jayrampur is constantly refusing our messages and abusing us.

Recalled.—I did not see the ballast engine stop near my office, it was somewhere on the Jayrampur side. The driver did not ask me anything.

I took the warning from Jayrampur for 133 up because the station master, who was in my office, ordered me to take it. Had the station master not been there, I should have issued an X. X. R. message that the line was blocked. I understand that by accepting the warning for 133 up I was giving it permission to run through. I knew the ballast train was on the up line and blocking it. I knew that a train would be detained at a station if warning from next station be not accepted.

The station master said the signaller at Jayrampur was a troublesome man. When Jayrampur refused my message and was sending warning station master said "Let me see", and took charge of the instrument and I stood beside him. The station master said Jayrampur had given warning for 133 up and he had accepted it. I read the message too and I entered the message in the book. I thought that after I took the warning message that Jayrampur signaller would accept my X. R. message but he refused it until 10-30.

Kashi Ram Pandey, jamadar, Chooadangah.—

I was told by the station master on the 23rd that the ballast train after shunting to the up line would go in to the up refuge siding. The train would first wait on the main line.

I was not standing near the station master at the water column but at the points and I did not hear him give any orders to the guard and driver, as they were backing, nor did I say anything to the guard.

Asgar Khan, waterman.—On 23rd February, when I saw the ballast train going away I saw the station master show a red flag and I held up my arms also to stop it. I was on the platform and the station master was near the goods shed. The brake was about a platform length beyond the station.

Dabri Singh, signaller, Chooadangah.—I am 20 years old and have been a year here. My pay is Rs. 7-8-0. On 23rd February I heard the station master tell the jemadar that the ballast train was to wait till he got report of the up train and it, the ballast train, was to go into the up siding. I did not receive any orders from the station master when I saw the ballast train going away. I was at the home signal post. I saw the station master supervising the shunting in the goods shed line.

Later—The station master when he was waving the red flag also ordered me to lower the Jayrampur distant signal so as to recall the ballast train.

Later still.

I made a mistake, the station master did not give any orders as to this signal, I was thinking of the Muushiganj distant signal.

J. G. Earl, guard, Chooadangah ballast train.—This is my first ballast train as a regular job.

On 23rd February my train was at Chooadangah at 9 o'clock. I gave the station master a written notice (Exhibit A).

At 9-20 I was drawn out of the down refuge siding to the water column and after departure of 3 up the station master and jemadar ordered my train from the down to the up line.

My brake stopped half way between the north water column and the points and the station master then came up to me, I asked "is the line blocked" and he said "Yes, you can go."

I started my train and passed the Telegraph office at 10-7 comparing my time with the station clock as I passed. I looked back from just clear of the platform to see if any coolies were left behind and saw everything was all right. So I gave my driver the all right signal, I could see the station master and 50 down train shunting. The station master was showing no signals. I arrived at mile 80-4 at 10-20. I wanted to commence work at 80-2 so I got out and waived my driver back and unloading was commenced. My train was loaded with brick ballast. At about 10-28 I saw the smoke of a train from Jayrampur. I thought this train was on the down line, the up line being blocked; so I warned the coolies not to cross the down line. When the train was about 300 yards away I saw the train was on the up line, I told my coolies to jump off and ran forward with a red flag. I was about the middle of the train. The train was backing slowly towards Chooadangah. I could not attract the attention of the driver of 133 up. My driver also opened his big alarm whistle and increased his speed, backing. Then the collision occurred.

All the coolies had jumped and none were on the train except some in the covered goods, but, these were not hurt. Two coolies were slightly injured by jumping out on to the ballast.

The distant signal was not lowered. I was standing near the side door and surely would have noticed, if the signal had been lowered as it would be such an unusual thing. The pulling of the wires alone would have been noticed as I would hear that. I knew 133 up was running but did not know when it would be expected.

The station master of Chooadangah came to the accident on engine of 64 down. I was standing with contractor and the driver of 50 down.

The station master took my hands, in both, of his, and said "if you will say that you saw me show danger and that you repeated red to the driver you will get me out of it." The driver of 50 down said to me at once "Don't listen, come away." "I will be the driver's witness." The station master also asked the contractor, Kishen, Das, the same thing in Hindustani. I understand enough Hindustani for this.

When my train was backed on to the up line from the down at Chooadangah the station master who was standing between the water column and the points said nothing to me as regards waiting to cross 133 up. The jemadar was not with the station master but was attending to the crossover points.

My brake passed the jemadar both going up and down, and he never said anything to me about crossing No. 133 up.

There is no regular form of notice to station master. It is customary to write the notice on any slip of paper as (Exhibit A). I have been permitted before to start down on the up line with verbal permission from the station master.

We worked on either line, up or down, with preference to the proper direction but, as traffic trains take precedence we either have to use the wrong direction or wait and delay the ballast train.

Later—On the 24th in the presence of Assistant Traffic Superintendent, Mr. Reakes, the station

master, Chooadangah, repudiated his signature on the copy of the notice (Exhibit A).

Recalled on 27th.

The station master, Chooadangah, said nothing to me about 133 up. He was standing alongside me when I gave the starting signal to my driver and he must have seen me. My train had been at a standstill for about two minutes and my brakeman was well clear of the points. Some trucks were being hand shunted already and the jemadar unhooking the crossover points.

The station master cannot have intended that my train should go into the up refuge siding or he would have had some one at the points to let me in and the jemadar would have been on the engine.

Lal Behary Mukerjee, signaller at Jayrampur.—

I received no message or enquiry from Chooadangah about a ballast train until I received the message (Exhibit D) at about 10-30. I gave this to my station master, who gave me another message to reply (Exhibit C). I was a few (4 or 5) minutes late on duty and no enquiries were made nor was I called by any one till 10-30.

No. 133 up left my station at 10-23.

The signaller, Chooadangah, accepted my warning for 133 up, and again about 8 minutes later my out-report of 133 up. During this period I received the out-report of 50 down.

I do not believe this message (Exhibit D) was written at 10 hours because the signaller kept rolling X. R. for about 4 to 5 minutes though I acknowledged it and was waiting to receive the message. I think the message was then being written out. I understand the use of danger signal D. D. D.

Parnell, driver of 50 down.—I was at Chooadangah on 23rd and saw the ballast train standing on the up line at the platform. After I finished my shunting and drew up to the water column the ballast train started. After finishing my requirements at the water column, I was waiting for line clear when the station master came running up to me saying "for God's sake try and catch up the ballast train and tell the driver to return within the protection of the up outer single." Before leaving I asked if he had introduced single line working and he said no, and also said that the down line was clear. I then tried to catch the ballast train, but I could not manage to catch him up before the accident happened. I pulled up clear of the debris, I saw the station master, Chooadangah, walk on the up platform just before the ballast train started. He made no attempt to stop the train nor did any one else on the platform.

After I came to a stand at the scene of the accident and had taken on board the injured station master, Chooadangah, arrived on a light engine and his engine pulled my train back to Chooadangah.

The station master came up to the guard when I was talking to the guard. He just asked me to move away and I did not go away. He said to the guard "your driver went away disregarding signals" I saw him also shaking hands with the guard. I heard nothing more and called the guard away.

In my opinion it was quite possible for the station master to have stopped the ballast train from going out.

Abdul I, driver of ballast train.—On 23rd I was on the down refuge siding and the guard at 9 hours shewed me a telegram and said he was to work on the up line between Chooadangah and Jayrampur and he told me the station master had been advised. I asked for a copy of the notice and the guard said it was not necessary.

I took water and after No. 3 up left I crossed to the up line.

Near the goods shed I met the station master, who said that for one hour the line between Chooadangah and Jayrampur was blocked for my work. I pulled up as far as the Telegraph office and asked the signaller if the line was blocked for me, and he said "Right, go along the up line." I

whistled my big whistle and the guard gave the starting signal. Then I left, I also got the all right signal. I did not see the station master or anyone calling me back nor was the up distant signal lowered.

At mile 80 the guard shewed red. He then said "Back." I backed and after unloading for one telegraph post length I saw the smoke of a train coming. I thought it was on the down line as single line working being in force. After the train 133 up got on to the curve I saw it was on my line so I whistled the big whistle and slowly backed whilst the guard got all the coolies to jump. When the trucks were clear I backed as hard as I could but the goods train caught me after 3 telegraph posts.

The goods train was coming full speed, and as it was a sharp curve, I only knew it was on my line about 4 or 5 telegraph posts away.

I remained on the engine with my fireman.

Recalled.—The signaller, who told me the up line was blocked was the nearest one of two, sitting in the office and had a little hair on his face.

I stopped a couple of minutes or so opposite the Telegraph office. The time was 10-7. I can identify the signaller.

[The signaller was brought in with a number of other clerks but the witness failed to identify the right man though he was uncertain between the right man S. S. Mullick and the man standing next to him both of whom he states resembled the man that was sitting in the Telegraph office.]

Abdul Rahman, 1st fireman of ballast engine No. 85.—My train was on the down refuge siding at Chooadangah on 23rd February and at 9 hours the guard showed the driver a telegram saying he was to work on the up line for one hour. The driver asked for a copy of this order but the guard said the paper would remain with him. After departure of 3 up my train was let out of the siding on the down line and my engine watered. The station master then signalled my train back and I crossed to the up line. The station master was standing near the goods shed not far from the water column and the jemadar was at the points.

The station master then signalled the train forward and told the driver the line was blocked to Jayrampur and that he could proceed for one hour's work at telegraph post 80.

We proceeded and the driver stopped at the Telegraph office to ask if all were right and the signaller said "yes, go ahead."

It is customary to enquire of the telegraph signaller before leaving even if we have the permission of the station master to leave, when the station master is not at the office.

The guard then gave the signal, I whistled and proceeded.

Ebrahim, driver of 133 up.—I knew nothing of the ballast train on the line. I ran through Jayrampur and have no record of the time I passed. I left Chitpore right time, *i.e.*, 2-49. I had been on duty 8½ hours at the time of the accident. My load was 30 to 32 loaded wagons. When I got to the curve at mile 80 I saw a train but thought it was on the down line. I knew it was on my line when about four telegraph posts distant. I then shut off steam, reversed my engine and applied vacuum and hand brakes. I whistled three times to warn the coolies on the ballast train and to also warn my guard to apply brakes. Then the collision occurred and I was injured by coal falling on me.

The station master, Chooadangah, came on a light engine. I asked the station master why he wished

to kill us by putting two trains on one line, and he said "It is not my fault; the line was not blocked, and the guard and driver of ballast train left my station without permission."

I was in the brake of 50 down. The station master arrived about 20 minutes after the accident. I had no conversation with the driver of the ballast train or with the guard.

I did not see the fireman of ballast train waving a flag.

K. D. Mukerjee, station master, Jayrampur.—Some time after departure of 133 up I received a message saying ballast train left Chooadangah on up line without permission and up line blocked.

I replied that the message was received too late; this was at 10-35 (Exhibit C). This was 6 or 7 minutes after departure of 133 up.

I have had no complaints as regards my signaller refusing messages from Chooadangah. Nor do my signallers complain of the Chooadangah staff.

I do not know the exact time L. B. Mukerjee came on duty, but I recollect he called out to me the warning for 133 up which was about 10-5.

After sending my telegram to Chooadangah I went out and sent my men to see whether anything had happened. The jemadar then said he had just heard a noise that sounded like a collision. He was at the goods shed.

I have no recollection of either blocking back or being asked to block the lines for ballast train working in the wrong direction.

I know what D. D. D. means and so do my signallers.

McNamee, guard of 133 up.—On 23rd February I passed Jayrampur at about 10-23. My watch was broken in the collision and stopped at 10-30. I felt a slight reduction of speed just before the accident. I did not hear any whistling. I was writing out the driver's report. I was knocked over on to the brake handle. It was too severe a shock for ordinary stopping and I felt there must have been a collision.

I left Chitpore 3-15 or 26 minutes late, I had been on duty at time of the accident about 8½ hours. I asked the guard of the ballast train how he came to be on the up line and he said the station master, Chooadangah, had given him permission to work on the up line for an hour and some minutes.

Patrick, guard of 50 down goods.—Just as I arrived at Chooadangah the ballast train left. The station master then came to my train and saw the shunting and attached one wagon.

He then went to the office. The station master was near the ballast train when it started and made no attempt to stop it. I was only 80 yards or so from the end of the ballast brake. The station master could have seen the guard's starting signal, as they were close together. He did not seem at all confused when the ballast train left and went on with my shunting. It was only when he came back from the Telegraph office and asked us to go as fast as we could and stop the ballast train and send it back to Chooadangah that he showed any excitement. He muttered something about 133 up having left Dursuna. He said nothing about the ballast train leaving without permission. He did not lower the up distant signal. I asked for line clear and was told that the up line was not blocked; so I did not need line clear.

I arrived at the scene of accident at 10-37.

FINDING.

We are of opinion that the accident was due to the station master, Chooadanga, M. L. Haldar, accepting warning from Jayrampur for No. 133 up goods and so giving permission for that train to enter the Jayrampur-Chooadangah section, when it was already occupied by the ballast train. We are further of opinion that the ballast train left Chooadangah to halt at mile 80 on the up line with the knowledge and permission of the station master. We consider that, when giving authority for the ballast train to leave his station, the station

master had overlooked the running of No. 133 up, and that it was not until Jayrampur gave warning for that train that he realised his mistake in not blocking the section.

It is clearly laid down in rule 30 (f) of the General and Subsidiary rules that the section of the line must be blocked in such cases, and that a written statement that the line is so blocked and the stations concerned have been duly advised must be handed to the driver before the train is moved in the wrong direction.

The station master is responsible for having broken this rule, and the driver should not have moved his engine without having this written statement in his possession. But from the evidence taken it appears that this rule is not generally observed, and that the driver moves his train under the verbal orders of the station master.

The station master is also responsible for having broken General rule 57 (a), as he did not enquire from the guard where he was going to work the following day, nor did he advise the station concerned.

He also broke rule 62 (1) (a) in that he did not obtain the permission of the station master of Jayrampur before he allowed the train to go.

We are of opinion that the station master of Chooadangah, M. L. Haldar, is entirely responsible for the accident, and that the driver of the ballast train is also at fault for proceeding without a written statement from the station master that the line is blocked, *vide* General rule 30 (f.)

We recommend that the parties in fault be dealt with departmentally

We are of opinion that rule 30 (f) of the General rules should be embodied as subsidiary rule in the ballast train rules to prevent its being overlooked.

Remarks by the Government Inspector of Railways.

I agree with the finding. I would draw the attention of the Administration to the disregard of rules by the staff. This has been brought to notice somewhat frequently. The staff should be periodically examined as to their knowledge of the rules and their fitness for carrying them out. Inspections should be more frequently and thoroughly carried out in order to prevent irregularities in working.

J. H. WHITE,

Government Inspector.

Document accompanying.

Annexure No. 1.

Remarks by the Senior Government Inspector of Railways, Calcutta.

I agree with the finding.

R. W. EGERTON,

Senior Government Inspector.

CALCUTTA;

The 3rd April 1906.

Annexure 1 in appendix VIII to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Exhibit A.

Dated the 23rd February 1906.

From—Mr. T. G. EARL, Guard,
To—Station Master, Chooadangah.

After departure of 3 up mail B train will work between this and J. R. P. for one hour and half on up line returning here when unloading is finished.

Exhibit B.

No. C. 83, dated the 23rd February 1906. 10 hours 15 minutes.

From—The Station Master, Chooadangah,
To—The Station Master, Jayrampur.

Up line between this and yours blocked by ballast train left this disregarding signals and acknowledge.

Exhibit C.

No. G. 78, dated the 23rd February 1906.

From—The Station Master, Jayrampur,
To—The Station Master, Chooadangah.

Your C. 83 received too late. No. 133 up left this at 10-23 look out.

Exhibit D.

No. C. 83, dated the 23rd February 1906, 10 hours.

From—The Station Master, Chooadangah,
To—The Station Master, Jayrampur.

Up line between this and yours blocked by ballast train left this disregarding signals.

**Appendix IX to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.**

Report of the proceedings of a joint committee of enquiry, which assembled at Jadabpur station on the 6th April 1906, to investigate the cause of the collision between Nos. 129 Up and 130 Down goods trains at that station on the Southern Section, Eastern Bengal State railway, on the 4th April 1906.

The committee was composed of the following officers :—

RAI SAHIB RALA RAM, *Executive Engineer, Calcutta District.*—President.

W. H. JAMES, *Dist. Traffic Supdt., Central and Southern Sections.*
J. SILVESTER, *District Locomotive Supdt., Calcutta District.* } Members.

DESCRIPTION.

In this case No. 129 Up goods train arrived at Jadabpur at 4-15 hours on the morning of 4th April 1906 and was received on the main or platform line; and while it was standing there, at about 4-30 hours 130 Down goods ran in on the same line and collided with it. Both engines were seriously damaged also 3 covered goods wagons, 19 other vehicles were also more or less damaged. The platform wall was broken about 60 feet in length. The damage to permanent-way was slight. The engine buffers were interlocked and one engine was derailed, 4 vehicles on 129 Up were derailed and one on 130 Down. The main line and the through siding were both blocked, necessitating the transshipment of passengers. The line is level and the station is on a curve of 10,560 feet radius. The first fireman of 130 Down and the guard of the same train were slightly injured.

EVIDENCE.

Nur Mohammed, driver, 129 Up.—I left Sonarpur at 3-35 and arrived at the outer signal before 4 hours. The outer was against me and I stopped clear of it. The outer and main signals were both lowered and I came to a stop in the station at 4-10. On enquiry from the signalman I was told that a goods train had left Ballyganj and that I should have to cross it here. He (signalman) then went to the station and returned after a couple of minutes, when he shouted out to the pointsman that a goods train had left Ballyganj and after that train had been received in the siding, my train should be allowed to proceed. The signalman then returned to the station and lowered the main signal. I saw the signal lowered myself. I had crossed over to the left or fireman's side of my engine. When 130 Down was within 2 wagon lengths of my engine I saw that she was coming on the same line. I pushed the second fireman off and jumped down myself. The collision occurred just as I got off the engine. The first fireman also jumped off on the other side. My engine lights were burning brightly, 2 were red and one green. I looked at the lights when I came to a stop at Jadabpur. My load was about 36 or 37. I cannot say whether the Down outer signal light was burning properly or not. The disc signal lamp was not burning. I had been at Jadabpur for about 10 minutes when the collision occurred. When I noticed that the disc signal was not burning, I spoke to the signalman about it and he spoke to the babu about it. The babu told the signalman to tell the pointsman to set the points for the siding and light the disc lamp, which was not at all alight. I did not hear either the gateman or the pointsman or anybody else shout when 130 Down came in. I cannot say whether the pointsman was at the points or not. It was a dark night and somewhat foggy. When the signalman shouted to the pointsman to set his points, the latter replied to him and I heard his voice, but I cannot say where he was. I did not see the jemadar before the collision. After the collision the babu and the jemadar and some others came

running from the station side. When I arrived at Jadabpur I did not see the babu outside. He might have been inside the station. The driver of 130 Down whistled while he was a long way off.

Hussanni, driver of 130 Down.—I left Ballyganj at 4-20 hours. I had a load of 12 loaded wagons besides the brake-van. I arrived at Jadabpur at 4-28. Both the outer and the main signals were lowered for me. Before I left Ballyganj the guard told me that 129 Up is at Sonarpur. I came hardly as far as the outer signal as I know I had to cross 129 Up and the outer might be against me. When I found the signals in my favour I opened out again and shut off steam when I was only 2 joints from the facing points. While I was passing over the points I saw that my train was being admitted on to the main line on which 129 Up was already standing. I then put my steam brake on, and reversed the lever, opening the steam at the same time. My fireman put the hand brake on. I remained on my engine, so did my two fireman. My first fireman received a slight hurt. The lights of 129 Up were burning brightly, so were the signal lights, but the disc lamp was not burning. There was no one at the points. The gate lamp was not burning. I was delayed for 40 minutes at Ballyganj doing the shunting. I was not told by anyone at Ballyganj that I should hurry up. If the lamp of an outer signal is not burning I would stop my train clear of it and see whether the signal is lowered or not. I whistled when I was outside the distant signal. The outer signal could not be made out distinctly. This was why I whistled and slowed down before approaching the outer signal. I lost two minutes on the run owing to cautious driving. I was running at the rate of eight miles per hour when I passed over the facing points.

Raj Bahadur Tewary, jemadar, Jadabpur station.—111 Up passed Jadabpur before 129 Up

came in. Some time before that I was told by the babu that a goods train was leaving Sonarpur and I was told to receive it on the main line. I sat down along with the signalman at the station (subsequently says he went to the up facing points and came to the station after the train had come to a stop). The signals for 129 Up were lowered as soon as he signalled back from the facing points to say that the points were set all right. 129 Up did not stop at the outer signal at all, but came in straight. I was never told anything about the train coming from Ballyganj. I had no news of 130 Down until I heard the shouting from the pointsman at the down facing points. The signalman and myself rushed out of the station verandah to see what was the matter and found that 130 Down had collided with 129 Up. There was an interval of fifteen minutes between the time of arrival of 129 Up and the time the collision occurred. A little time after the arrival of 129 Up I asked the babu what was to be done and I was told that the train would go on to Ballyganj as soon as the "line clear" was received for it. The signals were not lowered for the down train. Both of them were at danger and burning brightly. The pointsman was at the points, and it was his shouting that drew our attention to 130 Down coming in against signals. Both the main line disc lamps were burning. I walked up from the up facing points after the arrival of 129 Up and did not hear any conversation between the driver and signalman. The lights of 129 Up were burning brightly.

Sitmath Chuckerbutty, assistant station master, Jadabpur.—I was on duty at Jadabpur on the morning of 4th April. I gave line clear for 129 Up and she arrived from Sonarpur at 4-15 hours. After giving the line clear to Sonarpur I warned the jemadar and told him to go to the Up facing points. On receiving the out-report of 129 Up I ordered the signalman to lower the signals for her after exchanging all right signal with the jemadar at the facing points. 129 Up came into the station without being detained at the outer signal, and was received on the main line. I gave line clear to Ballyganj for 130 Down at 3-31. The line clear for 129 Up was given to Sonarpur at 3-29. I had warned my jemadar that 129 Up and 130 Down would cross here, but on arrival of 129 Up at 4-15 and on inquiring from Ballyganj cabin that 130 Down was still shunting I told the jemadar that I was cancelling the line clear for 130 Down and that 129 Up would be allowed to go on as soon as line clear was received for it from Ballyganj. I addressed the enquiry to Ballyganj cancelling line clear for 130 Down and asking line clear for 129 Up at 4-15, but could not get any reply from Ballyganj. This was the reason that the down facing points were not set for the siding and remained for the main line. The out-report from Ballyganj for 130

Down which is timed 4-18 hours was not received until just after the collision. The main signal and the down outer as also the Up outer were burning brightly. My disc signals at both points were also all right. The disc signals are kept burning throughout the night. They are examined twice every night once at midnight and once after the departure of 111 Up. I personally examined them on the night in question and had them trimmed by the pointsman. The main and "outer" were not lowered for 130 Down. The signalman was standing near my office door and it is not possible that he could have lowered the signals by mistake. The signalman is not allowed to lower the signals without an order from the station master on duty.

Jogeshkar Singh, signalman, Jadabpur.—On the night of the 4th I was on duty as signalman at Jadabpur. I lowered the signals for 129 Up after she whistled outside the outer signal and after the station master on duty had come out on the platform and given me orders to lower the signals. I received no intimation of 130 Down or any news of a goods train expected to leave Ballyganj. The first I knew of the train was when the pointsman shouted out and when the collision was on the point of occurring. I never lowered the signals for 130 Down. Both the disc signals were burning.

Sikandar, 1st fireman of 129 Up.—After arrival of 129 Up at Jadabpur, I examined the engine and the lights. I was cleaning the head signal lamp which was dirty when my driver shouted out to me to get off the engine as 130 Down was coming on the same line. I jumped off. I did not notice the condition of signals. The disc signal lamp was not burning. It was foggy.

H. O. Mullick, guard of 130 Down.—I know that as soon as my train arrived just inside of the distant signal I saw the red light of the home signals and I tried to stop the train by applying the brake and showed the red light to the driver, but he did not notice.

S. Bilchar, guard of 129 Up.—I beg to state that I had just arrived at the station and was about to get out of the brake-van to go to the station master's office when I heard a train from Ballyganj side coming and was obliged to stay back to reverse my brake-van light and a minute later heard a great bang and was rolling back when I put on my hand brake and stopped it. I also heard some men shout out to the down train driver to stop. The home signal was lit and was lowered for us, but don't know if the signals were lowered or not for the down train.

FINDING.

We have carefully considered the evidence and examined the line clear books of both Jadabpur and Ballyganj, and after making further inquiries at Ballyganj we came to the conclusion—

- (1) That after giving the line clear for 130 Down the assistant station master, Jadabpur, asked for its cancellation so as not to detain 129 Up as 130 Down was still shunting at Ballyganj.
- (2) That Ballyganj started 130 Down without replying to the message asking for cancellation of line clear, and that although the out-report is timed 4-18 hours, he did not actually send it that time, but some time between 4-22 and 4-28. The inquiries at Ballyganj lead to the conclusion that there was some squabbling on the instruments and this is confirmed by remarks made by the signaller at Jadabpur which at the time were not considered of sufficient importance to record.
- (3) That assistant station master, Jadabpur, not having received a reply to his message asking for cancellation of line clear, nor the out-reports of 130 Down, kept his down facing points set for the platform line on which 129 Up was waiting, and it is therefore highly probable that the signals were not lowered for 130 Down.

We therefore find—

- (a) That the driver is to blame for running past the outer at danger.
- (b) That cabin assistant J. C. Chuckerbutty at Ballyganj is responsible for entering false time in the out-report.

(c) That assistant station master Sitanath Chuckerbutty of Jadabpur should be punished for squabbling on the instrument and so wasting valuable time.

We do not recommend prosecution, but that the driver of 180 Down, cabin assistant of Ballyganj, and assistant station master, Jadabpur, be very severely dealt with departmentally

Remarks by the Senior Government Inspector of Railways, Calcutta.

I agree with the finding of the joint enquiry committee.

R. W. EGERTON,
Senior Government Inspector.

CALCUTTA ;
The 4th May 1906.

**Appendix X to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.**

*Report of the proceedings of a joint committee of enquiry which assembled
at Bogoola station, Eastern Bengal State railway, on the 11th December
1906, to investigate the cause of a collision between No. 133 and 75 up
goods trains at that station on the 6th December 1906.*

The committee was composed of the following officers :—

C. V. LLOYD, <i>Executive Engineer</i>	.	.	President.
J. SILVESTER, <i>District Locomotive Superintendent</i>	.	.	} Members.
CAPT. C. L. MAGNIAC, <i>District Traffic Superintendent</i>	.	.	
J. H. LOVELL, <i>Government Inspector of Railways</i>	.	.	} Present.
M. L. GANGULI, <i>Inspector, Government Railway Police</i>	.	.	

DESCRIPTION.

At about 5-30 hours on 6th December 1906, No. 133 up goods train collided with the rear of No. 75 up goods on the up main line, causing serious damage to rolling-stock and permanent-way to the extent of Rs. 9,637, and blocking both the up and down main lines.

No. 75 up left Aranghata at 4-35 hours, arrived at Bogoola at 5-7 hours, and line was cleared back at once with correct private number. Warning of 133 up was sent by Aranghata at 5 hours, out report was sent at 5-18, and the line was blocked back by Bogoola at 5-19 hours. When the accident occurred the engine of No. 75 up was standing at the water column, the load of the train was 64 vehicles, and the rear brake-van of this train was 1,670 feet inside the up outer signal. The engine of No. 133 up was fitted with vacuum, steam and hand brakes, and there was the usual hand brake in the rear brake-van.

EVIDENCE.

Ramjan, driver of 133 up.— I left Chitpore with 133 up at 1-30 hours with a load of 30 vehicles. I ran through Aranghata at 5-18; by that time I had 32. After leaving Naihati I had no shunting to do at any of the stations. On approaching Bogoola the up distant signal was off, I therefore ran past at 10 miles per hour. After I had got 5 or 6 vehicles lengths inside the distant signal I saw the brake-van of a train in front of me standing on the up line. The lamps on it were not lit. I could not see the home signal, as it was obscured by the smoke of the standing train. I could not see the distant signal till I got to the level crossing; ordinarily I can see it a mile away, but on this date I could not see it till I got to the level crossing on account of the jungle. I could not see it on account of fog. The distant signal lamp was burning brightly. On seeing the train standing on the line ahead of me, I shut off steam, put on my vacuum and hand brakes, and reversed my engine. When the collision took place I was running at about 10 miles per hour. I did not notice the state of the rails at that time. My brakes were all in good order; I did not apply sand as I was confused.

When trying to pull up my train after catching sight of 75 up standing in front of my train, I did not whistle for brakes. I saw no hand signals of any sort exhibited.

J. Simons, driver 75 up.— At the time of the accident I had been 6½ hours on duty. On the date of the accident I arrived at Bogoola at 5-6 hours. I was detained there about 40 minutes. I had returned to the station house to enquire about the cause of my detention and was standing on the platform when the accident took place. My train was driven forward by the impact. I had not previously noticed the incoming train. I could see the rear of my train, but could not distinguish the up

distant signal as it was rather foggy. I could see only a short distance beyond the rear of my train. The lamps on the rear brake-van of my train were burning brightly and I could clearly distinguish them from where I stood.

I did not hear the driver of the incoming train whistle. At the time of the accident the up home signal which is on the down platform was against the incoming train. I cannot say whether the up distant signal had been pulled off or how it stood at the time of the accident.

The rails were wet owing to the fog. Generally speaking I ran up to a maximum of 25 miles per hour between stations. Our booked time is 20 miles per hour.

When I came back to enquire from the assistant station master why I was being detained he was in the telegraph office attending to his instrument. I saw none of the other staff prior to the accident. When we heard the sound of the collision the assistant station master came out of his office and pointed out that the home signal was at danger. He then returned straight to his office and I went back to my engine. When I looked at the home signal with the assistant station master, there was no smoke coming from my engine and the home signal was not obscured.

Sorundur, first fireman of No. 133 up.— After running through Aranghata and on approaching Bogoola I saw the up distant signal was off. We had then reached the level crossing. I first saw the signal when a mile away, showing a green light. I also saw the semaphore was down, it was a little dark. I did not look at the signal again till I reached the level crossing as I was attending to my fire. After getting a few vehicle lengths inside the distant signal the driver shouted to me to put my

hand brake on and I did so. I did not see the brake-van of the train standing in front. I cannot say what speed we were running at. I did not see the home signal.

W. A. Robertson, guard 133 up.—On the morning of the accident I was in the rear brake-van of 133 up. I stopped for 3 minutes at Ranaghat. As far as I know the driver did not get off his engine there. I ran through Aranghata. On approaching Bogoola I looked out of my brake for signals. I saw the distant signal was against us showing a red light, and the semaphore up. I also saw the home signal was at danger. My brake-van was then crossing the open girder bridge at mile 56-22. I did not put on my brake as the load was a light one, viz., 29, including the brake-van, and I thought the driver could pull the train up with his own brakes. The morning was slightly foggy but the signals were easily visible. I did not apply my brake at any time previous to the collision. On asking the driver why he had run past his distant signal when it was at danger, he replied that it was not at danger when he passed it. On his so replying I did not look back to see how the distant signal then stood. It was fully day light at the time of the collision. I did not notice the state of the rails.

On coming inside the distant signal at danger the driver of 133 up did not whistle for my brake to be applied nor did he do so subsequently. Prior to the collision I had not observed 75 up standing on the line in front of us. I made no remark to my van guard when I saw we were running against signals. I saw no hand signals being exhibited on the station platform prior to the collision.

B. Remedez, van goods guard of 133 up.—At the time of the accident I was in the rear brake. I was looking after my papers. I had not previously looked out of the brake to observe signals. I only know that the engine was eased off a bit and that immediately afterwards I felt the shock and I was thrown down. Guard Robertson was looking out of the brake from about a mile and a half outside the distant signal up to the time of the collision but he made no remark to me of any sort before it took place. After the collision had taken place I went forward with guard Robertson and met driver Ramjan. The latter said that he had run past the distant signal because it was off; I did not hear guard Robertson make any remark in reply to that, or as regards any other matter. I did not look at either the home or distant signals after the collision to see how they stood. It was full daylight at the time of the collision but there was a slight fog. I did not notice how far one could see at the time.

Benode Behary Dey, assistant station master Bogoola.—I was on duty at the time of the collision. I had come on at 19 hours the previous evening. No. 75 up arrived at Bogoola at 5-7 hours. After its arrival I raised both my signals to danger. I gave the signalman the order to do so and saw him throw the distant signal to danger, also the home signal. The latter, which is provided with a padlock, he locked and gave me the key. I was then on the up platform. I got warning of 133 up at 5-0 hours and our report from Aranghata was received at 5-18. The line was blocked back at 5-19. I warned my signalman and pointsman of departure of 133 up from Aranghata and that it should be allowed in after departure of 75 up. I

then rolled for in report of 75 up at Ichamattee bridge, and whilst doing so the watchman Saligram and signalman Gangaram called out to me that 133 up was coming in full speed inside the distant signal. I then told them to run back and show red lamps. I then went out on to the platform and followed the watchman who had taken his hand lamp to show a danger signal. It was then not quite full daylight. I noticed that the brake-van lamps of 75 up were burning. On reaching the end of the platform I heard the sound of the collision. I then looked at the signals and saw both home and distant signals were at danger. I then came back from the end of the platform to near the telegraph office and pointed out to the driver of 75 up that my home signal was at danger. I made no remark to him about the distant signal. I then returned to my office as I heard my instrument rolling and received the in report of 75 up. This was at 5-32 hours. The collision took place at 5-30 as I noted by my clock. I then proceeded to the site of the accident. I there met the guard of 75 up; I asked him whether he had seen that the distant signal was at danger against 133 up and he said he had. I then met the driver of 133 up and asked him why he had disregarded the distant signal which was at danger. He said it was off and not at danger when he passed it but admitted when I pointed to it that it was then at danger. He asserted however that it was thrown up to danger after he had passed it. I said nothing to him about the home signal. I then returned to the station and called the station master. I could see both the light and the arm of the distant signal at danger when I was going down the platform prior to the collision. There was no fog and I saw no smoke coming from the engine of 75 up obscuring the home signal. The driver of 75 up came down the platform and asked me, whilst rolling for in report of 75 up, why he was being detained.

After locking the home signal the signalman threw the key to me from between two of the vehicles of 75 up. When I pointed out the home signal at danger to the driver of 75 up it was not obscured by smoke from his engine.

Gangaram, signalman.—After 75 up had come inside the signal I put the home and distant signals to danger, locking the former. I then came into the up platform and handed the key to the assistant station master. After doing so I returned to the home signal on the down platform. The first I knew of the accident was hearing the sound and seeing the dust rise. Prior to that I had not seen 133 up.

Saligram, watchman.—Prior to the accident, I was on the up platform near the telegraph office. I had a red light in my hand which I had shown to 75 up. I presently heard the sound of 133 up coming over the bridge, and told the assistant station master that a train was coming in from Aranghata. As it was doing so against signals the assistant station master told me to run and show a red light to the incoming train and I did so.

Bhusan Mall, jemadar.—After bringing out the engine of 80 down from the shed he returned to his quarters. On coming out again after a few minutes he saw 133 up coming along inside the distant signal towards 75 up. He therefore ran forward waving a red light to the incoming train. It came on however, and collided with 75 up. He then noticed that the up distant signal was at danger.

FINDING.

In the absence of any conclusive or reliable evidence we are unable to come to any definite conclusion as to the cause of the accident.

We are of opinion, however, that the probable facts of the case are: that, as shown by the booked timings, No. 133 up ran between stations and approached Bogoola at an excessive speed, that the home signal at that time was at danger, but that the outer signal had been left "off" after No. 75 up was admitted, and was not thrown up to danger till No. 133 up

had reached to within a short distance of it, and that the driver in consequence of his excessive speed and in spite of his light load was unable to pull up his train in time to avert the collision.

Remarks by the Government Inspector of Railways.

The signalling arrangements at Bogoola consist of 2 outers pulled off from near the home signal which is of the antiquated double armed type and is situated on the far side (away from the track) of the down platform. There is no interlocking of any sort and it is not surprising that the committee from the evidence could come to no conclusion. The outers when pulled off (and this requires the expenditure of considerable energy) can be fixed in this position by a chain and pin arrangement, and the committee's supposition is no doubt the right one especially when it is remembered that the staff quarters are on the "up" platform side and that the khalasi in charge of the signals has to cross over each time a train is expected, on the assumption that he spends the night in his quarters, instead of his theoretical post by the home signal.

I consider guard Robertson's evidence unsatisfactory. From his statement he appears to have clearly seen the home signal and yet could not see 75 up which was standing immediately (considering the distance from which he observed it) under the signal he observed, and had its rear brake-van lamps burning brightly.

The Eastern Bengal State railway traffic has increased considerably in recent years while the signal arrangements, here at least, have remained as they were years ago and something should, I think, be done at once to bring them up to date and suitable to the present day traffic requirements.

Remarks by the Senior Government Inspector of Railways, Calcutta.

This accident was, in my opinion, due to the system of working trains at Bogoola and to the defective signalling arrangements there. Trains on the Eastern Bengal State railway are worked on the absolute block system. That system requires that there shall be a clearly defined *minimum* space interval between following trains. In English working this space is a distance of *not less than* a quarter of a mile beyond the home signal. Under Indian rules it is the distance between the outer and the home signal. Under either system of working permission for a train to approach should not be given until the preceding train has, under the English rules, passed at least a quarter of a mile beyond the home signal *and is proceeding on its way*, and under the Indian rules, passed the home signal. I have referred to the working rules of the Eastern Bengal State railway and I find that under subsidiary rule (c) of General Rule 27 the *in* report of a train may be despatched if the train has drawn up at the "usual stopping place." At Bogoola the home signal consists of the old fashioned "main" signal situated in the centre of the station. It follows that when a long goods train, like No. 75 up (which consisted of 64 vehicles), is standing with its engine at the water-column, a very large portion of the train is not within the protection of the home signal. In other words the minimum space interval necessary in absolute block working, is fouled. Nevertheless the station master at Bogoola was justified under the rules in force in giving the "in" report of No. 75 up and allowing No. 133 up to come on from Aranghata.

I can only characterize such a system of working on a line of such heavy traffic as the Eastern Bengal State railway main line as indefensible and dangerous. I am of opinion that orders should be immediately issued to the staff at Bogoola, and to all other stations similarly equipped in the matter of signals, that the *in* report of trains is not to be given until the *whole* of the train is within the protection of the home signal. Such instructions will have to be issued when the new General Rules come into force in July next so they may as well be issued at once.

I would further point out that separate home signals for the up and down lines should be erected as soon as possible and the obsolete main signal removed. With the heavy and important traffic now run on the Eastern Bengal State railway this is very necessary.

In conclusion I would add that this is another instance of an accident which under English block working rules would have been impossible.

R. W. EGERTON,
Senior Government Inspector.

CALCUTTA
The 13th February 1907.

**Appendix XI to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.**

Report of the proceedings of a joint committee of enquiry held at Pali station, East Indian railway, on the 3rd February 1906, to investigate the circumstances attending the collision between Nos. 18 Down passenger and 131 Up goods trains at mile 864 $\frac{7}{8}$, between Sasni and Pali stations, on the 31st January 1906.

The committee was composed of the following officers:—

A. H. ASLETT, District Engineer	President.
S. W. JEWELL, District Traffic Superintendent	} Members.
S. J. KENDRICK, Assistant Carriage and Wagon Superintendent	
A. DEVON, District Locomotive Superintendent	
W. A. DRING, General Traffic Manager, East Indian railway	
MR. SHARPE, Inspector General, Government Railway Police	} Present.
P. G. MURRAY, Divisional Superintendent, East Indian railway	
R. CLARKE, District Magistrate, Aligarh	
CAPTAIN H. A. L. HEPFER, R.E., Government Inspector of Railways.	
W. M. THOMAS, Acting Resident Engineer	

DESCRIPTION.

On the morning of the 31st January 1906, at about 2 hours, a collision took place between Nos. 18 Down passenger and 131 Up goods trains at mile 864 $\frac{7}{8}$ between Sasni and Pali, resulting in the death of two native passengers, the driver and jack of No. 18 Down, and the driver, fireman and jack of No. 131 Up goods, and injuries to four other passengers, brakeman of No. 18 Down and signalman Nathu.

It would appear that arrangements had been made for No. 130 Down and No. 131 Up to cross at Sasni. No. 130 Down was to proceed on to Hathras on the arrival of No. 131 Up, and No. 131 Up was to be detained to cross No. 18 Down at Sasni.

The assistant station master in charge, Suraj Narain Roy, in order to get No. 130 away as quickly as possible, delivered the authority for No. 130 Down to proceed on to Hathras, to porter Chandna to deliver it to the driver of that train before the arrival of No. 131 Up.

The porter, Chandna, by mistake made over the authority to the driver of No. 131 Up, who, without examining it, proceeded towards Pali. In the meantime train No. 18 Down had left Pali for Sasni and the result was that a serious collision occurred at mile 864 $\frac{7}{8}$.

Both engines, one brakevan, three third class carriages and fourteen wagons were totally wrecked, and several other carriages and wagons were damaged.

EVIDENCE.

P. W. Packwood, guard, Tundla.—On the morning of the 31st January 1906, I was guard in charge of 18 Down passenger due to leave Pali at 2-3 hours.

On my arrival at Pali I enquired from the assistant station master, who was on the platform, where 5 Up Howrah express was, as 5 Up and 18 Down passenger are due to cross at Pali. The station master informed me that 5 Up was running 30 minutes late. I then waited till time was up and gave the driver the order to start at 2-3 hours, and about 2 miles from the station the train came to a dead stand. I looked out and saw steam issuing from the engine and at once went up to see what was the matter. When I saw that a collision had occurred I went back and reported it to Mr. Jewell, District Superintendent, who was in the train. The time we came to a stand was 2-10 hours, and by the time I had got back to Mr. Jewell it was 2-14 hours. On my first visit to the engine of 18 Down I spoke to the driver who was conscious and asked me to get him out.

When I first walked up the train I tried to see as best I could, if any passengers were killed or injured.

I did not notice the brake being applied before the train came to a stand. The speed we were running at I estimated to be from 25 to 30 miles an hour. I was in the body of the brake and felt only a slight shock which did not even disarrange the packages on the dog box.

We arrived at Pali at 1-55 hours; this is the right time.

Andrew Littlejohn, guard, Tundla.—I was the guard of 131 Up goods and left Tundla at 23-30 hours on the 30th January 1906. On nearing Sasni I noticed the outer and home signals showing green, which permitted the train to enter the station. The warning was not lowered. As we were slowing down I suddenly felt a jerk, and, on looking out on the station side, saw a man with a white light standing between the loop and straight lines near the engine about opposite the station building. I judged that the driver had received line clear and was going on. I entered the time as we ran through the station as 1-55 hours. As I passed the down home signal I heard it click, and kept a good look out. As I did not see the back light of the down distant signal I imagined something was wrong and reversed the right-hand brakevan lamp and

immediately put on the brake, and showed a red light by my hand lamp in the direction of the driver but could not attract his attention.

I applied and released the brake about 8 times before the collision occurred.

We were running at a speed of about 15 to 20 miles an hour. Apart from working the brake I was looking out the whole time, but did not see any lights ahead.

I was releasing the brake when I felt a sudden shock and did not know what had occurred when we stopped.

I did not look at my watch immediately, but ran up the train and met the guard of 18 Down. I had walked the whole length of the two trains and was one-third of the way back again when I looked at my watch. It was then 2-10 hours. I should say this was from 5 to 7 minutes after the collision. I cannot say that I compared my watch with guard Packwood's time.

I had taken precautions to protect my train by reversing my brakevan lamps.

I noticed no hand signals whilst passing through the station.

After I had passed the station, on changing my right-hand lamp I noticed a red light at the station but could not tell what it was; it was stationary. My train never came to a stand at Sasni. The minimum speed would be about 5 miles an hour.

W. Witton, guard, Tundla.—I was guard of 130 Down goods from Aligarh on the 30th January 1906, leaving at 0-45 hours. I arrived at Sasni at 1-34 hours on the down line and was detained. I asked the station master the reason for this and he informed me I was detained for an Up goods.

Before the arrival of 131 Up goods I was patrolling my train between the tracks without a lamp: I was doing this as this neighbourhood is noted for thefts from trains. Whilst there 131 Up goods came in. I had noticed the head lights of the engine of 131 Up which, however, were not burning very brightly.

Whilst the engine was coming over the points I noticed a station khallasi came from under the wagons of my train from the station side, with a lamp showing white. When the engine got up to line he held the lamp up in position as though to give something to the driver.

When I saw the man giving something to the driver of 131 Up he would be about the length of three vehicles on the Hathras side of the station building. I concluded the driver of 131 Up had received line clear, because he opened out steam, and went on at increased speed.

After the train had passed I returned to my brake along the track, I saw a man coming from the direction of the down points and saw him change his lamp from red to white. A short time afterwards, say 10 minutes, I went to the station and asked the station master for line clear. He informed me it had been forcibly taken by 131 Up. He screamed in an excited state. I asked him if he had wired to Pali: he said "yes," and that the passenger had left.

I asked him which khallasi it was who had given the line clear and he pointed him out to me. I asked the khallasi why he went to the driver with a line clear. The khallasi did not reply. The babu remarked "forcibly taken," meaning taken from the khallasi I was speaking to. I asked the station master to give me another line clear to let me get out of the way. After some little talk he gave me the duplicate line clear and I proceeded to Hathras at 2-16 hours.

I knew nothing of a collision before I left. I heard of it first at Hathras. I did not hear the sound of a collision or any talk of one.

As 131 Up goods was going out I noticed that the down main line Home signal was being put up to danger. When I noticed this the brakevan of 131 Up was passed the down Home signal. I did not notice that the Down Distant was lowered.

Whilst at the station I did not notice any efforts to stop 131 Up goods.

Suraj Narain Roy, assistant station master, Sasni.—I was station master on duty on the night of the 30th January 1906. I received enquiry for line clear for 130 Down goods from Pali and gave Pali line clear for this train. Immediately afterwards I received enquiry for 131 Up goods line clear from Hathras and as there was no news of 18 Down and 5 Up, I gave Hathras line clear for 131 Up. I entered the arrival of 130 Down at Sasni at 1-33 hours. I received the "out-report" from Hathras at 1-25 for 131 Up.

After receiving "out-report" of 131 Up from Hathras I asked Hathras for line clear for No. 130 Down which he gave me. I then instructed the jemadar that as soon as 131 Up goods arrived to set the road to allow 130 Down goods out. Two signals only—the Outer and the Home for the straight line—were lowered for 131 Up goods.

After receiving "out-report" of 131 Up from Hathras, I asked Pali, at 1-45, for line clear for 131 Up and he gave me a detention message and asked line clear for 18 Down passenger at 1-52 hours. This I gave him at 1-55 hours.

The "out-report" of No. 18 Down was given to me by Pali as at 2-3 hours. My clock showed 1-57 hours. My clock was set by the clockwinder that evening.

No. 131 Up arrived at 1-52 hours, I looked out and saw that the rear brakevan was clear of the points and then noted the time, viz., 1-53 hours, on the line clear for 130 Down and gave it to the khallasi, Chandna, with instructions to give it to the driver of 130 Down. Mangla, sweeper, was present at the time. I gave instructions to Chandna twice to hand the line clear message to the driver of 130 Down goods going to Hathras, No. 131 Up at that time was at a stand still. The engine of 131 Up was standing about 2 lamp posts on the Pali side of my station. I could not clearly see as 130 Down goods was between me and it. I was sure that 131 Up goods was at a stand. Before 131 Up left I actually signalled the "in-report" to Hathras at 1-52.

When I saw that 131 Up was leaving for Pali I lost my head and do not know what happened, what I entered, or what I wrote in the "out-report" book.

When I went to signal the "out-report" for 130 Down I heard No. 131 Up going out. I actually signalled the "out-report" of 130 Down to Hathras after I had seen 131 Up going out. This was after I had given a duplicate copy of the line clear to the guard of 130 Down. I told Ishtiaq Ali to signal the "out-report" for 130 Down. I cannot say if he did, I was outside signalling to 131 Up trying to stop it.

When the "out-report" of 130 Down was sent I instructed jemadar Sital Pershad to admit it on the loop line. I gave him no instructions about 131 Up or 18 Down, and he, in the ordinary course, would re-set the points in their normal position for the straight line and return to station.

Recalled.—I heard a sound which I took to be a collision. This was confirmed by some one who said, "Babu, accident has happened."

Recalled.—When 131 Up had left, after having lowered the signals I went into the office and rolled Pali one minute later. Stop 18 Down, 131 Up left with wrong line clear. I got no reply, but about 4 minutes afterwards I received news that 18 Down had left Pali.

Sita Ram, assistant station master, Pali.—I was on duty from 18 hours on the 30th January to 2 hours on the 31st January 1906.

No. 18 Down passenger started at 2-3 hours; line clear was received from Sasni. I received no message to stop it before it left. After 18 Down had left, at 2-5 hours, Sasni requested Badri Nath to stop 18 Down, as 131 Up had left Sasni for Pali on down line clear. I heard this on the instrument. I came outside the office and saw the train, 18 Down, was outside signals, and we could not communicate with it.

Recalled.—I gave the "out-report" of 18 Down to Sasni at 2-3 hours. He acknowledged at 2-3 hours.

Badri Nath, assistant station master, Pali.—I was on duty 2 hours on the morning of the 31st January 1906. When I came on duty 18 Down was coming in.

I attended the brakevan of 18 Down, and after the departure of 18 Down collected one or two tickets. I then went to the office. It was then about 2-5 hours. I was dating the collected tickets, when I heard a roll on the telegraph instrument from Sasni. I attended to it immediately. He told me 131 Up goods started with down line clear and not to start 18 Down passenger. The time was 2-6 or 2-7 hours. I came out at once to try and stop the train, but it was too far off for me to do so.

Chandna, porter, Sasni.—I was on duty at Sasni station on the night of the 30th January 1906 from midnight till 8 hours of the morning of the 31st January. No. 130 Down stopped at the station, and I set the signals for it. After that 131 Up left Hathras, and the station master asked me to let him know when it had got inside the points. Before it arrived at the points he gave me the line clear message and told me to give it to the driver, the station master did not say which driver, so I concluded it was for the driver of 131 Up. The Babu told me to be quick. I then took my lamp, got under the Down train and went on to the up platform and gave the line clear to the driver on the Hathras side of the station. The train did not stop but was going slowly. The message was not given to me till the engine was near the points, and that is why I gave the line clear at the platform. The train then went straight on. After the brake had passed me I returned the same way under the wagons of No. 130 Down to the office. I did not notice the guard of 131 Up.

When I returned to the office, after a little while the babu asked me is the Hathras side of the line clear or not, why has not the Hathras train gone? I told him I had given the line clear to the Up train and it had gone. The Hathras side was all clear.

The babu said I gave you the line clear for this train, meaning the Hathras train. He then lowered the Down Distant and Home signals. The brake had passed, the Down Home signal when the signals were lowered. I waved a red light, but the train had gone away.

Sital Pershad was present when the babu spoke to me about the line clear message after the train had gone, but no one was present when the line clear message was given to me. Mungla, sweeper, was asleep outside the office under the lean-to roof.

The guard of No. 130 Down asked me why I had given the line clear to the driver of No. 131 Up. I replied that the driver had taken it forcibly from me. The station master had already instructed me to say this.

I heard the sound of the collision; it was like a clap of thunder.

No. 130 Down was in the station when I heard the sound of the collision. The guard was in his brake.

The station master after No. 131 Up had left lowered the signals and waved a lamp; beyond this he did nothing and remained on the platform. He was in the office when the collision occurred.

W. H. Hopper, district inspector, Delhi.—I was travelling by No. 2 Down on the night of the 30th January 1906. We stopped at Pali at 2-27 hours. After it had been at a stand for about 10 minutes I got out and asked the station master why the train was not going on. He replied that he had neither got the "in report" of No. 18 Down nor could he get line clear message for No. 2 Down. He said there was an interruption of the telegraph line. I then asked him why he was not letting the train go on the "Proceed" order and he said because the station master at Sasni had wired to him to the effect that "don't allow 18 Down; 131 Up on down line," and, not understanding what this meant, he was afraid to allow 2 Down to proceed on written order. However, at 3 hours, I decided to take the Mail on to Sasni, piloting it myself, and started at 3-8 hours. We proceeded, ery only, stopped at

gate lodge No. 50 and discovered that a collision had occurred. On walking on I met Mr. Jewell, the District Superintendent, who decided that No. 2 Down should be brought back to Pali. After putting No. 2 Down safely in Pali station the engine was detached and taken to the scene of the accident. The rear portion of No. 18 Down was brought back by me with the passengers to Pali. I then returned with No. 2 Down and arranged transshipping between No. 2 Down and No. 5 Up.

The station master said that when he received the wire from Sasni it was about 2-5 hours or 2-6 hours and that No. 18 Down had already left at 2-3 hours and that he was unable to take any action.

Sital Parshad jemadar, Sasni.—I was on duty at the points on the Pali side on the night of the 30th January 1906 when 130 Down arrived—after No. 130 Down had passed into the station I set the points for the straight (their normal position).

I stayed there a little while and then went to the station.

No. 131 Up goods then came in slowly and did not altogether stop. When the brakevan of No. 131 Up was near the down Home signal the signals were lowered and a red light shown from the station but nobody ran after the train. I did not see Chandna at this time.

When the train did not stop I came on to the office and saw the babu working the telegraph. I did not hear the babu say anything to Chandna. The babu said to me that 130 Down should have gone, why has 131 Up gone, the babu did not appear to be put out or distressed about it. The babu did not mention to me that he was wiring to Pali, nor did I advise him to do so. Whilst I was at the office the guard of No. 130 Down came to the office for line clear. I was in the verandah when I heard the noise of the collision.

No. 130 Down was in the station when the collision occurred.

Mohammad Din, driver, Tundla.—I was the driver of No. 130 Down from Aligarh on the night of the 30th January. I arrived at Sasni at 1-35 hours on the 31st January. No. 131 Up goods did not stop but ran slowly through the station about the pace a man walks. The engine was near the office when the message was given to the driver who whistled and went on.

I took the time 131 Up passed the points, it was 1-55 hours. I heard the noise of the collision it was like thunder.

Rasul Khan, first fireman, Tundla.—I was fireman of 18 Down passenger from Ghaziabad on the night of the 30th January 1906.

After leaving Pali I was firing when suddenly the driver shut off steam, and applied the vacuum brake, I reached out for the side bar and don't remember afterwards what happened.

I looked out at the head lights of my engine before leaving Pali and they were burning all right.

Durga Ram, jemadar, Sasni.—I have been working at Sasni about 2 or 3 years.

When No. 131 Up arrived I was at the facing points on the Hathras side. Two signals only were lowered—the Outer and Home.

The train slowed down but did not stop altogether.

I did see the down signals lowered. The train was just beyond the points when I saw this.

I heard the noise of the collision.

Istiaq Ali, relieving assistant station master.—I came on duty at 2-10 or 2-12 on the morning of 31st January. I was sleeping in the station office. Suraj Narain awoke me with a statement that a collision had occurred. When I came I saw Suraj

Narain giving a duplicate line clear to the guard of No. 130 Down.

The majority of goods trains which run through Sasni do not stop.

S. W. Jewell, district superintendent, Delhi.— I was travelling on duty from Delhi to Etawah on the night of the 30th January 1906. I went to sleep after leaving Khurja on the 31st January. At about 2-14 I was awakened by the guard of No. 18 Down informing me that No. 18 Down had collided with a goods train. I went to the front of the train to see the extent of the damage done and to ascertain what injuries passengers had sustained. I found the passengers alighting from the carriages in rear of those damaged by the collision. None of them appeared to have sustained any injury. The front brakevan of No. 18 Down, and what was subsequently discovered to be the front 3 carriages of the passenger train, were entirely smashed up, the 3 carriages being buried under the brakevan. The two engines, had been lifted up by the force of the collision to a great height. The jack of the passenger train had

been thrown off the engine and escaped with slight bruises. The brakeman of No. 18 Down passenger also escaped with minor injuries. The total casualties in this accident are stated below :—

Killed.

- 1 European Driver Corke, of No. 18 Down passenger.
- 1 Native Fireman of 18 Down passenger.
- 1 Native Driver of 131 Up goods.
- 1 Native Fireman of 131 Up goods.
- 1 Native Jack of 131 Up goods.
- 1 Native passenger—an old woman.
- 1 Native passenger—a man of about 48.

Injured.

- 4 Native male passengers.
- 1 Signaller of Sasni travelling by 18 Down.
- 1 Brakeman of 18 Down passenger.

FINDING.

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

1. That a collision took place between 18 Down passenger and 131 Up goods at mile 864½ between Sasni and Pali at about 2-10 hours on the 31st January 1906.

2. That the collision is attributable to three causes :—

- (a) The handing of the line clear prepared for 130 Down goods to the driver of 131 Up goods.
- (b) The failure of the driver of 131 Up goods to detect that he had received a wrong line clear message.
- (c) The failure of the drivers of 131 Up goods and 18 Down passenger to keep a proper look out.

3. That in regard to cause (a) assistant station master Suraj Narain Roy, of Sansi, is to blame for disregarding General Rule 11, inasmuch as he allowed the conditional line clear message for 130 Down goods to leave his possession before the arrival of 131 Up goods, and also for not giving porter Chandna clear instructions regarding the delivery of the line clear message. The failure of the assistant station master to comply with the rules would not, of course, in itself, have resulted in a collision. Porter Chandna we do not in any way hold to blame, as, in the circumstances, we consider he acted in good faith.

4. That in regard to cause (b) Hafiz-ulla the native driver of 131 Up goods was guilty of gross negligence in not examining the line clear message, and the responsibility for the collision must rest with him. If he had even looked at the line clear message he must have seen by the absence of the red bar (which is the indication for an 'up line clear') that the line clear message did not apply to his train.

5. That in regard to cause (c), we are of opinion that if the drivers of 131 Up and 18 Down had been keeping a proper look out, it was possible for the collision to have been minimised or averted.

6. We consider that everything possible was done under the circumstances to render help and assistance to the injured passengers and staff.

S. J. KENDRICK,
Asstt. Carr. & Wag. Supdt.

A. H. ASLETT,
District Engineer.

S. W. JEWELL,
Dist. Supdt.

A. DEVON,
Dist. Loco. Supdt.

Remarks by the Government Inspector of Railways.

I agree with the "Finding" that the primary responsibility for the collision rests with the driver of No. 131 Up goods, who must have accepted the line clear for 130 Down without looking at it. I am also of opinion that the drivers of both 131 Up goods and 18 Down passenger showed great negligence in not keeping a proper look out; as, although the line between Sasni and Pali is straight, neither driver appears to have been aware of the approach of the other train until a second or two before the collision.

The assistant station master was guilty of a breach of General Rules 11 (7) (j) in allowing the line clear for 130 Down goods to leave his possession before the arrival of 131 Up; and but, for his action in this connection, the accident might not have occurred. It was, however, to his gross carelessness in failing to give explicit instructions to the porter Chandna that the delivery of the line clear to the driver of the wrong train was immediately due.

I am bound to say, nevertheless, that, in my opinion, the lax procedure in force on the East Indian railway for the delivery of the line clear to the driver is largely responsible for what occurred.

The section of the line on which the accident happened is worked on the "Line clear and caution message system," but following trains are not allowed. [East Indian railway Subsidiary Rule (2) to General Rule 2.] The result, of course, is "absolute block," as broadly defined in General Rule 27 (1). [East Indian railway Subsidiary Rule (3) to General Rule 2.]

The rules for working the line clear and caution message system are laid down in Chapter IV of the General Rules, which provides for "absolute block," as in force on the East Indian railway [Rule 8 (1) (a)], or for following trains [Rule 8 (1) (b)]; and Rule 11 of that Chapter clearly applies to both methods of working.

Apparently, however, because the system in force, *i.e.*, that referred to in General Rule 8 (1) (a), fulfils the conditions laid down for "absolute block" in Rule 27 (1), the East Indian railway authorities have been led to suppose that they were not bound by the provisions of Rule 11; for modifications of that rule have been introduced which have had the effect of vitiating, to a considerable extent, the security it was intended to afford.

The revised East Indian railway Subsidiary Rules to General Rule 11, issued under Addendum and Corrigendum to General and Subsidiary Rules, dated 30th April 1905, read as follows:—

- (1) *Handing permission to proceed to driver of passenger train.*—The "line clear" or "caution order," tablet or other form of permission to proceed, for a passenger train, will be handed to the driver by the guard or brakesman.
- (2) *Handing permission to proceed to driver of goods train.*—As regards goods trains, the line clear order, or tablet, or other form of permission to proceed, may be handed by either the guard, station master, assistant station master, telegraphic signaller or one of the menial staff mentioned in the margin.

Bhisti.	
Hindu waterman.	
Traffic Jamadar.	
Pointsman.	
Porter.	
Lampman.	
- (3) *Caution Order.*—A "caution order" must always be read and initialled by the guard before it is sent up or handed to the driver.
- (4) *Explaining Caution Order to Native Driver.*—Every caution order must be read and explained to a native driver by the station master in the presence of the guard.
- (5) *Driver to satisfy himself as to correctness.*—The driver must satisfy himself that the line clear or caution order is properly filled up and that it applies to his train or light engine.
- (6) *When permission to proceed is to be given to the driver.*—The permission to proceed is never to be given to the driver until the work on the train is finished and it is ready to start: when waiting to pass another train it must not be given to the driver until the whole of such other train has come in and is clear of the points.
- (7) *Trains running through.*—When a train is arranged to run through a station without stopping, the line clear order or tablet may be handed to the driver by means of a looped stick at the apparatus provided for the purpose.
- (8) *Line clear or caution orders for native drivers.*—In the case of line clear, or caution orders for native drivers, the number of the train is to be clearly expressed in large numerals written on the face of the order above the words up or down in the heading of the form.

There is also in force the procedure laid down in the two following notifications issued in the East Indian railway weekly Gazette under date 31st March 1903 and 27th May 1905, respectively:—

- (56) *Line clear messages, only one to be made out.*—The staff on single line are advised that, on and from the 1st April 1903, only one copy of a line clear message will be made on all occasions.

When trains run through, the driver will pick up the line clear message, and the guard will not.

- 349) *Guards not required to sign line clear messages.*—Under the revised Subsidiary Rules to General Rule 11, issued under Addendum and Corrigendum to General and Subsidiary Rules, dated 20th April 1905, it is no longer necessary for guards of trains to sign the line clear authority, which may be handed to the drivers without being shown to the guard; but the driver, having received the authority, must not start the train until he gets the guard's starting signal.

The effect has been to do away entirely with the safeguard afforded by the co-operation of the guard; for, although under Subsidiary Rule (1) the guard or brakesman is supposed

to hand the line clear to the driver in the case of a stopping passenger train, Notification No. 349, quoted above, with reference apparently to all trains, lays down that the line clear "may be handed to the driver without being shown to the guard." Moreover, the station master is, to all intents and purposes, relieved of responsibility, in the sense contemplated in General Rule 11 (4) (g), since the line clear for a goods train may be handed to the driver by any of the menial staff.

Under this procedure it is, for all practical purposes, impossible to fix the blame for the delivery of a line clear to the wrong train; and the whole responsibility falls on the driver (often an illiterate native) who receives and accepts the line clear.

It was pointed out at the enquiry that electric token systems were being introduced on the East Indian railway, and that General Rule 11 was not capable of application, in its entirety, to the delivery of the token. It was suggested that there was little object in adopting precautions in connection with the delivery of one form of "authority to proceed," which were inapplicable to others, and that the procedure in force on the East Indian railway had been introduced as being capable of general application.

I am, however, of opinion that, as the General Rules stand at present, no modifications of Rule 11 are permissible, in the case of lines worked on the line clear and caution message system, whether absolute block is in force or not. If any are necessary in the case of lines worked on electric token systems, the procedure adopted should be based on the idea of dual responsibility, in the matter of the delivery of the authority to the driver, which underlies Rule 11.

It is, I think, worth considering whether the "red bar" on the up line clear is really a good enough distinguishing mark. In the present case the driver probably took the line clear folded up and never opened it. It would probably be better if up and down line clears were printed on paper of different colors.

H. A. L. HEPPER,
CAPTAIN, R.E.,
Government Inspector.

Remarks by Senior Government Inspector of Railways, Lucknow.

I agree with the "Finding" of the committee of enquiry so far as they have determined the direct causes of the accident, but the procedure in force on the East Indian railway in connection with the delivery of "line clears" is what made the accident possible. That is, the accident is due to rule 11 not being carried out in its entirety. If any modifications of General Rules are desirable and admissible they should take the form of Subsidiary Rules and not be issued only in the East Indian railway *Gazette*.

J. E. GABBETT,
Senior Government Inspector.

LUCKNOW:
The 12th February 1906. }

Appendix XII to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint enquiry held at Khaga station, East Indian railway, on the 9th March 1906, to investigate the circumstances attending the collision between No. 1 Up mail train and a trolley at that station on the 25th February 1906.

The committee was composed of the following officers :—

B. V. RADLEY,	District Loco. Superintendent	President.
J. T. MAXWELL,	District Engineer	} Members.
O. STRACHEY,	Assistant District Traffic Superintendent	
INSPECTOR COSEY,	Government Railway Police	Present.

DESCRIPTION.

On the 25th February 1906, the Permanent-way Inspector was relaying a portion of the Down passing siding at Khaga. A trolley intended for the removal of two rails which had just been taken out from a siding was standing on the main line just beyond the level crossing when No. 1 Up Punjab mail came through the station. The rails and frame of the trolley were taken off the line in time but the engine struck the wheels of the trolley and killed a gangman named Durga who was endeavouring to get them off the line; one of the trolley axles was broken, and the other was knocked clear, slightly injuring a trolley-man named Gandah.

EVIDENCE.

J. Kingham, driver.—I was the driver of 1 Up Punjab mail leaving Allahabad on 25th February 1906. On approaching Khaga I saw a number of men working, when I got up to within 100 yards from them they moved away from the line and I saw a pair of trolley wheels on the line. I at once applied the brakes but I could not stop in time to save striking the wheels and a man who was in the act of removing these wheels from the line. The distant and main signals were off for me and I received the line clear message at the points and a signal from there and a green flag waved from the platform. I received no caution message at all.

At the time I saw the trolley wheels and applied my brake I was travelling about 35 miles an hour.

R. Surdivall, fireman.—I was fireman of 1 Up of 25th February 1906, ex-Allahabad. On approaching Khaga as usual I whistled; and after picking up the line clear message, as I saw the men had not moved away from the down points, I whistled again. The second whistle was given about the down end of the platform. Most of the gangmen cleared away and a pair of trolley wheels were left on the line. My driver applied his vacuum brake and stopped. I saw the actual accident from the engine. The man who was killed was standing with his back to the train trying to lift the wheels off. I saw him in the same position for some short time and the wheels seemed too heavy for him to lift. I am of the opinion that had this man had another man to help him there was sufficient time to have taken the wheels off and prevented the accident. The man was thrown clear off the train on the left hand side of the line. He was thrown right off the ballast. As far as I can tell the brake was applied somewhere on the platform. I saw no red flags, I saw a green signal from the platform.

E. C. Plucknett, guard.—I was guard of 1 Up leaving Allahabad on 25th February 1906. On approaching the distant signal I heard a whistle for the man at the points with the line clear message and

a second one at the platform. I felt an application of the vacuum brake and looked out to see the cause, my brake-van was then passing the centre of the station. As my train was coming to a stand I called out to the permanent-way inspector to know what was wrong and he had a handkerchief in his hand and waved it to me to go on, as if nothing had happened. I did not hear what he said, if he did speak to me. I got down from my brake-van which had stopped just a little beyond the new down home signals.

I do not know if the permanent-way inspector had been on the left hand side of the line or not, he was seen first by me on the right hand side, just after my brake-van had passed him, about the level crossing. I found one trolley wheel under my brake-van and concluded the train had run over a trolley. When the brakes were first applied and I looked out, I saw some men near the level crossing, but no red flags.

Shaker Pershad, gateman, station Khaga.—The permanent-way inspector arrived about 6-30 hours. He told me to lock my gates and work with the gangmen. Before I heard the mail coming I did not notice the signal but as the train was entering the station I saw they were off. I shouted out, "take the trolley off, the mail is coming." The permanent-way inspector and trolley-men threw the rails off the trolley at once. The trolley-men took off trolley frame and as they were taking off the wheels the accident happened. I knew the deceased, he was a gangman. His name was Durga. On the day he was killed he was picking sleepers. I did not see Durga run to take the wheels off the line nor did I hear any one order him to do this. I do not know whose trolley was run over. There were three trollies, two at the side of the line and one on the line. I don't know the names of the trolley-men who were working with the trolley which was on the line.

Dawlat Khan, assistant station master, Khaga.—I was on duty from 11 hours to 17 hours on 25th February 1906. I received the out-report of 1 Up mail from Kunwar at 14-42 hours. After satisfying

myself from the point indicators that the points were correctly set I gave orders for the signals to be lowered for the mail. The signals were lowered about 14.41 hours. After the signals were lowered I returned to my office and was engaged with the weighment inspector in showing him books. As the train passed my office I gave the "out-report." The signalman came into the office and told me the mail had stopped and I went out to see if this had anything to do with an incorrect line clear message. I went to the level crossing and saw a dead body lying beyond the level crossing on the left hand side of the line. I received no advice from the permanent-way inspector that any trolley loaded with material would be working on the main line. I knew he was working on the down passing siding as I had made over the key to him, but I did not know that any trolley was working on the main line. I did not see any trolley on the line. I saw men working on the siding. No one of the engineering department asked me to let them know when any trains were coming. The signalman waved the train through.

O. Wittenbaker, permanent-way inspector.— I arrived by 6 down Express Passenger at Khaga at 8-11 hours on 25th February 1903. I sent word the night before for the Jemadar and the gangers to be at Khaga, and the former met me on my arrival. I first measured what rails I required and found that the number was five pairs. I instructed Seogolam Jemadar to bring me rails, D. O. plates and the other material required. Thinking one trolley would not be sufficient I told him to take my trolley and at the same time went with him as far as the new down home signals. Taking 4 rails at a time after 8 rails had been brought, I told him to bring the rest of the material required. The rails were close to the new down home signals between the main line and the siding. The straight line and loop were both used during these operations and also the main line outside points No. 6. After this I went to Teni on my own trolley to bring the carpenter. I came back after about 1½ hours, and found some of the D. O. plates, jaws, etc., placed on both sides of the siding, and more being brought by the jemadar on his trolley. On my return from Teni I sent one of my trollymen to the station master for the key of points No. 4 (down passing siding points) and started to relay the siding. This was at about 11 hours. The Jemadar was still bringing me the D. O. plates, jaws, etc., at this time. I told the Jemadar to bring me one pair of 41 ft. steel rails for the level crossing and told him to take my trolley. He did the work with two trollies, mine and his. After these rails had been brought only the Jemadar's trolley was used; mine had been taken off the line after the rails were dropped. While I was superintending the bedding of the check chairs on the sleepers on the level crossing I noticed the Jemadar ordering his trolley on or off the road as required. After a while I saw the Jemadar's trolley going towards the new down home signals. I ordered his trollyman, Gandah, to remove the four 20ft. rails which were taken out from the siding at the level crossing. Two rails were taken away and dropped on the left hand side of the main line 35ft. beyond the level crossing. When they had picked up the second two 20ft. rails, and had taken them near to the first two to unload them and had dropped one, I heard a cry from the men that the Mail was coming. When I heard this cry my back was turned towards the station. I immediately turned round and saw the mail engine opposite the station building; I then rushed up to the trolley and pulled the one rail down and the framing. The trolley-men and gangmen rushed to remove one pair of the wheels and Durga, who was packing at the level crossing sleepers, went to the other pair, and was knocked down and killed. One man was hurt on the leg as well. When I saw the man was knocked over I asked the Jemadar who was a rail and-a-half at the back of me, what's the meaning of this. I also said your trolley has worked from 8 hours to 2 o'clock and you have looked after it. He said it was "chuck par gaya." The station

master was informed and I completed my work after the departure of the mail train. Mr. Strachey was in the train and asked me how it had happened, and I said it was not my trolley, but the Jemadar's. I did not give any special orders to anyone to observe the fixed signals. When my own trolley was working with the other one, bringing the long rails, I looked out for the fixed signals myself. I did not give the Jemadar special instructions as he had done the supplying of the material at four other stations (Fatehpur, Faizullahpur, Teni and Kunwar) where the yard had to be altered as the loops were lengthened. I concluded he was competent to take charge of his own trolley. I did not order the deceased, Durga, to remove the trolley wheels. It was not any part of Durga's duty to remove the wheels. And he did so of his own accord.

Sheo Gulam, Jemadar, station Bindki Road.— I arrived with the permanent-way inspector at Khaga by the train leaving Fatehpur at 3 hours. When it became daylight the permanent-way inspector told me to put my trolley on the line and also his own. And we went to the new down home signals with both trollies with 4 or 5 pairs of rails to the siding. The permanent-way inspector measured and marked the rails off with chalk and told me to lay the new road. My trolley-men were engaged in bringing D. O. plates and the jaws, while I was attending to relaying. After four trolley loads had come I had the trolley removed. The permanent-way inspector had gone to Teni. This was between 11 hours and 11-30 hours and the permanent-way inspector then returned. I was engaged till evening in relaying and had nothing more to do with my trolley. About 2 P.M. the permanent-way inspector ordered Gandah to bring my trolley; he, Mata Deen, and two men of the gang, Sheuratan and Lachman, went. After the accident I knew it was my trolley. When the accident occurred I was at the old crossing in the siding.

I did not do the work at Faizullahpur and only part of it at Kunwar. I did the work at Fatehpur.

Gandah, trolley-man.—After the departure of 7 Up passenger the permanent-way inspector told me to put the trolley on the line. I was working with the gangman then and told the permanent-way inspector that it was time for the mail, he still persisted, and I put the trolley on the line with Mata Deen, Lachman and Sheuratan. We removed four rails under the instructions of the permanent-way inspector, who was standing near, and had loaded the last two, when I saw the mail coming. I told the permanent-way inspector so, but he persisted on our carrying them, saying that it was a goods train which would stop for water and give us time to unload the rails. The trolley had arrived at the place where the rails had to be unloaded. When the mail came opposite the water column we were engaged in removing the rails and trolley frame, when the permanent-way inspector sent forward Durga to help. The rails and frame were removed clear and the train collided with the wheels. Durga, who was trying to remove a pair of wheels, was killed, and I was knocked down by one of the trolley wheels when the collision occurred. The permanent-way inspector was standing near at the time and did nothing. I was on the left hand side of the train.

Recalled.—Between the return of the permanent-way inspector and the time of the accident no loads were taken on the trollies except the two to take away the four rails taken out of the level crossing.

Mata Deen, trolley-man.—This man corroborates the statement made by Gandah.

Nankoo, trolley man.—This man states he worked till 11 hours but cannot say what took place after that.

FINDING.

We, the undersigned, having carefully considered all the evidence, do find as follows: That there are two distinct subjects for enquiry; firstly the death of the gangman, and secondly the accident to the trolley. As regards the former, we consider that no one is directly to blame; the gangman, seeing the danger to the mail, ran forward of his own accord at the last moment and tried to remove the trolley wheels, although this was no part of his duty, as he was engaged on packing the road, but being too late he lost his life. We consider his action was plucky and praiseworthy, and recommend that something be done for his widow and family.

Regarding the accident to the trolley we hold the permanent-way inspector to blame for not having a proper look-out kept on the signals.

We consider that had this proper look-out been kept there would have been no danger, and that, with this ordinary precaution, there was no need for any special advice to the station master.

We had a similar trolley loaded with the same two rails and the same number of men to handle them, and on giving them the order to unload the trolley, they got the whole thing clear within 25 seconds.

We therefore consider that the trolley with this load may be considered as a light trolley within the meaning of the rules, and that as the trolley was working under the protection of the station signals, no special precautions as required under rules 229 and 231 (7) were necessary.

As regards the permanent-way inspector's contention, namely, that the Jemadar was responsible for his own trolley, we do not consider that this can be admitted, as the permanent-way inspector in his evidence admits that he personally gave the order to the trolley-man to load the particular load to which the accident occurred.

Nevertheless, we believe that the load was such as might easily have been removed between the time of the train being sighted and the time it arrived at the site of the accident had it been clearly recognised that the approaching train was the mail.

Though the evidence on this point is of the most unreliable description, the permanent-way inspector, we consider, assumed that the approaching train would stop at the station for water (as all trains except the mail stop) and consequently made no effort to have the trolley removed till the train was seen to be passing the station at a much greater speed than a stopping train would do.

The permanent-way inspector then did what he could to get the trolley off the line, but only managed to get the load and the trolley top removed, and one pair of wheels lifted nearly off before the mail arrived at the site of the accident.

Our reason for coming to this conclusion is that it is very improbable that in the large number of men at work no one noticed that the signals were off or called the permanent-way inspector's attention to the matter, even if the permanent-way inspector himself did not notice the signals.

We consider that no blame can be attached to the driver as, from a trial we made with a pair of trolley wheels placed at the site of accident, we consider that it would have been very difficult for him to have seen the wheels earlier than he did.

We considered the station master also in some measure to blame; though he did not know the trolley was on the main line—He knew that work was going on in the down siding as the permanent-way inspector had taken over the siding key, and he naturally did not suppose the main line was fouled. Had he, however, been waving the train through, personally according to orders, he might have noticed the trolley in time to give warning either to the driver or the permanent-way inspector.

B. V. RADLEY,
District Loco. Supdt.

J. T. MAXWELL,
District Engineer.

O. STRACHEY,
Asst Engineer.

Remarks by the Government Inspector of Railways.

The committee find the permanent-way inspector to blame for not having a proper look-out kept on the signals. They do not, however, consider that the special precautions required by General Rule 229 (1) (b), or East Indian Railway Subsidiary Rule 7 to General Rule 231 were necessary, as they hold that the trolley was a light trolley within the meaning of the rules.

I do not agree with the committee. I consider that the trolley was so loaded that it could not be readily removed from the line; and that, under General Rule 229 (1) (b), it should have been protected by hand signals at a distance of half-a-mile; also that, under East Indian Railway Subsidiary Rule 7 to General Rule 231, the station master should have been informed of the presence of the trolley on the line, and the driver cautioned.

I am of opinion that the accident was due to gross carelessness, or ignorance of most important rules, on the part of the permanent-way inspector. The responsibility of the

assistant station master is hardly less, as he should (under East Indian Railway Subsidiary Rule (2) to General Rule 8) have *personally seen* that the line on which the train was to run was clear before lowering the signals. He should also have been on the platform when the mail ran through.

H. A. L. HEPPER,
CAPTAIN, R. E.,
Government Inspector.

Remarks by Senior Government Inspector of Railways, Lucknow.

The Agent, East Indian railway, in his letter No. 956, dated the 26th April 1906, appears to support the finding of the committee as he states "that it is a doubtful point whether a trolley which the joint committee of enquiry experimented with and found could be cleared off the line in 25 seconds should not be treated as a light trolley within the meaning of the rules."

I cannot understand how he arrived at this conclusion as it is opposed to both the spirit and the letter of the rules in force on the East Indian railway.

I agree with the remarks of the Government Inspector.

LUCKNOW :
The 16th June 1906. }

J. E. GABBETT,
Senior Government Inspector.

Appendix XIII to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry which assembled at Pradhan Khunta station on the 3rd May 1906 to investigate the cause of the collision between Nos. 24 Down and 17 Up, goods trains at that station, mile 162½, Jherria branch, East Indian railway, on the 13th April 1906.

The committee was composed of the following officers:—

W. A. BUYERS, <i>Acting Resident Engineer</i>	. . . . .	President.
H. A. WOOD, <i>District Locomotive Superintendent</i>	. . . . .	} Members.
G. L. COLVIN, <i>District Traffic Superintendent</i>	

DESCRIPTION.

On 13th April 1906, at about 14-50, 24 Down goods train ran past the Pradhan Khunta signals and pitched into 17 Up goods, which was standing at the station. The second fireman of the engine of 24 Down was slightly injured. The damage to rolling stock amounted to about Rs. 8,500.

EVIDENCE.

S. K. Chatterjee, station master, Pradhan Khunta.—I was on duty from 10 to 18 hours on 13th April 1906. No. 17 up goods arrived at Pradhan Khunta at 14-25 on No. 2 line. At 14-23 Dhanbaid asked tablet for 24 down, which I gave at 14-33 and received the out report at 14-45. I called to the signalman at 14-35 that a down goods train was about to leave Dhanbaid. I thought the jemadar was at the west end points, but after I had received the out report of 24 down goods I found him going towards the west end points. Before he got to them 24 down came in against signals at considerable speed, and, as points No. 8 were set for No. 2 line, collided with 17 up at 14-52. The normal position of No. 8 west points is for No. 3 line, and all my staff have been instructed about this matter. I was not aware that points No. 8 were set for No. 2 line.

Immediately after the accident the driver of 24 down told me that the guard of his train had not had his brakes on. On hearing this I was proceeding with the driver to the brake, when we were met by the guard who said that he had put his brakes on but that he had now taken them off. I then came back to this station and did not examine the brake.

Ram Lall Ram, jemadar, Pradhan Khunta.—I was on duty from 8 to 16 hours on 13th April 1906. After No. 21 up had left from No. 2 line I felt thirsty and came to the station to drink. I left the points set from No. 2 line to main line, thinking that, as 3 up trains had gone to Dhanbaid, there would be another up train. No. 17 up had arrived on No. 2 line before I returned to the station. As soon as I got to the station I was told by the station master that a down goods train had left Dhanbaid. I was then near the lamp godown and immediately went off to the points. Before I got there 24 down came in and collided with 17 up. I went back to the brake with the drivers, who put their hands on the brake blocks and said they were cold. I did not examine the brakes myself.

I. Sutton, driver, Dhanbaid.—I left Dhanbaid with a single load at 14-35. I do not know what my loads were and the guard did not inform me. After passing the up distant signal at Dhanbaid, I shut off steam and applied my hand brake. On passing the road overbridge a mile down the

line I whistled for the guard's brake, as I found the load getting away. I was trying to check my load down the grade with my steam brake, but on putting it on again near the girder bridge, which is about a mile further on from the overbridge, my steam brake failed owing to the intermediate steam pipe nut having come off.

I did not examine the nut before leaving.

I cannot say whether the nut was tight on or not.

I have had trouble with these nuts before. Cases have been known of these nuts coming off, not only with me but with other drivers.

In my opinion it is very necessary to have brake power on this section, as we have great difficulty in controlling our loads. I cannot exactly say how often I have tightened up this nut. I do so whenever I notice a blow. If this nut was three threads slack it would be sufficient to cause a blow.

I am acquainted with Rule 129A.

I admit I am responsible for my steam brake being defective. Had it been in order the train could have been controlled.

M. Martin, gunner guard, Dhanbaid.—I left Dhanbaid on 13th April 1906 in charge of 24 down. I checked the number of wagons and informed the driver the load was 86. I am acquainted with the rule for calling for brakes, and I put my brakes on opposite the up distant signal at Dhanbaid. We ran on down the bank with my brakes on. I noticed nothing unusual while running as far as Pradhan-Khunta. The distant and home signals at Pradhan-Khunta were at danger. My brakes were hard on up to the time of the collision. I heard the driver whistling when we were by the down distant signal at Pradhan Khunta. I saw this signal at danger when we were over a mile from the station. By the speed we were running at I knew we were going faster than booked time.

After the collision I walked up to the engine and stood there for about 10 minutes with the driver. I do not know what they did after that, as I came up to the station.

I took my brakes off after this collision. I knew my brakes were acting, as I heard the noise of them when running down the bank.

M. A. Staynor, gunner guard, Asansol.—I was running spare down on 24 down. Gunner guard Martin put his brakes on opposite the up distant signal at Dhanbaid. After that I did not notice anything until I saw him look out of the brake at the Pradhan Khunta distant signal and then take his brakes off.

M. M. Mcleod, driver, Dhanbaid.—After the collision the driver of 24 down said to me that he had no assistance from the guard. On hearing that, I went up with him to the brake-van and felt the blocks which were barely sun heat. If they had been used at all it was very slightly. I found the brake off in the van. The jemadar and the station master were also present at the brake-van.

FINDING.

We, the undersigned, having carefully considered all the evidence, do find:—

- (a) that the driver of 24 down (Sutton) is mainly responsible for the accident, due to his steam brake being defective, for which he is solely to blame. It was his duty to have examined it before leaving Dhanbaid;
- (b) the station master, Pradhan Khunta, is to blame for not having seen that the jemadar was at the points and that they were set in their normal position;
- (c) the jemadar is to blame for leaving the points and for not having them set in their normal position;
- (d) gunner guard Martin clearly failed to give proper assistance to the driver with his brakes.

W. A. BUYERS.

H. A. WOOD.

G. L. COLVIN.

Remarks by the Senior Government Inspector of Railways, Calcutta.

I concur generally in the finding, but I am not satisfied that there was sufficient brake power on the train. The Jherriah branch, on which this accident occurred, has a ruling gradient in the down direction of 1 in 150. The working time-table gives the load for a single engine train as 36 vehicles, including one brake-van only. About 8 per cent. only of the total weight of the train, including the engine and tender, is therefore braked.

Assuming a maximum speed of 25 miles an hour, and half a mile as the desirable distance in which it should be possible to arrest a train after the application of the brakes, it can be shewn by calculation that the brake power, under ordinary conditions, is insufficient. The matter is brought to the notice of the administration as one requiring investigation.

CALCUTTA;
The 7th June 1906.

R. W. EGERTON,
Senior Government Inspector.

Appendix XIV to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry which assembled at Rampore Haut station, East Indian railway, on the 7th May 1906, to investigate the cause of a fire in No. 23 Up Loop passenger train at that station on the 4th idem.

The committee was composed of the following officers:—

E. ROGERSON, <i>Acting District Engineer, Howrah</i>	. . . . .	<i>President.</i>
R. M. COWLEY, <i>District Traffic Superintendent, Sahibgunge</i>	}	<i>Members.</i>
W. E. NEVILL, <i>Acting District Locomotive Superintendent, Jamalpur.</i>		
S. K. GHOSE, <i>Sub-divisional Officer, Rampore Haut</i>	}	<i>Present.</i>
J. MACDONALD, <i>Inspector, Government Railway Police</i>		
J. T. T. DILLON, <i>Junior Engineer, Sahibgunge</i>		

DESCRIPTION.

On the 4th May 1906 at about 13-26 hours, a third class carriage on No. 23 Up Loop passenger was seen to be in flames as the train passed the Up home signal at Rampore Haut station.

The adjoining carriages on either side caught fire and the carriages were completely gutted and burnt down to the framing, all wood work being consumed.

Four passengers—three women and one child—were seriously injured, partly by burning and partly by injuries caused by jumping from the burning carriages. Two of these injured persons have died, while the other two are still in hospital and progressing favourably.

Third class carriages Nos. 1506, 1649 and 1241 were burnt completely.

EVIDENCE.

E. Marshall, guard, Sahibgunge.—I was guard of 23 Up from Burdwan on the 4th. I examined the train before starting from Burdwan at 10-10 and found everything correct. All the lights were out.

After I left Mollarpore I gave the all-right signal before coming to the level-crossing, and I commenced making out my driver's journal, train report and constitution report of train. When I was about half-a-mile away from the Up Distant signal of Rampore Haut, I looked out on the left side of my train and saw that the Distant as well as the Main signal were lowered for my train. I then arranged the way bills and covers I had to give out at Rampore Haut. After I had passed the Distant signal I looked out on the right side of my train and saw passengers on the footboard attempting to jump and flames shooting out from the same carriage. I also felt at the time the driver applying the vacuum brake. I immediately pressed the lever of the valve in my brake-van and brought the train to a stand. I ran up to the carriages that were on fire and found that third class 1649 was fully in flames and third class 1506 and 1241 had two ends of the roof on fire. I immediately detached the part of the train that was not on fire behind the burning vehicles and the engine of 24 Down pulled away that portion clear of danger. The train engine pulled the front portion away.

I went up part of my train at Mollarpur and saw nothing wrong. I exchanged the starting signal with my points brakesman who had come down part of the length of the train as is usual. I got no smell of hot boxes either while the train was in

motion or when the train came to a stand. I know the smell of a hot box well. There was a strong wind blowing that day from west (left) to east (right) across the train. I did not observe if the grass was on fire to any extent. The three women and a girl jumped out near the points leading into Rampore Haut station. The carriage door from which they jumped was open.

Babu Lall Pattack, brakesman, Sahibgunge.—As I was approaching the Up Distant signal of Rampore Haut, I noticed that both the Main and Distant signals were all right. I then went to the right hand side of the brake and looked behind. I saw some passengers waving their hands out of the window. I could not understand what they were doing this for. I did not notice any flames or smoke. The driver was also looking out and noticed this. When I reached the facing points the whole of the carriage burst out in flames. I called out to the driver that the carriage was in flames and then went to the vacuum and applied it. When I was putting the vacuum on I noticed a man on the footboard outside.

At Mollarpore I walked down the platform about two or three carriage lengths. I saw nothing unusual, got no smell, saw no smoke or flames.

When I went back on the stopping of the train at Rampore Haut, I opened the doors of the carriages on either side of the burning vehicles and let the passengers out. I did not see any of the passengers that were injured.

A. Greig, driver, Rampore Haut.—I was driver of 23 Up on 4th May from Howrah to Rampore Haut.

I knew nothing at all unusual about the train until the front brakesman shouted to me just outside the Distant signal. I saw smoke coming from the train, but only as much as might be due to a hot axle. I saw no passengers waving their hands and no flames until we were coming over the points, when my fireman called out that there were flames. I destroyed about five inches of vacuum only at that time, and the guard at that time destroyed all the rest so that he must have seen the flames at the same time. At this time only the body of the carriage was burning when I ran back to disconnect these vehicles. I tried to disconnect the one that was actually on fire, but the heat was so great coming out of the end of this carriage that I had to leave off and disconnect at the carriage unit. The two outer carriages were only just catching fire then. The vacuum pipes could not have been burnt then. There was no smoke or flame from the underframe of the carriage.

At Mollarpore I heard of nothing wrong and I had gone back two or three vehicles there to try and get drinking water.

I looked back along my train on the road and saw nothing at all.

W. Wordsworth, permanent-way inspector, Rampore Haut.—I was travelling in a second class compartment about four or five vehicles behind those that got burnt in 23 Up. I got in at Sainthia and walked the full length from the engine to the second class carriage, noticing nothing unusual. I took my seat on the right hand side. At Mollarpore I saw or felt nothing unusual. It was when the brakes were suddenly applied at the Rampore Haut facing points that I looked out and saw the flames, the centre carriage being well on fire. I saw no one on the foot-board when the train stopped I ran up to the first carriage next the burning carriage, jumped up on the foot-board and saw that all the passengers were getting out. I did not notice if any doors of the centre carriage were open, and the flames were leaping out more from the middle of the carriage upwards and not from below.

Edward George Duke, carriage examiner, Burdwan.—I was not present at Rampore Haut when the fire took place, but came by 9 Up immediately afterwards on hearing of it. I saw the gutted vehicles, took the numbers and then went back.

The examination of gas is done at Burdwan. No defects are noted for that day against that train. The main cooks are all turned off at each carriage, and the fact of a carriage arriving with a main cook on is noted as a defect.

I did not open the axle boxes when I arrived at Rampore Haut, but left them untouched. I heard that the accident was being attributed to "hot axle box"; so I left them alone, the station master telling me there would be a joint enquiry.

Now that the axle boxes have been opened in the presence of the enquiry committee, I am quite convinced that they are in good running order.

Rangonndrum Ram, pointsman, Rampore Haut.—I was manning points 5 on the day in question. When the train was near the Home signal, I noticed the carriage was on fire. I showed a danger signal and called out. I noticed that the third compartment was alight and that there were passengers in the fifth compartment. The passengers alighted from the carriage on the left hand side: others, whom I did not see, had jumped out on the far side.

Ghero Lal, jamadar, Rampore Haut.—I was manning points No. 1 on the date in question. When the train was nearing the Home signal I saw some of the carriages suddenly burst into flames and 2 or 3 women open the doors and jump out. The pointsman and I attended to these women who,

we found, were very seriously hurt. A few minutes after the station master, police and native doctor arrived, and the injured women were taken away to hospital.

F. E. Power, station master, Rampore Haut.—On the morning of the 4th instant ticket collector S. B. Chattraj came to me and said that 23 Up had come to a stand near the facing points and that a carriage was on fire. On hearing this I immediately went down to the scene of the accident and found 2 third class carriages blazing. I asked the guard of the train if there were any passengers in the burning carriages and was informed that they had all got out. I then enquired if any passengers had been burnt or injured, and he told me that 3 women and a little girl had been burnt. On hearing this I sent assistant station master B. B. Singh to call the native doctor and I went to look at the injured people. I saw they were being attended to by some natives.

Satish Chandra Chowdhry, native doctor, Rampore Haut.—I was at the station on the 4th of May, having arrived by 24 Down. I heard that some passengers of 23 Up had been injured and taken to hospital. I immediately proceeded there, passing the site of the accident on my way.

There were 4 injured people—3 women and one little girl. Two of these women died, one from the effect of burns and the other from injuries to her head probably caused by jumping out of the carriage.

J. T. T. Dillon, junior engineer, Sahabgunj.—I was travelling by 23 Up on the date in question, from Sainthia, my carriage No. 1733 being the last vehicle in the train. The train came to a sudden stop inside Rampore Haut signals. I immediately opened the door. The stop was so sudden that it knocked my chappressi over. I looked out of the carriage and found flames issuing apparently out of the top of one of the carriages near the engine. I immediately got out, went up to the guard and asked him what he was doing. He informed me an engine was coming up, that the train had been uncoupled and the engine was about to remove the uncoupled portion of the train. There was no delay in getting this done, and I am of opinion that everything possible was promptly and expeditiously carried out. The injured were being attended to when I walked up to the spot and were removed to the hospital as soon as stretchers could be provided.

I heard no noise and noticed no smoke up to the time of the train coming to a stand at Rampur Hat. I cannot throw any light on the cause of the accident.

W. G. Porthouse, locomotive foreman, Rampore Haut.—On hearing that some carriages of 23 Up were on fire, I immediately went down to the station and found three 3rd class carriages blazing. There was no possibility of extinguishing these, as the heat was too fierce to approach them and there was no water-column or hydrant near at hand.

I found the branch train was in danger of catching fire and had it drawn away into safety.

I ascertained that every attention was given to the injured passengers.

I do not think it possible for the carriages to be set on fire by anything except by some fire inside caused by the occupants of the carriage.

Subasini, a girl, aged about 8 or 9 years.—I got into the train at Sainthia with my aunt and my aunt's aunt. After leaving Sainthia I saw smoke in the front compartment. After leaving Mollarpore and coming to Rampore Haut I saw flames bursting from the left door of the compartment. My aunt Chandra at once jumped out of the window and we also got out of the window—the door being locked—before the train came to a stand. I don't know

what happened afterwards and can't say who brought me to the hospital. My brother was in the front compartment and got out and walked on the foot board towards the engine.

Karuna Domin, passenger.—I got into the train at Sainthia, in the same compartment with Chandra, Sundro and Subasine. I saw smoke while at Mollarpore station coming out of the door. I threw some water which I had with me on the spot. While nearing Rampore Haut the flames burst out. One of my companions opened the window. They first jumped out and I followed them. I was burnt in the leg while I was in the carriage. I don't recollect what happened afterwards.

TRANSLATION.

The dying declaration of Karuna Domin, aged 40 years, taken on oath before me, S. B. Mondal, Honorary Magistrate of Rampore Haut, the 4th day of May 1908.

My name is Karuna Domin, my father's name is Gopal Dome. I am by caste Dome. My home is at mauja Joytara, Police Station Dumka, Zilla Dumka.

I came from Joytara to Sainthia station, where I bought a ticket for Pakur. I have got a daughter at Pakur. Her name is Firoga. My son-in-law is called Rail. The boy (shown) was in the carriage with me. The boy purchased the ticket for me. The carriage next to our carriage caught fire. I tried to get away and screamed. The train was then in motion and I could not get off. Besides myself, Nirtyagopal (present), another woman and a girl were in the carriage. While the train was moving Nirtyagopal got out. I can't say whether he got out by the door or by the window. The fire gradually came up to my compartment. After I got into the train at Sainthia I noticed smoke. After the train had left Mollarpore I saw the fire. The boy (shown Nirtyagopal) asked for the train to be stopped and got out of the compartment to say so. When he got out our compartment had caught fire. I have no notion as to how I came here or whether I was taken out of the train.

The dying declaration of Sumitri Cheturi, aged 55, taken on oath before me, S. B. Mondal, Honorary Magistrate of Rampore Haut, on 4th May 1908.

My name is Sumitri Cheturi; my father's name is Balaram Cheturi. I am by caste Chetro. My home is at mauja Barialpore, Police Station Ganga-jalghati, Zilla Bankura.

I purchased a ticket from Raniganj to Sainthia, where I was to attend a feast. At Sainthia I purchased a ticket for Murari in order to get to Dum Duma. I have an uncle named Mohendra Singh and a nephew named Rampada Ram Bishun. I had another uncle named Madhab Singh who used to be a jamadar. When I got into the train at Sainthia there were many people there. I can't say how many women were there. When I got into the train at Sainthia I noticed smoke and told the men about it. Seeing the smoke at Sainthia I spoke to a khalassi. He did not care. I don't remember if I spoke to the station Babus. I noticed the fire when we came to Mollarpore. The fire was burning and we were screaming. This man (points out Nirtyagopal) was in our compartment. When the train stopped at Mollarpore I screamed, but no one heard. Nirtyagopal got out of the compartment and walked along the footboard. I had Rs. 71 and odd annas on me. Somebody here (at Rampur Haut) has taken it. After the train left Mollarpur I can not say where it stopped. I don't know who brought me here.

Nirtyagopal Singh, Dum Duma Police Office, Moheshpur Santhal Pergunnahs District.—I was a passenger by No. 23 Up train of date from Sainthia to Murarai.

Before the train arrived at Mollarpore I noticed smoke rising from the next compartment but one in rear of the compartment I was in.

On arrival at Mollarpore I tried to open the door of my compartment, and on finding it locked I called

out to a railway chaprassi to unlock it. I cannot say whether the chaprassi heard me calling to him or not, for he took no notice.

At Mollarpore I heard a man tell the railway chaprassi that a compartment was on fire. I saw the chaprassi open the compartment door, look in and then close the door again and walk away. I can recognize the chaprassi if produced before me. The man had on a blue jacket, a yellow turban and a leather belt.

The train then started. I made no attempts to stop the train then, but when, after the train had gone some distance from Mollarpore and I noticed flames rising, I got out of the window and walked along the foot-board to the front brake-van and informed the brakesman that a compartment was on fire.

The brakesman called to the driver from the brake-van. He was calling for about five minutes before he attracted the attention of the driver and fireman.

The train came to a stand about two minutes after the driver's attention was attracted.

There were three women travelling in the same compartment—an aunt of mine, my sister and another woman who is a sort of a connection of mine, but with whom I am not acquainted.

As soon as the train stopped, I ran back to see what had become of them, but they were not in the compartment.

I saw a crowd standing about 150 yards from where the train stopped, and going up I found the three females lying on the ground. I guessed they must have jumped out.

There was very little smoke to be seen in the compartment before the train got to Mollarpore. There was no increase of the smoke at Mollarpore. The train had gone about two miles from Mollarpore when I noticed the flames.

It was after the other man (I don't know who he was) had warned the chaprassi of the fire in the compartment, and at the time the chaprassi opened that compartment door and looked in, that I called out to him to unlock the door of my compartment. I did not call out to the chaprassi previous to this.

There were no passengers in the compartment which got on fire between Sainthia and Mollarpore, but besides myself and the three females there two other male passengers in the front compartment of the carriage.

These two passengers got out before I did and were standing on the foot-board when I got out and went towards the brake-van.

I do not know where the two men went to.

Ram Kisoor Tewari, pointsman.—I was on duty at No. 1 points when No. 23 Up came in to-day. I did not notice any fire until I saw a woman jump out of the train.

The train was near the main signal then; two other women and a child jumped out near the points.

The burning carriage was the fourth carriage from the engine.

The door of the centre compartment was open and burning. It was from this door the women jumped out.

I did not notice the door open until the train came up to the main signal. If the door had been open before I should have noticed it.

Only the centre compartment was on fire.

Statement received from 2nd assistant station master, J. O. Chatterjee, Sainthia.—I beg to state that I was on duty from 10 hours to 18 hours on the 4th May last and passed No. 23 Up passenger. After attending brake-van of the above train, I supervised the accommodation of all the passengers, proceeded myself up to the front brake-van, saw bhiste, hindu waterman, and porters all present and performing their respective duties. None brought to my notice the fire or smoke on the train. I did not even notice it myself anywhere on the train.

Doman Ram, sweeper.—Line clear message was handed over to me to give it to the driver by the "Chota Babu." On arrival of the train I went to the engine, gave the line clear message to the

driver and then returned, closing up the open doors, and proceeded to the brake to assist if there be any unloading. No one informed me about the fire or smoke on the train. I did not even notice it myself. The train in question was of 4th May 1906.

Jamuna Chubay, Hindu waterman.—After the arrival of 23 Up passenger on 4th May 1906 at the station I attended almost all the carriages and gave water to the passengers. No one informed me about the fire, nor was it noticed by myself.

Abdul Shaikh, bhiste.—I was present on the 4th May 1906 when 23 Up train arrived and proceeded from the engine towards the rear brake-van. Nothing regarding the fire on the train was noticed by myself.

S. N. Bose, 1st assistant station master, Mollarpore.—I was on duty and passed No. 23 Up passenger of date.

No one informed me that he had seen smoke in one of the carriages or that one of the carriages was likely to take fire.

I do not know if any one told the signalman or any of my staff that there was smoke in one of the carriages or that there was a likelihood of one of the carriages taking or being on fire.

I know nothing at all about the matter. Nothing was brought to my notice.

If anyone on the platform had noticed smoke rising in one of the carriages, there is no doubt it would have been brought to my notice.

If it had been brought to the notice of my staff I should have heard of it.

Ram Din Tewari, signalman, Mollarpore.—I was on duty to-day when No. 23 Up passenger arrived.

I was standing by the Home signal when the train arrived.

I stood by the signal the whole time the train was at the station.

No one called to me to open any door.

No one told me that there was smoke in any of the carriages.

I did not open any carriage door.

I know nothing about the fire.

Harish, sweeper, Mollarpore.—I was on duty when 23 Up arrived and attended the brake-van. I know nothing about the fire.

Ali Hossain, bhiste, Mollarpore.—When 23 Up arrived I began supplying passengers with water from the rear end of the train. I had supplied water to about two carriages from the brake-van when the train left.

I know nothing about the fire.

Kirti Chandra Bhattacharjee, Hindu waterman, Mollarpore.—I supplied water to the front portion of 23 Up to-day. I began supplying water to the passengers after I handed line clear to the driver.

I know nothing about the fire. No one called my attention to any thing of this kind.

FINDING.

We having carefully considered all the evidence, do find as follows:—

The bulk of the evidence goes to show that although smouldering may have been going on for some time, yet the fire did not make itself sufficiently apparent to attract the notice of either the station staff at Sainthia and Mollarpore or the train staff until the train was nearing the Distant signal at Rampore Haut, when smoke was seen issuing from below the carriage.

On this point we have the evidence of the permanent-way inspector, who at Sainthia walked past the carriage in which the passengers who were subsequently burnt were travelling and noticed nothing wrong, while the station staff there also state they saw nothing unusual.

At Mollarpore both the driver and the brakesman walked some way down the train and saw no signs of fire, nor did the station staff there notice anything amiss.

When the train staff did actually realise what had happened, we consider that there was no delay in bringing the train to a stand and isolating the burning carriages. Prompt and ready assistance was at once rendered to the passengers, and there was no delay in obtaining medical aid on behalf of the injured.

We do not accept the statements of the injured passengers that the doors were locked, as, according to their own evidence, they got into the carriages at Sainthia and the doors could not have been locked again between Sainthia and Rampur Haut.

We have satisfied ourselves by personal examination that the fire did not originate through any heating of the axle of the carriages, as, on examination, these were found to be in perfect condition; and we therefore can only surmise that the origin of the fire was due to the contents of a lighted chillum having been emptied on to the floor of the carriage by a passenger and that the live coal took some time to burn through the wooden floor of the carriage. This would account for the smouldering between Sainthia and Mollarpore, while the sudden bursting into flames at Rampore Haut was probable due to the ignition of the gas owing to the leaden pipes melting through.

There was a strong westerly wind blowing at the time.

Remarks by the Senior Government Inspector of Railway, Calcutta.

I agree generally in the above finding.

The accident shows the necessity for devising some satisfactory appliance by which third class passengers can communicate with the guard while the train is in motion.

R. W. EGERTON,

Senior Government Inspector.

CALCUTTA;
The 29th May 1906.

Appendix XV to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry which assembled at Memari station, East Indian railway, on the 17th May 1906, to investigate the cause of a collision between Nos. 8 Down passenger and 256 Down goods trains, which occurred at that station on the 9th May 1906.

The committee was composed of the following officers:—

H. KELWAY BAMBER, <i>Carriage and Wagon Superintendent.</i>	<i>President.</i>
H. A. WOOD, <i>District Locomotive Officer, Asansol.</i>	} <i>Members.</i>
C. W. PARSONS, <i>Signal Engineer.</i>	
S. W. JEWELL, <i>District Traffic Superintendent, Howrah.</i>	
W. T. NASH, <i>Junior Engineer, Howrah.</i>	
J. H. WHITE, <i>Government Inspector of Railways, Calcutta.</i>	} <i>Present.</i>
W. S. ADIE, <i>Magistrate and Collector, Burdwan.</i>	
G. HUDDLESTON, <i>Chief Superintendent, East Indian railway.</i>	
R. B. HYDE, <i>Assistant Inspector-General, Railway Police, Howrah.</i>	

DESCRIPTION.

While 8 Down passenger was detaching a third class carriage at Memari on the 9th May 1906 it was run into in rear by No. 256 Down goods at 20-45 hours, resulting in seventeen native passengers being injured (2 seriously and 15 slightly). The rolling-stock and permanent-way were considerably damaged.

EVIDENCE.

H. J. Millard, guard, 8 Down.—I arrived at Memari at 20-25. I advised station master on duty that I had a carriage with hot axle to detach. I then went to the engine and informed the driver. I got the station master to empty a "Service" carriage to make room for coolies for Goalundo who were in the carriage to be detached. While I was taking the coolies out of the carriage to be detached No. 256 Down goods ran into the rear of my train. At the time of the collision, work in connection with the detachment of the carriage had not commenced.

Third class 801 was to be detached at Memari. The 3 carriages in rear of the brake-van at Memari were in front of the rear brake at Burdwan and were placed behind the brake there to enable them to be dropped at Bandel. It is the practice to run with 3 carriages behind the brake from Burdwan on 8 Down passenger.

When 8 Down was approaching Memari the signals were properly lowered and the lights were bright.

I cannot say whether the signals were at danger, protecting the train while it stood at Memari.

8 Down is booked to stop at Memari. On arrival on the night of the 9th it was very stormy; not one platform light was burning. I only saw the assistant station master and a porter between the time of my arrival and the moment of collision.

The side and tail lamps of my brake-van were oil lamps and were burning brightly. The tail lamp was in its usual place on the brake-van; it could not be placed on the last vehicle (H type III 637) because that vehicle is not fitted with tail lamp brackets.

I neither saw nor heard No. 256 Down approaching, although I was quite at the end of the train. I attribute this to the stormy nature of the weather. A heavy wind was blowing, and it was raining, thundering and lightning.

When the collision took place I was standing alongside third class 801—the 3rd vehicle from the end.

Up to the night of the accident the engine of 8 Down drew up at the water column, the whole of the train being thus away from the new platform and the passengers having to alight at rail level. Since the accident, the train has been stopped at the new platform.

The collision occurred at 20-45. I left the station with the remainder of 8 Down at 1-20 P. M. for Howrah.

Seventeen people were injured. All were able to walk, and I placed them in charge of the station master.

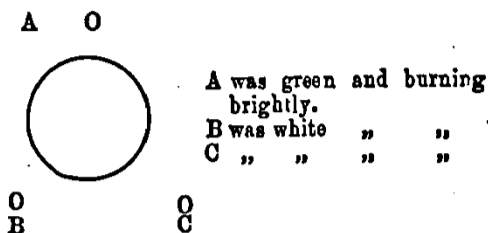
I am aware of General Rule 106 (1); but on this occasion I did not observe it as, being busy, it escaped my mind.

After the collision I asked the driver of 256 Down why he had come into the station. He said, "look at the home," which I then by the light of lightning flashes saw was lowered.

I could not see the "outer" and "warner." The "down starter" and "advance starter" were "off" when 8 Down arrived at Memari. After the accident these latter signals were still down and must have

been down all the time. After the accident (that is within a minute or so) I saw all three of the engine head lights of No. 256 Down.

I looked at the engine head lights at the request of the driver.



Third class No. 801 is an old pattern carriage with doors opening outwards. I personally saw that all 6 doors on the platform side were open.

I noticed that one of the doors on the "off" side of this carriage was open. I cannot account for its being unlocked.

The doors being open on both sides of this carriage which was marshalled behind the brake, the brakevan side lights would both be obscured from the sight of the driver of an approaching Down train.

The night was very dark and no moon was visible.

I first noticed a hot box on third class 801 on entering Rasulpur, where I saw sparks flying, and when I examined the box I found that part of it was deficient—the washer was smoking.

I did not cut the vehicle off at Rasulpur for want of staff. I did not advise my driver of the condition of the box for fear of losing time.

8 Down passed 256 Down at Gangpur at 19-48. I spoke to the guard of 256 Down after the collision and he told me the signal lights of Memari were lowered for his train to enter.

After informing the assistant station master, Memari, that shunting was to be done, I told him put "advance starter" and "starter" to danger. This he did not do.

After the driver of 256 Down had drawn my attention to the "home" signal being lowered for him I pointed this out to the assistant station master, who said nothing but walked away.

I am positive that the down "home" signals of Memari were still lowered long after the collision had occurred.

G. L. Wills, driver of 256 Down.—I was the driver of No. 256 Down goods on the 9th instant ex-Burdwan.

I left Burdwan at 18-35.

At Gangpur I shunted for 8 Down passenger. I left Gangpur again at 20 hours.

At "Nimmo" block hut all signals were lowered and we ran through.

While running through "Nimmo" block hut I could see that the signals at "Memari" were as follows:—

- (a) "Outer" (top arm light) "off" "warner" (bottom arm light) "danger."
- (b) On approaching the "outer" I saw that the "home" was off. I shut off steam and was coming in cautiously.
- (c) I soon after saw the "starter" and "advance starter" "off" and, concluding they were signals intended for me, I gave steam.

When I gave steam again my engine had passed the "home" signal and must at the time have been very close to the Burdwan end of the new platform. Even at that time I was not aware that any train was standing on the Down line at the station.

Almost immediately after I saw by a flash of lightning a dark object before me and remarked to my firemen "there is something on our line" and immediately shut off steam. I had only just time to apply my steam brake when the collision occurred.

I was running very slowly when the collision occurred, and neither myself nor engine crew were hurt. The only damage sustained by my engine was two buffer sockets broken.

Immediately after the collision I saw guard Millard of 8 Down, and asked him where his brakevan lamps were. He replied: "I will explain afterwards." I then said: "Let us see the condition of the signals," and we went together on to the new platform.

We saw by lightning flashes that the arms of the "home" and "outer" signals were lowered. The only light we saw was the back light of the "warner."

Within 3 or 4 minutes we heard the signal wires move and at the same time saw the "back" lights of the home and outer signals appear.

The guard explained my not seeing the brakevan side lamps by their being obscured by the open doors of the third class carriage from which the coolies were being removed.

He told me he had been unable to get a "tail lamp" from the station master at Burdwan.

Guard Millard, recalled, corroborates the driver's (256 Down) statement regarding the condition of the home and outer signals at the time of collision and the fact that they were thrown to danger while they were looking at them.

M. N. Mitter, relieving clerk cabinman (acting) Memari station.—I was on duty in Memari cabin on the night of the 9th instant. I came on duty at 18 hours.

I received enquiry for line clear from Nimmo block hut at 20-8 and I signalled line clear for 8 Down at that time.

Nimmo gave out report of 8 Down at 20-19½ and 8 Down arrived at Memari at 20-24. On arrival of 8 Down at Memari I worked my signals as follows:—

- (a) "Outer" and "home" signals levers put to danger.
- (b) I asked line clear from Bagila block hut.
- (c) I got this at 20-25, i.e., immediately I asked for it.
- (d) I lowered the "starter" and then the "advance starter" immediately on getting line clear from Bagila block hut.

I then got up on to the cabin window sill and saw that the "outer" and "home" signals were properly at danger, and saw that one side lamp of brakevan of 8 Down was burning brightly and thus assured myself that the train had arrived complete and was properly protected.

I then came down and closed the line at 20-24 for 8 Down passenger.

Nimmo asked me "line clear" for an Eastern Bengal State railway Down train at 20-25, and I gave it at once.

After lowering the "starter" and "advance starter" for 8 Down to leave Memari the signals remained lowered until after the collision. This being so it was not possible for me to lower the "home" or "outer" signals to allow 256 Down into the station.

I had not given the "out" report of 8 Down passenger to Bagila.

The night was dark, very gusty and no moon. I could see the white back lights of the "home," "outer" and "warner" signals perfectly.

Up to the time of my going off duty at 2 hours no one said to me that the signals had been lowered for 256 Down goods. On the contrary all the station staff wondered how the goods train had come in against signals.

I did not have occasion to use my clearance key. It is not kept in my cabin, but by the station master on duty.

I could not understand why 8 Down was standing so long at Memari and sent the pointsman to enquire

but I immediately afterwards heard that a collision had occurred. I cannot remember what time this was.

Sometimes we have difficulty in getting the outer signal properly "on" and "off."

On this occasion the relieving signalman, G. Lall, was with me in the cabin. He had only been working in the cabin for two days. I had to keep a sharp eye on him and did not trust to him. On the night of the 9th my pointsman was working the signals.

I do not know what has become of Gridi Lall. He has, I believe, absconded.

I got the "out" report of 256 Down from "Nimmo" at 20-42.

I did not hear the noise caused by the collision.

At the suggestion of the District Locomotive Superintendent, Asansol, he and the District Traffic Superintendent, Howrah, went to get the clearance key of the station.

It was found in the cabin, where it had been sent at about 7-15 hours and had not been returned by 10-45 hours.

J. W. Thomas, driver, station Asansol.—I was driver of No. 19 Up of 9th instant, *ex-Howrah.*

I arrived at Memari at 20-13 and shunted there for No. 3 Up Bombay mail as usual. I left Memari at 20-39, at which time 8 Down was still at the Down platform.

At about 20-41 (that is two minutes after leaving Memari) I passed 256 Down goods at the distant signal and noticed the Down "outer" signal lowered.

I had not noticed the position of the home signal, as I did not expect to find a train following so closely upon 8 Down.

On arrival at Burdwan the station master told me of the collision.

I have been running between Howrah and Asansol for about a year and have not had much difficulty with defective signals.

D. D. Chatterjee, general assistant, Memari station.—I was not on duty on the night of the 9th May, but was just opening the door of my quarters when I heard the noise of the collision. I at once ran and told the station master, and then went to the cabin to inform the cabin-man.

I looked at the signals and saw that they were all against No. 256 Down goods.

M. G. Sarkies, guard.—I was guard of No. 256 Down of 9th instant, *ex-Burdwan.*

I shunted at Gangpur for 8 Down passenger and left that station at 20 hours.

Approaching Memari my train reduced speed. On looking out I saw that the "outer" and "home"

signals were lowered and the "warner" at danger. I saw no lamps or lights ahead that would indicate a train on the Down line. No. 256 Down was running 20 minutes behind 8 Down passenger.

I did not know that anything was wrong until the collision occurred. Seeing the "warner" at danger I concluded a goods train was ahead of us.

When the collision occurred I looked at the signals. Before we came to the "outer" I saw that it was showing a green light and after the collision occurred I saw that it was still green, while the "home" was lowered also.

The "outer" and "home" signals remained lowered for about four or five minutes after the accident; the "starter" and "advanced starter" remained lowered for about 20 minutes after the collision.

The train could not have been going more than 6 miles per hour.

When I saw the "warner" at danger I applied my brakes.

P. B. Bannerjee, station master, Memari station.—I have been station master for about one year. I was in my office counting cash on the night of the 9th instant when 8 Down passenger arrived at Memari.

My assistant, S K. Bhattacharjee, was on duty at the time. I knew nothing of the occurrence until my assistant told me that a collision had occurred.

The signals at this station are always in good order.

The Block Signal Inspector, or his assistant, is here almost every day and do what is necessary in the cabin.

The clearance key is kept by my assistant and is used about 20 times daily. Of these cases 4 Up and 4 Down are for shunting operations. The other 12 occasions are for "freeing" signals.

I use it more frequently for freeing the "Down" than the "Up" home.

S. K. Bhattacharjee, platform assistant, Memari station.—I was on duty on 9th May when 8 Down passenger arrived. The guard told me a third class carriage with hot axle had to be detached.

While I was engaged in finding room for the coolies, 256 Down ran into the rear of 8 Down.

I am certain that No. 8 Down was properly protected while standing at Memari, because I could see the white back lights of the "outer," "warner" and "home."

My intention was to advise the cabin regarding the shunting to be done after I had transhipped the passengers, but before I could do this the collision occurred.

After the accident I personally saw that the "outer," "warner" and "home" were at danger.

FINDING.

We, having carefully considered all the evidence, do find—

- (a) That the accident was due to the driver of No. 256 Down goods being misled by finding the Down "home" and "outer" signals "off," although the position of levers in the cabin was such that the signals should have been at danger.
- (b) That this defect was in a measure due to the tightening of the signal wire owing to its contracting as the result of a fall in temperature following upon a storm.
- (c) We hold cabin-man M. N. Mitter to blame for not promptly correcting this defect by use of the wire adjuster.
- (d) That the "Block clearance key" is much more generally used by the station staff than is intended under the system of working. We do not, however, attribute the present accident to its misuse.

Remarks by the Government Inspector of Railways, Calcutta.

The following are the rules bearing on this accident :—

The *guard* must at once see that all the signals in rear of his train are put to danger as required by subsidiary rules 72 (3), 91 (3) and 108 (1).

The *station master* must see that the back lights of all the signal lamps are clearly visible, *vide* general rule 90 (5). He is personally responsible for seeing that no signal arm or light is under any circumstances allowed to remain in the "off" position unless a train is actually about to be signalled past it, *vide* subsidiary rule 108 (7). He must satisfy himself by personal inspection that signals have been immediately thrown to danger as soon as the train has passed, *vide* subsidiary rule 72 (8) (3). The clearing key is to be kept in the custody of the station master on duty except when he sends it to the cabin to release the home signal, *vide* Block Signalling rule XXIV, subsidiary to general rule 28.

Signalman.—The outer signals should be tested when being lit by the lampman every night where possible, *vide* subsidiary rule 108 (6). Subsidiary rule 95 (2) gives instructions about examining and adjusting signal wires; when the signalman is unable to adjust the wire of a signal, the station master must at once telegraph to the nearest signal inspector and in the meantime consider it a defective signal. The station master or signalman must daily inspect and satisfy himself that the signals are in proper working order, *vide* general rule 254.

Attaching vehicles in rear of brake-vans.—The rules subsidiary to general rule 162 lay down that the last vehicle on any train must always carry a lighted tail lamp after sunset, and this tail lamp must be the only lighted tail lamp on the train also prohibits a vehicle being attached if this is not done.

The "outer" and "warner" signals are 4,400 feet from the cabin, the line being partly on a curve. The cabin was inspected during the enquiry, and it was found that the "outer" and "warner" signals were working very unsatisfactorily. In order to lower these signals the levers had to be pulled over with a sudden and heavy jerk (this was done by the leverman stepping on to a pedestal, uncatching the lever and then falling on the top of the lever) about four or five times before the signals would come off; there was the same difficulty in putting the signals to danger. The above procedure was noticed by me several times in the early morning as my carriage was stabled just opposite the cabin. The Chief Superintendent, Traffic, also noticed the same. Also the new station building interfered with the view of the signals from the cabin, and it was only by getting on to the window sill and leaning out of the window that the "warner" could be seen.

This state of affairs was well known by the station master and the signal inspector, and had existed for some considerable period, yet no steps had been taken either to remedy matters or to report the case for orders.

When No. 256 Down goods collided with No. 8 Down passenger the "warner" was at danger, the outer "starter" and "advanced starter" were off, the position of the home signal was most likely at danger; but the driver of 256 Down goods being misled by the outer signal, did not notice the home being at danger until it was too late.

The cabin-man, M. N. Mitter, is to blame for not assuring himself that the outer signal properly returned to danger when the lever was put back and permitting his signals to remain in such a dangerous state.

The station master and signal inspector are still more to blame, as they knew full well the inefficient state of the working of the signals.

Apparently the guard, station master and signalman are not in the habit of carrying out the rules mentioned in paragraph 7.

The English system of block working was at once brought into force until such time as the new interlocked station and signals be brought into use.

More effective measures should be taken to ensure the proper use and custody of the clearance key. The supervision of the station staff and the station machinery appears to be inefficient. It is the duty of the administration to ensure that the general and subsidiary rules are faithfully carried out.

J. H. WHITE,

Government Inspector.

CALCUTTA :

The 5th July 1906.

Remarks by the Senior Government Inspector of Railways, Calcutta.

The accident report shows that the signals at Memari were defective, and that the station master, the signalman and the guard of 8 Down failed to comply with the general and subsidiary rules.

It is also worthy of notice that this accident could not have occurred under the English absolute block system of working except under the "section clear station blocked" clause of the rules, in which case the driver of the following train would have been warned of the condition of the station ahead.

R. W. EGERTON,
Senior Government Inspector.

CALCUTTA;
The 5th July 1906.

Appendix XVI to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry held to investigate the cause of a collision between Nos. 278 and 410 up goods trains at Matunga station on the Bombay-Kalyán section of the Great Indian Peninsula railway on the 13th February 1906.

The committee was composed of the following officers:—

C. H. DEWEY, District Traffic Superintendent, Bombay . . .	President.
F. J. PRESTON, District Engineer, Byculla . . .	} Members.
W. WATSON, District Locomotive Superintendent, Parel . . .	
C. T. R. SCOVELL, Government Inspector of Railways, Bombay	} Present.
C. JEFFERIES, Inspector of Police, Great Indian Peninsula railway.	

Locality.

Matunga is a small suburban station situated between Dadar on the south and Sion on the north at mile 6½ from Victoria Terminus. The cabin is situated at the south (Bombay end of the platform and controls warning, home and starting signals in each direction. The up home is situated 267 yards to the north and the up starting 133 yards to the south of the cabin. All signals are well situated: the up signals close to the up road (on the left hand side) and clearly visible in fine weather.

Description.

The collision took place to the south of the cabin on the up road between No. 278 up goods which had stopped with its rear brake just beyond the up starting signal and No. 410 up goods which was following.

No one was injured, but considerable damage was done to rolling stock.

Evidence.

Ramohandra Krishna.—I was cabinman in charge of Matunga cabin on the morning of the 13th instant. I came on duty at 2 a. m. to work till 10 a. m. I have been a cabinman at Matunga 2½ months. I produce my train register books. No. 88 up passenger left Matunga for Dadar at 7-36. Line clear was given back at 7-51. No. 278 up goods was offered and accepted at 7-40. Departure signal from Sion at 7-45 and arrived here 7-51. I had been giving the attention signal to Dadar, but he replied line blocked till 7-51 when he gave line clear for 88 up passenger. He accepted 278 up at 7-52. After 88 up passenger had passed I returned all signals to danger. I am quite positive about this. I lowered the up home only for 278 up goods. When I saw the driver about to pass I displayed a red flag, but the train passed beyond into the fog. I was about to advise Dadar by telephone when he gave line clear as above at 7-52. Sion offered 410 up goods at 7-54, which I accepted at 7-57, at which time I received the departure signal from Sion. I then lowered the home signal. Just after this the driver and guard of 278 up came together to my cabin and asked why the warning had been lowered, to which I replied it had not. While we were conversing 410 up approached; everybody endeavoured to stop it, but it ran past the starting

signal which was at danger, and the collision followed. There was a thick fog but I could just discern the home and starting signals. There are no fog signals supplied me. It was fairly clear when I came on duty and I could see the warning back lights. I adjusted the wire that morning, as I have to do every morning. I have never seen a fog signal. I have never been taught their use.

Re-examined.—There is no truth whatever in the statement of Ganpat Dhondu that he called out to me and asked me how I had given signals for a goods train to run through while another goods train was standing on the same line beyond the up starting signal, and that I then showed a red flag to the approaching goods train.

Bagan Chandu.—I was leverman in Matunga cabin on the 13th instant. I have been in the service about 8 years, of which about 4 months have been at Matunga. I pulled off the home signal for the 278 up goods. I am certain this is the only signal I pulled off. When the train came past the cabin the cabinman told me to shout to the train to stop, and show a red flag. After the train had

passed, I put the home signal back to danger and when 410 up left Sion I pulled off the home signal again on the cabinman's orders. I did not give the starting signal or warner for either train.

Hormuji Furdonji.—I was driver of 278 up goods working between Kalyan and Wari Bunder on the 13th instant.

I have been 14 years in the service, and out of this 4 years a driver on this district.

My train consisted of 45 vehicles including the 2 brakes, Guard Wharton in charge and brakeman Vaz. The train left Sion at about 7-45, and on approaching Matunga owing to the heavy fog the warner could not be seen by me till I was about 30 yards or so from it. It was then off. After passing it and coming close to the home signal I saw it was also lowered. On passing it and on coming close to Matunga cabin I heard the cabinman shouting and exhibiting a red flag. At the same time I noticed the starting signal was also lowered. I tried my best to pull up my train, and did so beyond the starting signal with the rear brake about some 5 or 6 wagon-lengths past it. After stopping, I made up my mind to enquire why the cabinman had shown a red signal, and got off my engine, and walked back to the cabin, taking the head Guard Wharton with me. Both of us asked the cabinman why he had exhibited the red flag. He said he did so because he hadn't received line clear from Dadar; but the line was clear now. The cause of my leaving my engine was because I could not see my rear brake, but when the cabinman told me it was all right, I then commenced walking towards my engine, and had barely started doing so when I heard a train approaching, and immediately after this the collision occurred.

I asked the cabinman why he had lowered the signals when he hadn't got line clear; but before he could reply, the 2nd goods train had approached.

It is not unusual to have heavy fogs on this district. This is the first time this year that I experienced such a heavy fog. I have not known of fog signals being used on this district.

Recalled.—I have never reported that I could not see signals on account of fog.

C. H. Wharton.—I am about 5 years in the service and 4 years a guard; and on this district 1 year 8 months.

I was guard in charge of 278 up goods on 12th, running from Kassara to Wari Bunder. I had 43 loaded and 2 brakes on, and was 2 hours and 40 minutes late. On approaching Matunga and when close to the warner signal and almost in line with it, I saw it was lowered. I did not notice the home signal, but when about close to this signal the driver gave a short whistle. When I arrived near the starting signal I saw it was at danger, and on my rear brake having passed it about 40 yards, the train was stopped by the driver. I did not hear a danger whistle given by the driver. After the train had stopped for about 2 or 3 minutes I saw the driver Furdunji coming up to me, and he told me that he had got the run through signals, but when he had come to the starting signal it was thrown up to danger, and a red flag was exhibited from the cabin. When the driver and I came to the cabin, I asked the cabinman why he had given the run through signals, and then stopped the train by showing a red flag, he replied he had not given the run through signals, and his reason for stopping the train was because he hadn't received line clear from Dadar. I then asked him if he had received line clear now, and he said it was all right, and immediately on this I heard the rumbling of an approaching train, and I told the cabinman to at once put all the signals to danger. I don't know if he did so.

The driver was present when I asked the cabinman why he had given the run through signals and then stopped the train by showing a red flag.

I did not hear the noise of the signal levers being thrown back; but the cabinman showed a red flag against the 2nd train. I could not see the starting signal from the cabin owing to the heavy fog.

1018

A. Vaz.—I was brakeman of 278 up in the centre brake. On approaching Matunga warner signal I saw it was off. The home signal and starting signals were at danger: when I saw the home signal at danger, I stopped in my brake up to the time of the accident. I was knocked down and became senseless.

Shapurji Burjorji, driver of 410 up.—I have been 20 years as a driver, 15 years of it on this district.

On approaching Matunga I found the warner off and the home off. Close to the cabin I saw the starting signal off. The cabinman was shouting to me to stop. I put on vacuum, reversed, and immediately after the collision occurred. There were no fog signals. I saw the starting signal off as I passed the cabin.

Fogs are fairly frequent in the mornings. I have never heard fog signals during 15 years.

Recalled.—I have never reported that signals were not visible on account of fog.

Bomanji Edulji.—I was guard of 410 up goods on the 13th instant. I was in the rear brake. I saw both warner and home signals off before. I could not see the starting signal till after the collision and it was then off.

Kasinath Abaji.—I am station master, Matunga. I am supplied with 15 fog signals. I have been 5 years a station master and 2½ years at this station. I have never used a fog signal, I have never tested one. The fog signals now in my charge have been at this station ever since I have been here. If a fog came on, I should put down fog signals at the station and after the engine exploded them I should put others down.

Hari Gopal.—I am assistant station master and have been about 3 years at Matunga. On the morning of the 13th, I was called by porter Pandu Narayan to the cabin. When I got there the guard and driver of 278 up were standing there and I was asked why the warner signal was lowered, and I said that only the home signal was lowered. I got this information from the cabinman. I could not see the signals myself on account of fog. I did not recollect the rule about putting out fog signals. I have never put them out. I have often seen fogs before.

Ganpat Dhondu.—I am a porter at Wari Bunder. I was going to catch a train to go to my work on the morning of the 13th. I noticed a goods train standing beyond the up starting signal, and almost immediately after another goods train came from the Sion side for which both home and starting signals had been lowered. At that time I was near the up starting signal, I pointed this out to the porter who lights the signal lamps, also to a comrade of mine, and called out to the cabinman, and he showed a red flag to the train.

Cross examined.—I passed 278 up while walking from my house to the station along the line. I could see the home signal from the Bombay side of the cabin. I usually catch a train leaving Matunga about 8 o'clock. I spoke to the lampman just at the foot of the down home signal.

Re-examined.—I can give no reason for the Matunga lampman Luximon Vittu and cabinman Ramchandra Krishna denying the truth of the statement made by me regarding them.

Laximan Vittu.—I am employed on the Hydraulic Turntable, Wari Bunder. I do not know Ganpat Dhondu. I left Thana at 7-30. I was stopped at Sion. I walked from Sion to Dadar along the line. I did not meet Ganpat Dhondu on the way or see him on the work at Wari Bunder. I did not give him any tobacco at Matunga.

Nimber Khan.—I was brakeman of 410 up goods in the centre brake on the 13th instant. I saw the up warner at danger. When I came near the up home I saw that at danger also and the driver sounded the danger whistle and I put on my brake. I did not see the up starting as I was putting on the brake.

I saw the up starting signal just after the accident. It was then at danger.

I. W. Stokes, signal and interlocking engineer.—I arrived at Matunga about 2 hours after the accident and immediately tested the working of the levers, which I found correct. No repairs or adjustments were necessary.

The warner signal wires are fitted with adjusters which are fixed inside the cabin for the use of the cabinmen.

C. H. Dewey, District Traffic Superintendent.—Cabinmen are trained in open line signal interlocking cabins. After a month or two they are examined by the Telegraph and Traffic Inspectors and by myself in block and lever working. If proficient, a certificate is given them as competent to take charge of a cabin. The matter of fog signalling is taught to station masters to whom the detonators

are supplied. A cabinman has usually a leverman on duty with him. In the event of a fog it is the station master's business to send out fog-men.

I produce the Dadar and Sion Train Register Books. Dadar shows No. 88 Passenger left Matunga at 7-39, arrived 7-44, line cleared back 7-44. No. 278 goods offered 7-54, departure 7-54. Sion shows line cleared back from Matunga for No. 278 at 7-56. No. 410 accepted at 7-56, train left 7-57.

With reference to the testing of fog signals the practice on this district is to have them tested as a rule by the stations monthly, and this my office files shown, prove to have been done, and the Traffic Inspectors watch this, and occasionally themselves also test. The exploded detonators are sent to District Traffic Superintendent and returned to Stores and a fresh supply issued to complete the number 12 allowed to each station. I produce receipt dated 13th March 1904 from Hari Gopal, the assistant station master at Matunga, for three detonators, balance to complete the 12 allotted to each station.

Cabinmen are not supplied with fog signals, and it is the station master's duty to use them when necessary, and he only is supplied with them. Hence it is he (the cabinman) is naturally unacquainted with the rules about their use.

Matunga evidently did test 3 fog signals in 1904, as he asked for 3 which were sent him.

FINDING.

We find that both drivers passed the up starting signal at danger.

Owing to foggy weather they could not see it till close on to it and probably could not pull up in time.

Remarks by the Government Inspector of Railways.

The evidence as to the indication of the signals is, as usual, most conflicting. Judging by the straightforward manner in which the cabinman gave his evidence, and by the absolute worthlessness of that of Ganpat Dhondu, as proved by the evidence of his friend Laximan Vittu, and taking into consideration that the drivers would naturally say the starting signal was off as they had run past it, and as it is most unlikely that the cabinman would have shown a red flag and done his utmost to attract the attention of the drivers had his starting signal been off, I must come to the conclusion that the starting signal was at danger and (by the interlocking) the warner also. In order to justify the fact that two successive trains ran through these signals, I am of opinion that the warner must have been drooping, and though the drivers were not justified in accepting such an indication, nevertheless I have frequently noticed that they do.

It is obvious, therefore, that accepting the warner off, finding the home off, and suddenly in the fog coming on the starting at danger, they are unable to pull up and each train in succession ran past it.

Driver Shapurji Burjorji of 410 goods must, therefore, accept the responsibility for the collision jointly with driver Hormusji Furdonji of 278 goods, who contributed the cause of the accident by running against signals into the section in advance and being obliged to stop out of sight of the signalman.

The accident would have been probably averted had the cabinman had the presence of mind to throw the home up to danger when the driver and guard of No. 278 came to his cabin. But the presence of these men, it must be admitted, added to rather than detracted from the general confusion. I consider that under the rules the cabinman was justified in lowering the home signal as he was, when he did so, under the impression that No. 278 had proceeded to Dadar.

In the Dadar Train Register the section clear for No. 88 was given to Matunga at 7-44, whereas the entry in the Matunga book was 7-51. Comparing the Matunga and Dadar Train Registers for all trains passing that night, the times correspond within 2 mins., except in one instance where there was 6 mins. discrepancy.

I am inclined to think these 2 mins. discrepancies, owing to the difficulties of reading clocks to a minute, rather points to the validity of the entries than otherwise. The larger discrepancy is explained possibly by the Dadar man entering 7-44, the time at which he *should* have cleared back, whereas he may not actually have done so till 7-51, the time booked at Matunga. I am, therefore, inclined to believe the signal was actually sent at 7-51. This is corroborated by the fact that the cabinman at Matunga displayed a red flag and did his utmost to stop the goods train which he would not have done had the "section clear" been given him previously. It is, therefore, evident that Dadar booked false time in his train register.

The fact the drivers admitted the frequent occurrence of fog, and also that they have never reported that signals were not visible in consequence, makes it all the more unreasonable to blame the station masters for not having in this one instance placed detonators on the rails.

The accident points :—

- (1) To the necessity of the issue of stringent orders to drivers, that unless the warner is dropped to 45° at least, it must be accepted as a danger signal.
- (2) To the custom of stopping trains out of course by the warner and starting signals only, I consider all trains which it is required to stop out of course should be checked and brought to a stand at the home and then allowed to draw on to the starter.
- (3) To the general laxity in the knowledge of fog signalling; although both drivers freely admitted the prevalence of fogs, neither had ever run over a fog signal in their lives. The evidence of the station master, who stated that he had never used a fog signal, not even for testing, shows, if true, a lamentable state of affairs. Apparently none of the staff knew where or when to set the detonators had they made up their minds to place them on the rails.

C. T. R. SCOVELL

Government Inspector.

BOMBAY;

The 17th February 1906.

Remarks by the Senior Government Inspector of Railways, Bombay.

I agree with the finding.

J. S. BROWN,

Senior Government Inspector.

BOMBAY;

The 13th March 1906.

Appendix XVII to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry held at Gwalior station, Gwalior Light railways, on the 22nd November 1906, to investigate the cause of the accident to the Gwalior-Sipri down mixed train, at mile 27, on the 8th November 1906.

The committee was composed of the following officers:—

J. S. LAMBERT, District Traffic Superintendent	.	.	President.
J. H. ALEXANDER, District Engineer	:	:	} Members.
J. H. FREERE, Assistant Traffic Superintendent	:	:	

Description.

The accident occurred at mileage 27; chain 37 (on the Sipri line) which is the spot where the vehicles were capsized, but there are marks on the permanent-way (400 feet to rear) which go to show that a vehicle left the line at that spot (on a falling grade of 1-192).

The train left Ghatigaon, mileage 21½, at about 10-13 hours and ran to mileage 26½ where a falling grade of 1 in 192 commences. The grade is one mile long and the driver says (and so does the guard) that he did not apply his brakes until after he left the grade and was on the level, he adds that he applied his brakes because, on looking back after passing the bridge at mileage 27, chain 36, he saw a wagon swaying and dust arising.

From statements recorded and the position of the engine when entering the curve, the committee assume that the train was pulled up in 100 feet.

The marks on the permanent-way indicate that a vehicle had left the rails at mileage 27 chain 34, or about 65 feet from the end of the down grade, but there is nothing to show which of the six derailed vehicles this was.

The guard and driver both allege that wagon No. 43 was the first to fall over. It is difficult to determine which of the derailed, or rather 4 capsized wagons, was first derailed but as far as can be surmised the capsized wagon No. 193 was the first derailed, for the reason that the permanent-way in rear of it was much torn up.

The front wagon, 193, had its 2 front axle-boxes broken and both leading axle-guards bent, showing that it had evidently been in contact with the permanent-way before it capsized, whereas the wagons behind it were undamaged except No. 43 which was practically destroyed, No. 43 also had its sole bar (teak-wood) broken. No practical conclusion can be deduced from this broken sole bar as to its being the cause of the accident. The wagon behind it was only derailed, not capsized, the couplings were not parted and one side chain was broken. It would appear that the wrench sustained when the truck was overturned broke the bar, for, had the breakage occurred when the truck was travelling, the permanent-way would have shown signs of it.

Evidence.

Habib Husain, guard.—I left Gwalior on the 8th in charge of the down mixed, my train consisting of 20 vehicles including brake-van. Following the engine were 10 empties (of which the front 5 were open wagons), then 3 loaded covered wagons and following these 6 coaches and the rear brake.

I left Ghatigaon at 10-13 or 23 minutes late, the train having had to be brought into the station in two parts, the engine being unable to pull the train up the bank at mile 18-19.

We arrived at mileage (27-28) where the accident occurred at 11 hours. Ghatigaon is at about mileage 21½. I was sitting in my brake looking out of the back window and when I got to mileage 27, I became aware of a mark on the ballast as of something being dragged along it—one mark inside the rail and the other outside. I looked out of my brake door and as I did so I saw a wagon, the second from the coaches, capsized—then other wagons in front capsized and almost immediately the train stopped. I went up towards the engine and found the leading third class coach had its 2 leading wheels derailed, the goods vehicle No. 204 in front of it had all its wheels derailed, the next goods vehicle No. 43 was thrown on

its side and practically demolished, the next three wagons Nos. 189, 47, 151 were also capsized, but practically undamaged and the wagon in front No. 193 had its 4 wheels derailed and was tilted over. The last wagon had its two front axle-boxes broken, guards bent and one side chain broken, but it was coupled to the rest of the train which was on the line.

When my train stopped, my brake was close up to the bridge, mile 27, chain 37, that is, the carriage just in front of my brake was on the bridge.

We were coming down a gradient (1-192) when the accident occurred, i.e., the grade finished about 160 feet behind the spot where my brake stopped. We were running down at ordinary speed and were not making up time. I did not feel the driver put on the brake.

L. Augustin, driver.—I left Gwalior with my train at 7-5 and reached Ghatigaon 20 minutes late owing to my train having to be parted on the bank short of Ghatigaon. I had 19 vehicles on the train and 20 with brake. I left Ghatigaon 20 minutes late. I was not making up time as I had a long train and a

full load. I ran 6 miles to where the accident occurred and after passing the bridge (at mile 27, chain 37) I looked back and saw a wagon about 12 wagons back swaying. I immediately put on my brake and before the train came to a stand this wagon fell over and the others fell over as the train was coming to a stand. I had passed the bridge with about 8 or 9 wagons when I looked back.

I looked round before I shut off steam and looked round again after passing the bridge and getting on the curve.

I noticed, too, that besides the wagon swaying, mud and ballast were flying in front of that very wagon. I am sure the wagons in front which fell over, too, were on the line.

Pana Lal, sub-permanent-way inspector.—I received the accident message at 16 hours and reached the scene of accident at 22-30. I found the whole train at the mileage 28—27. There were four wagons over on their sides and two wagons, one on each side of the four, were off the line. None of the passenger vehicles had left the line, but the first goods vehicle in front of the coaches had left the line.

Five rails, and 23 sleepers were bent. The rails were correct as well as their sleepers, but from the first wagon (in front of the coaches) for four rail-lengths, the rails and sleepers were all damaged,—the rails and sleepers under the two leading derailed vehicles were not damaged.

FINDING.

We are of opinion that the accident was in the first place brought about by the derailment of a vehicle, caused in all probability by the application of the engine brakes, when the fore part of the train reached the foot of the grade; that the derailed wagon after travelling about 300 feet tore up the permanent-way with its axle-guards, and the driver then noticing that there was something wrong with his train brought it to a stand too suddenly, and the momentum at the back of the train forced the five following trucks off the line at the point where the front truck had spread the rails by shifting the sleepers with its axle-guards.

J. S. LAMBERT, J. H. FRERE, J. H. ALEXANDER,
District Traffic Superintendent. Assistant Traffic Superintendent. District Engineer.

Remarks by the Government Inspector of Railways.

After a perusal of the evidence and judging from the fact that the derailment occurred some 300 feet before the curve commences on a straight line and falling grade, I accept the finding of the committee of enquiry and agree that the probable cause of the accident was the sudden application of the engine brakes when the driver reached the foot of the grade, and that the breaking of the sole bar of wagon No. 43 was caused by, and not the cause of, the accident.

C. S. ROSE, *Major, R.E.,*
Government Inspector.

Remarks by the Senior Government Inspector of Railways, Lucknow.

The finding of the committee may be accepted.

J. E. GABBETT,
Senior Government Inspector.

CONSULTING ENGINEER'S OFFICE,
LUCKNOW;
The 6th April 1907.

Appendix XVIII to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry which assembled at Balaghat on the 19th September 1906, to investigate the cause of the derailment of No. 64 Up mixed train which occurred at mile 32-5, between Balaghat and Samnapur stations on the Jubbulpore-Gondia extension, Bengal-Nagpur railway, on the 15th September 1906.

The committee was composed of the following officers :—

A. M. CLARK, <i>Traffic Manager</i>	<i>President.</i>
A. BAILEY, <i>Chief Mechanical Engineer</i>	} <i>Members.</i>
K. W. DIGBY, <i>Chief Engineer</i>	
H. R. WALTON, <i>Government Inspector of Railways, Kidderpore</i>	} <i>Present.</i>
J. COBETT, <i>District Engineer</i>	
C. CARROLL, <i>District Traffic Superintendent</i>	
J. BURNAND, <i>Assistant Locomotive Superintendent</i>	
C. E. LOW, <i>Deputy Commissioner, Balaghat</i>	
J. C. T. FAIRWEATHER, <i>District Superintendent of Police</i>	

DESCRIPTION.

At about 14 hours 30 minutes on the 15th September 1906, No. 64 Up mixed train consisting of engine and tender, one covered goods van, five thirds, one composite, three thirds and one brake-van, all bogie stock, was derailed at mile 32-5, on a 3° curve on a falling gradient of 1 in 200. The engine with the tender fell on to its right side on the inside of the curve; the three following vehicles were thrown down the bank. The track was completely wrecked for five rail lengths (135 feet). One native woman was killed and two severely injured. Damage to rolling stock and permanent-way is estimated at Rs. 6,600.

From the evidence, both recorded and hearsay, and from personal inspection by the committee, there is little or no doubt that the accident was not due to:—

- (a) defects in rolling stock,
- (b) obstruction placed on the line,
- (c) excessive speed,
- (d) any tampering with the permanent-way;

and they are therefore of opinion that the accident was due to some defect in the permanent-way that developed between the passage of 240 Up goods at about 10-25 hours and the time of the accident.

The evidence recorded shows why the committee has rejected (a), (b), and (d) as possible causes of the accident.

Regarding (c), the Deputy Commissioner informed the committee that passengers in the train whom he had personally questioned, had informed him that the speed was not high when the accident occurred.

Before the enquiry, the committee personally inspected the permanent-way at and in the vicinity of the accident, and could find nothing that could have caused the accident in the alignment, gauge, super-elevation, or material.

One point that struck them was that on the outside of the curve the rail joints were tightly jammed together.

From this fact, and from the evidence regarding the heat at the time of the accident, the evidence of the District Engineer that the line behind the first three derailed vehicles was slewed to the left, and the evidence showing that one serious buckle had previously taken place near the site of the accident and another had taken place in November last on this length, the committee conclude that the accident was caused by the line spreading or buckling owing to creep.

The committee are not satisfied that the premonitory symptoms, if any, were sufficiently marked to attract the attention of the maintenance staff and are therefore not able to fix liability on any person.

EVIDENCE.

Abdul Gofoor, driver.—I left Balaghat on the 15th instant at right time. I proceeded at regulation speed of 15 miles an hour. When within one mile of the site of the accident I came to a down grade where there was a curve, so I whistled. I closed my regulator, and put on vacuum slightly, as a clear view cannot be obtained ahead and people are sometimes found on the bridge. When you get 4 or 5 posts beyond the bridge there is a rise in the gradient and I was about to open my regulator when the engine jumped. I turned my head, looked back and saw the tender and wagon.

The engine lurched twice and then turned over, and the engine staff were buried in the coal on the foot plate.

Q.—Can you say if the engine or the tender turned over first?

A.—The engine turned over first and the tender immediately followed.

Q.—When you looked back did you notice the wagon?

A.—The accident occurred too quickly to notice anything particularly.

Q.—Have you noticed your engine lurch in passing over this spot before?

A.—No.

Q.—Has your engine always travelled smoothly over this piece of road?

A.—Yes.

Q.—What was the last time before the accident that you passed over this piece of road?

A.—The day previous to the accident.

Q.—And you noticed nothing wrong?

A.—No.

Q.—Were you looking ahead before you got to the spot?

A.—Yes.

Q.—Did the line look all right?

A.—Yes.

Q.—What did the jumps of the engine feel like, and did they suggest to you that you had gone over anything?

A.—No.

Q.—When you felt the jolts what did you think had happened?

A.—I could not tell at all.

Q.—Did the jolts feel as if from the springs, or as if you were derailed?

A.—Not as if from the springs, but as if off the road.

Q.—At what speed were you travelling when the accident happened?

A.—About 12 miles an hour.

Q.—How long have you driven this engine?

A.—About three months.

Q.—Have you ever had a derailment with it before?

A.—No.

Q.—When was the last derailment you had?

A.—About seven months ago there was a wagon derailed on my train.

Q.—Did your engine turn over slowly or at once?

A.—It gave two jumps and then turned over at once.

Q.—Have you any idea now as to what caused the accident?

A.—The road spread from the place where the engine was derailed when I went back to look.

Q.—Was there any one standing near the spot when the accident occurred?

A.—No, but there was a keyman on the Balaghat side of the bridge.

Q.—Did you give the keyman anything?

A.—He asked me for a light, and I gave him a bit of lighted waste.

Q.—How far away from the spot where the engine stopped did you notice the rails were spread?

A.—The engine lay at mile 33, post 5, and the rails were spread at mile 33, post 4.

Q.—Did you apply the vacuum before the engine fell over?

A.—When the engine jumped I applied it.

Ganoo Chambo, fireman.—On the 15th instant the train was running as usual; the engine swayed twice and fell over.

Q.—What were you doing when the engine swayed?

A.—I was standing on the left hand side.

Q.—At that time was the regulator open or shut?

A.—Shut.

Q.—Was the vacuum on or not?

A.—It was on.

Q.—Full or a little?

A.—It was open full.

Q.—When was the vacuum put on?

A.—When the engine swayed.

Q.—Did the driver use the vacuum at all before the engine swayed?

A.—He destroyed a few inches.

Q.—Did your engine sway or jump?

A.—It swayed.

Q.—At what speed were you travelling at the time of the accident?

A.—As usual.

Q.—Did the engine sway to your side or the driver's side first?

A.—On my side.

Q.—Was the driver standing up or sitting down?

A.—Standing up.

Q.—Did you notice anything unusual on the road?

A.—No.

Q.—Does the engine usually run smoothly over that curve?

A.—Yes.

Q.—Did the movement of the engine feel as if you had gone over anything?

A.—No.

Q.—What did it feel like?

A.—It felt as though there was something the matter with the line.

Q.—Have you any idea as to what caused the accident?

A.—The road must have been bad, or how could the accident take place.

Hossain Ali, khallassi.

Q.—What were you doing when the accident occurred?

A.—Breaking coal.

Q.—Where were you when the accident took place?

A.—I was standing on the engine on the right hand side, looking towards the tender.

Q.—What were your sensations when the accident occurred?

A.—The engine swayed twice, and fell the third time.

Q.—Which side did the engine sway first?

A.—On the side on which it eventually fell.

Q.—Did your engine feel as though it had run over anything?

A.—No, it felt as though it had been derailed.

Q.—Can you say whether the vacuum was applied before the accident or not?

A.—I cannot say.

Q.—Did you notice anything about the road when you came over it the last time before the accident?

A.—No, it was alright.

H. K. Heberlet, guard.—I was guard of 64 Up on the 15th instant, I left Balaghat at 13-59. The train was running at its ordinary speed, 15 miles an hour. We passed the cutting and the bridge at about 15 to 17 miles an hour. I was sitting on the door of the brake at the time. I felt a sudden bump, and I was chucked out of the brake on to my hands. I got up to see what was the matter. I found the engine, the covered wagon, and two third classes wrecked. Then and there I ran up to see if any one was injured. I found one woman lying on the ground. She was dead. I picked her up and put her on one side, and then went to see if any one else was injured. I found two persons and attended to them. The driver then came up and I asked for his fireman to send him down to the station with a memo. Then he called for his fireman and I sent him off.

Q.—After passing over the bridge, and before the accident, could you say whether the driver applied the brakes?

A.—I cannot say.

Q.—Can you say whether the brakes were applied immediately before the accident?

A.—The vacuum gauge needle was moving about.

Q.—When did you last pass over that piece of the road prior to the accident?

A.—The night before, by 63 Down mixed.

Q.—Did you then, when going by 63 Down mixed, notice anything unusual when travelling in your brake-van?

A.—No.

Q.—Prior to the accident was your brake-van running smoothly?

A.—Yes.

Q.—When you were looking out of your brake-van did you see the engine derail?

A.—It happened so suddenly.

Q.—Which side were you sitting?

A.—On the right hand side.

Q.—You were looking down the train?

A.—Yes.

Q.—You did not see any truck derail before the accident?

A.—No.

Q.—What time was the accident?

A.—About 14-30.

Q.—What kind of day was it? Was it raining?

A.—No; it was quite a hot day, the sun was shining.

Q.—Did you have a look at the line after the accident to form an opinion as to the cause?

A.—I had a look at the line at the back of the derailed carriages.

Q.—Did anything strike you as wrong?

A.—No.

Q.—Who was the first railway officer to reach the scene of the accident?

A.—The permanent-way Inspector, Mr. Unger.

Q.—What time did he arrive?

A.—About 17 hours.

Q.—When you felt the shock, what did you suppose to be the cause of the accident?

A.—It felt as though some obstruction had been placed on the line.

Q.—What made you think this?

A.—From the way the train was wrecked and derailed.

Q.—Did you see any signs of an obstruction afterwards?

A.—No.

Q.—Did you have any talk with the driver as to the cause of the accident?

A.—Yes, I did, and the driver said that there must have been some obstruction on the line. If it was not that, he did not know what was the cause.

Q.—You often travel over this section?

A.—Yes.

Q.—Do you ever notice any difference in the running between night and day?

A.—No.

J. Corbett, District Engineer.—I received the message reporting the accident about 17-15 at Neinpur on the 15th instant. The station master came to me with a copy of the message, and asked if he should order out a relief train and told me at the same time that Mr. Burnand was in the station.

I told him to send over for the Assistant Surgeon, and tell him to make necessary preparations. Then I saw Mr. Burnand and arranged to leave with the relief train as soon as it could be got ready. We left about 18-10 and reached Samnapur at about 21 hours. We trolled out to the scene of the accident. On arrival I had a look round to see what had happened, and then sent in for the Assistant Surgeon who came out on my trolley.

I looked round and saw what had happened, and from the position of the derailed vehicles, I thought that a derailment must have been caused either by an obstruction on the line, or possibly a crank breaking on the engine. But I could not see anything much at the time.

There was an idea that the accident might have been due to the fast running, but I did not believe this owing to the engine having been derailed on the inside of the curves.

I had inspected this portion of the line the day before in the morning when as far as the eye could see everything seemed absolutely correct. When trolleying I had almost passed over the curve, when I pulled up and said to the Assistant Engineer that I wanted to see the curve, as this was the curve where there had been a derailment six weeks previously, and I had not trolled over this bit of the line since. On examination I found, as far as the eye could see, that the curve was in order as regards curvature and gradient. The previous derailment of the wagon I had not accepted responsibility for, as it derailed three or four times when derailed after which it was found that the brake gear was hanging down, and on this being fixed up, the wagon ran into Samnapur without any trouble, which led me to presume that the derailment was caused through the falling of the brake gear.

Q.—Do you know whether any sleepers in this particular portion of the line have been changed recently?

A.—I cannot say.

Q.—When you inspected the curve on the 14th instant, did you notice whether there were any number of defective sleepers?

A.—I did not take any particular notice that day of the sleepers.

Q.—When you arrived at the scene of the accident did you examine the curve?

A.—Not that night; I did next morning.

Q.—Did your notice whether any of the spikes had been drawn out of the sleepers, just behind that portion of the line which had been broken, due to the derailment?

The witness here prepared a rough sketch, in which he showed the position of the first 5 vehicles and the engine. The witness continued.

The spikes were slightly drawn under the 4th and 5th vehicles, which had their front bogies derailed. The line was slightly slewed to the left.

Q.—What was the condition of the sleepers under the 4th and 5th vehicles?

A.—They are still in the road.

Q.—When you examined the road next morning before it had been touched, did you find all the rail joints intact?

A.—Yes.

Q.—Were all the fishplates and fishbolts complete and in position?

A.—No. Some of the bolts had had their heads sheared off. In a few cases half the bolt had remained in the hole, and in a few cases the bolt had fallen out. The fishplates were all there.

Q.—Since you have been on this district have you had any trouble from creep at this particular point?

A.—I cannot say from personal knowledge.

Q.—Have you had any cases of buckling at this particular point or on the district?

A.—At this mileage I believe not. At miles 35 to 36½ or thereabouts, buckling has given a lot of trouble, trains on several occasions having been detained on this account.

Q.—What have you done to correct buckling?

A.—Cut rails and pulled back.

Q.—Do the gangs periodically open out the bolts and oil them?

A.—Yes.

Q.—Can you say when this was last done at this particular mileage?

A.—I cannot say exactly, but am nearly certain that it has been done within the last three months.

Q.—There is a lead of nearly two feet on the right hand rail going towards Gondia? Can you tell me if the rail joints were originally laid square?

A.—No.

Q.—Have you had any trouble with the bank at the point of accident due to the bank sinking?

A.—I questioned the Permanent-way Inspector on this point, and he said it was a piece of road that gave him little trouble in that respect.

Q.—Have you seen any buckling near this place?

A.—Yes, north of Samnapur.

Q.—What was the extent of the buckle?

A.—It was about 2 feet off the centre line, and extended from the points to near the distant signal.

Q.—Did you notice any sign of buckling in front of the engine after the accident?

A.—No.

Q.—Did you test the gauge after the accident?

A.—Yes, the next morning, where vehicles 4 and 5 were derailed, and I found it tight and slack.

Q.—You also tried for super-elevation behind these vehicles?

A.—Yes, and I found it correct.

Q.—Did you notice that the road had sunk slightly on the Balaghat side of the bridge?

A.—No, but I noticed there was a scarcity of ballast.

Q.—Did you notice whether any rail end was marked with the blow of a wheel?

A.—No.

Q.—You noticed that one sleeper was split, and another had the left (outside) end snapped off?

A.—Yes.

Q.—You remember a rail that was bent towards the outside of the curve? Was the junction of these rails broken at that place?

A.—No.

Q.—Have there not been somewhat numerous derailments on the Neinpur-Gondia section?

A.—No, previous to the rains.

Q.—Is your line now fully ballasted?

A.—The full capital supply has been made, but more is required on revenue.

Q.—At what time did you trolly through on the 14th.

A.—About ten in the morning.

N. H. Daniels, Assistant Engineer.—I received the news of the accident to 6½ Up on 15th instant, at about 16-30, at Balaghat. I immediately ordered my trolley and started off, arriving at the scene of accident about 17-40. The first thing I did was to look at the injured and ask if they had had any medical aid, and I was told by the guard and also a 2nd class passenger that a Hospital Assistant belonging to the Seoni district had rendered first aid, and saw this had been done. I went up to the engine, and questioned the driver and asked him what happened.

He said he could not tell me. All he felt was a lurch and he applied his vacuum, and the next thing he was pulled out by his fireman and khallaai through the window. I then asked him whether he was looking in front as he was coming along, what he was doing at the time, and if he had noticed anything wrong; and he replied that, as far as he could tell, everything was alright ahead, and that there was not even a piece of ballast on the rail. I asked him what speed he was travelling at, and he told me the ordinary speed for that place, the usual speed they go over, and that he had shut off steam in the cutting just before the bridge and was ready to open his regulator after having travelled from the scene of accident another five telegraph posts ahead.

He also informed me that he met the keyman belonging to that gang the other side of the bridge towards Balaghat, who asked him for a piece of burning waste, which he said he handed him. On having asked the keyman, his statement was that he had asked for the waste but never got it.

After that I questioned one or two passengers as to the speed they were travelling, especially one man of Messrs. Shaw Wallace and Company who is frequently travelling, and they all said the speed was nothing extraordinary. The guard told me that the speed was anything between 20 and 25 miles an hour. I then had a look round.

Q.—Did you see anything that gave you a clue to the cause of the accident?

A.—No. I saw the sleepers marked where I thought the engine had left. It struck me as if she had first jumped off there.

Q.—How far back was this?

A.—Between vehicles three and four. I asked the driver where he felt the first lurch and he said it was about there. I gauged the line in front two rails ahead and about a rail at the back of the brake-van, and also checked the super-elevation, which I found to be in front of the engine $\frac{1}{8}$ and at the back about $\frac{1}{4}$. The correct super-elevation is $\frac{1}{4}$ for that curve. I found all the fishplates right and could account for all the dog spikes.

Q.—When did you last examine this spot prior to the accident?

A.—Just the day previous.

Q.—Did you notice whether there were any defective sleepers?

A.—No. Up to the average we have got on the line.

Q.—Do you know that the sleepers on that curve have been marked by a derailment prior to the 15th?

A.—Yes.

Q.—Then, were the marks which you saw on the sleepers under the 3rd and 4th vehicles fresh marks?

A.—Yes. There were two marks.

Q.—Were these marks between the rails or on the outside?

A.—Outside.

Q.—Could you tell me how deep they were?

A.—Between $\frac{1}{4}$ and $\frac{1}{2}$ deep.

Q.—Have you experienced any trouble with the road on this particular curve?

A.—No. Not in my time.

Q.—Did you notice under the 2nd, 3rd, 4th and 5th vehicles whether any spikes had been drawn?

A.—Yes. I noticed that there were some partly drawn.

Q.—Have you ever ridden on one of the new tender engines when travelling over this curve?

A.—Yes.

Q.—What did you notice? Was the running smooth?

A.—Yes. Very smooth.

C. Unger, Permanent-way Inspector.—I saw the message reporting the accident at Balaghat about 16-15. I told Mr. Daniels of it and then went off on my trolley, picking up men as I went. I reached the scene of accident between 17 and 18 hours. I had a look round and waited for orders.

Q.—When did you last examine the road where the accident took place?

A.—I trolleyed over it on the 13th on my way back from Lamta, where I had gone by train.

Q.—When did you last walk over it?

A.—I walked over it about August 7th when taking over the section.

Q.—Have your gangmen ever told you of ever having experienced any trouble on this particular curve?

A.—No.

Q.—Have you noticed the condition of the sleepers on that curve?

A.—Yes.

Q.—What sort of condition do you consider them to be in?

A.—Good.

Q.—Do you know when the fishplates were last loosened?

A.—In June they were coal-tarred.

Q.—How long have the rails been jammed up tight on this curve?

A.—They haven't been jammed.

Q.—How do you account for them being jammed now?

A.—I can't say.

Q.—Have you personally had any trouble with creep since you have been here?

A.—No.

Q.—You have had no cases of buckle?

A.—No.

Q.—Where did you travel when going to Lamta?

A.—On the front of the engine.

Q.—Did you notice anything wrong then?

A.—No.

Q.—When did you last gauge this curve?

A.—When I took over.

Q.—Was it correct then?

A.—Yes.

Q.—Have all the gangs got gauges?

A.—Yes.

Q.—What orders are there about checking the gauges of curves?

A.—The mukkadums have to check once a fortnight and to report if anything is wrong.

Q.—Have you ever had, while you have been here, any cases of the gauge on a curve spreading?

A.—None.

Q.—Do you check the gang's gauges?

A.—Yes, frequently.

Q.—When was the gang last working there?

A.—I don't know. That part of the line has n't given any trouble.

Q.—What were you previous to being a Permanent-way Inspector?

A.—Sub-Permanent-way Inspector in various places on the broad gauge—Bengal Nagpur railway.

Q.—What is the length of your beat?

A.—51 miles.

Q.—And the length of your gang beat?

A.—3 miles.

Q.—And the number of men in a gang?

A.—4 men, a keyman and mate.

Q.—During the time you have been on the beat have the nuts of the fishplates been eased and the fishplates coal-tarred?

A.—No.

Q.—Has the road ever given you any trouble during the rains?

A.—Not that part.

Q.—Have you noticed that at mile 82.5 the expansion joints on one side are tight and on the other side are open?

A.—No, I never noticed.

Q.—You said you never had reason to fear buckling on that curve?

A.—I never noticed the joints to be tight.

Q.—Do you consider the amount allowed for expansion at the joints to be correct as they are at present?

A.—I haven't noticed this particular place, but on the section generally, the expansion joints are irregular, some being tight and some $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ th.

Q.—Did you see the ends of the rails taken up after the accident?

A.—No.

Q.—You pointed out to the Deputy Commissioner on the 16th, the mark on a sleeper where you thought the engine derailed. How far was that mark from the inside of the rail?

A.—8 inches.

Q.—What led you to believe that the engine derailed at that point?

A.—I could trace that mark all over 4 or 5 sleepers, after which I could see the mark of the footstep in the ballast.

Q.—How far was the first mark on the sleeper from the joint?

A.—About 9 feet from the Balaghat end joint.

Q.—Has there been any discontent among the gangmen over their work, pay or any other matter?

A.—No.

Q.—Have you dismissed anyone in that gang or the adjacent gangs?

A.—No.

Q.—Do you know of any row between the gangmen and the villagers of Dharpiwara?

A.—Yes, as the villagers cross the line with cattle and ploughs.

Paikan Bhondro, gang mukkadum.—

Q.—Where were you working on the date of the accident?

A.—At a cutting, where there was a Hewartree, 9 telegraph posts beyond the spot where the accident took place.

Q.—When did you last work on the curve where the accident took place?

A.—Fifteen days ago.

Q.—What work were you then doing there?

A.—Packing.

Q.—Have you had any trouble on that bit of road?

A.—No.

Q.—How long had the joints been jammed on that curve?

A.—Only recently.

Q.—Did you report the matter?

A.—Yes, to the sahib. The rail was in consequence cut about May and the rails were not jammed in the place where the accident occurred.

Q.—When you heard the noise of the accident what did you do?

A.—We went on with our packing. The fireman came running along, and I asked him what had happened. He said there had been an accident and I went to see.

Q.—How long ago did you slacken the fish bolts?

A.—About a month ago the keyman did it.

Q.—Have the rails ever buckled on this curve?

A.—No.

Q.—When you went to work on the morning of the 15th, did you pass the spot where the accident occurred?

A.—Yes.

Q.—Did you notice if the line was all right?

A.—Yes.

Q.—When did you last gauge the line?

A.—Before we packed it.

Kulpat keyman.—

Q.—What were you doing on the 15th instant?

A.—Tightening the joints. I went over the spot where the accident took place between 5-30 and 8 hours.

Q.—When did you tighten the bolts on the curve?

A.—About 15 days ago, when the sahib told me to.

Q.—When did you last oil the bolts?

A.—I have not done it. The old keyman did it.

Q.—When were the bolts last oiled?

A.—Sometime during a break in the rains. I cannot say when.

Q.—Did you notice when going out on the 15th instant that the joints were jammed?

A.—No.

C. E. McAlister, Permanent-way Inspector.—
I was Permanent-way Inspector at Balaghat from November 1905 till August 1906.

Q.—Did you have any trouble with creep on this length?

A.—Yes, eleven buckles due to creep. Two were serious.

Q.—Where did they occur?

A.—Samnapur station yard, and mile 33 on the north tangent of the curve beyond the derailment. On that curve I cut out altogether one foot to allow for expansion and pulled back about 24 rail lengths.

Q.—Did you have any warning of these buckles?

A.—No, that is, I mean to say I did not anticipate a buckle.

Q.—Was this buckle on a curve?

A.—It occurred at the springing of the curve.

Q.—What months in the year did these two buckles occur?

1312

A.—One was in November, and the other was in June.

Q.—At what time of day did they occur?

A.—One was reported at about 12, and the other about 16 hours.

Q.—Did you have any trouble on the curve where the accident occurred?

A.—No.

Q.—When were the fishplates oiled and tarred?

A.—The order for them to be tarred was given in March and the work was put in hand in April.

Q.—Did you notice that the tarring made any difference?

A.—No.

Q.—What were the orders about gauging the line?

A.—My orders to the gangs were to gauge twice a month.

Q.—Did you have any case of the road spreading while you were on this length?

A.—Yes, at mile 72, I found a slack gauge of $\frac{1}{4}$ inch.

Q.—How did this occur?

A.—I do not know.

Q.—Any signs of the spikes drawing?

A.—No, but the heads of the spikes were being bent over. I double-spiked the curves and this defect was eliminated. This was a 10° curve. It spread on the inside of the curve. I double-spiked outside the inner rail only.

C. DeBrass, driver.—

Q.—What class of engine are you driving?

A.—A tank engine.

Q.—When did you go over the curve where the accident occurred on the 15th?

A.—About 10-25 hours on the 15th with 240 up goods.

Q.—Which way were you running?

A.—Chimney first.

Q.—Did you notice anything wrong with the road between miles 32 and 35?

A.—No.

Q.—What speed were you travelling at?

A.—15 miles.

*J. Burnand, Acting Assistant Locomotive Superintendent.—*I arrived at the scene of the accident with the District Engineer. I had a look round the engine, and then questioned the driver as to the cause of the accident. He did not know what caused the accident. I went round and examined all the rolling stock as far as I could that night, and carefully overhauled them next morning. I gauged all the carriage wheels and later on the engine wheels, and they were all correct.

Q.—Did you find anything defective with the stock in any respect?

A.—No.

Q.—Did you discover anything broken that was likely to lead to an accident? Is there in your opinion any part of the engine or tender defective in design that might contribute towards derailing the engine?

A.—None.

Q.—How long has this particular engine been running?

A.—About 3 months between Neinpur and Gondia only. There are 6 of this type running.

Q.—Have there been any derailments of these engines?

A.—No.

Q.—What is the opinion of drivers working these engines as to their running, especially round curves.

A.—They all say that they run very smoothly.

Q.—How were the engine wheels gauged?

A.—Between flanges so far.

Q.—Have you seen the connecting rods and motions on the right hand side?

A.—No, but I have felt them and, so far as I can judge, have not found anything wrong.

Q.—What was the condition of the engine's wheel flanges?

A.—They were good.

Q.—What was the condition of the wheel flanges of the coaching stock and of the front goods vehicle?

A.—Good.

Q.—Have you any opinion as to the cause of the accident?

A.—I think it must have been due either to the buckling or spreading of the line owing to the position of the engine on the inner side of the curve.

Q.—Have you tested these engines on all the curves on the Satpura?

A.—Yes, on all curves between Gondia and Jubulpore, and on the triangle curve, which is about 16° at Gondia.

Q.—Were all the wheels on the rail when taking the curve?

A.—Yes.

FINDING.

We, the undersigned, are of opinion that—

1. the cause of accident was due to the road buckling or spreading;
2. that the committee cannot hold any particular person responsible for the accident for the reasons given in the "description."

A. M. CLARK,
President.

A. S. BAILEY,
Member.

K. W. DIGBY,
Member.

Remarks by the Government Inspector of Railways, Calcutta.

This accident was due, in my opinion, to a buckle in the road. There is nothing in the evidence, or in the position of the rolling-stock after the derailment, to indicate that the train was travelling at excessive speed; nor is there evidence or suspicion of an obstruction having been placed on the road. An examination of the rolling-stock revealed no defects as regards the gauge of the wheels, sharpness of flanges, condition of axle boxes, etc.; so the most likely cause for the accident had, it seemed, to be sought for in the condition of the track itself. Certain questions put by myself to the District Engineer in the course of his evidence elicited the information that all the fish plates were found in position at the rail joints after the occurrence of the accident, though several fish bolts had been sheared through and some had fallen out of the bolt holes. It therefore seems practically certain that the rail joints had not been tampered with.

On the 19th September, before the joint enquiry was held, I made a careful examination of the road both sides of the derailed train. There were marks of an old derailment on the sleepers round this curve. The gauge was found about $\frac{1}{4}$ inch slack with superelevation $\frac{1}{8}$ inch to $\frac{1}{4}$ inch, which is a suitable amount for this curve. The road was fairly well ballasted, but ballast insufficient for fully boxing. Sleepers in good condition and single spiked, even at rail joints. Fish bolts had the nuts mostly very tightly screwed up and gave the impression of not having recently been touched. The right hand rail going towards Gondia had a lead of as much as 1 foot 9 inches in the direction of heavy traffic, the down direction. To the south of the derailed train the rail ends at 2 P.M. were butting tight at 21 consecutive joints; similar with 14 consecutive rail joints beyond the bridge; a similar tightness of the joints was found to the north of the derailed engine.

There was every indication of creep, with consequent tight butting of rails and insufficient allowance for expansion; fish bolts were gripping too tight and free expansion of rails impossible. It may be noted that in several places on the Satpura railway considerable trouble has already been experienced through creep, and trains have been delayed owing to the road having buckled. Again on 15th October 1906 a buckling of the road at mile 34, with consequent delay to the up train, was reported.

It was noticed that immediately north of Balaghat and north of Gondia station expansion joints were irregular, and for long stretches rails were butting tight.

The Satpura railway possesses neither an accident crane nor a properly equipped accident van; in consequence, and owing to the fact that suitable tackle was not available immediately after the accident, the block was not removed for 3½ days after the occurrence.

Immediately after the joint enquiry the attention of the Chief Engineer was drawn to the unsatisfactory condition of the rail joints, and orders were at once given to the Engineering staff to be on the look-out for buckling and to take the necessary action for preventing it.

The Agent was also addressed and the matter is receiving attention.

RECOMMENDATION.

I would recommend that a special gang be put on to go right through the Satpura railway and correct the creep and adjust the expansion allowance for rails, where necessary; this will involve cutting and pulling back rails in places. Joints should be squared and joint sleepers spaced closer together.

Care should be taken that the nuts are not screwed up too tight on the fish bolts; possibly the wrenches in use are too long.

Joint sleepers should be double-spiked throughout, also all sleepers on curves, and all curves should be fully ballasted. It may be mentioned that the engine in use weighs with tender $53\frac{1}{2}$ tons, with a $6\frac{1}{2}$ ton axle load on the tender wheels.

Arrangements should at once be made to provide properly equipped accident vans and cranes for the line.

H. R. WALTON,
Government Inspector.

CALCUTTA;
The 23rd October 1906.

Document accompanying.

Annexure No. 1.—Letter No. 15637, dated the 15th October 1906, from the Agent,
Bengal Nagpur railway.

**Annexure 1 in appendix XVIII to the abstract return of accidents on
Indian railways for the twelve months ended the 31st December
1906.**

No. 15637, dated Calcutta, the 15th October 1906.

From—The Agent, Bengal Nagpur railway,

To—The Junior Consulting Engineer to the Government of India for Railways, Calcutta.

I have the honour to forward the papers of the Joint Enquiry into the accident reported in Samnapur Stationmaster's wire B.-143, dated 15th September 1906, also a copy of the Traffic Manager's letter to me forwarding the reports.

2. I agree with the finding of the Joint Enquiry, and in view of the decision arrived at, the Acting Chief Engineer has taken steps to have the line carefully inspected throughout and the expansion at the joints of the rails noted and attended to.

**Appendix XIX to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.**

Report of the proceedings of a joint committee of enquiry which assembled at Seoni station, on the 29th December 1906, to investigate the cause of an accident which occurred to No. 255 down goods train at mile 115 between Seoni and Bhoma stations, Jubbulpore-Gondia extension, Bengal-Nagpur railway, on the 23rd December 1906.

The committee was composed of the following officers :—

C. CARROLL, District Traffic Superintendent.	President.
M. H. OLDFIELD, District Locomotive Superintendent.	} Members.
J. LAW, District Engineer.	
J. H. LOVELL, Government Inspector of Railways.	} Present.
R. B. CHAPMAN, Deputy Commissioner, Seoni.	
J. McNEALE, District Superintendent of Police, Seoni.	

DESCRIPTION.

On the 23rd of December 1906, No. 255 Down Goods left Chhindwara and at Seoni two covered loaded vehicles containing grain were attached, bringing the load up to 341 tons. The train left Seoni at 20-16 and all went well till the train had topped the bank at mile 116½ which is the beginning of the ghat section and is about 4½ miles from Seoni. The train then began going down a grade of 1 in 80. The driver of the train states that on topping the bank he shut off steam and applied his brakes, both vacuum and hand, but could not reduce the speed of his train which increased and eventually became very excessive. Exactly at mile 115 where the speed must have been very great the engine failed to take the curve and shot off at a tangent, striking a bank several yards away. The first 13 vehicles were derailed, the leading 10 being heaped up in a mass and lay across the line and on both sides of the high railway embankment. The permanent-way was ripped up for about 107 feet. The last 4 vehicles with the brake-van were left standing in the middle of a bridge. The 3rd vehicle from the brake was a stores van in which two stores clerks were travelling. As the guard could not get out of his brake he threw down to the stores clerks a memorandum notifying the accident and this memorandum was taken by the clerks into Seoni.

The fireman was killed, the driver slightly injured and a locomotive fitter who was on the engine, seriously injured. At the scene of the accident there is a down grade of 1 in 95 for 5,975 feet followed by one of 1 in 80 for 2,400 feet and then a stretch of level, which runs over the bridge and beyond the point of derailment. The line here is on a curve, right-handed in the direction the train was running, of 14° or 409 feet radius; the curve is 1,000 feet in length, and the train had traversed about half of it when the accident occurred. The line is on an embankment about 20 feet high. The curve is double spiked, and has a cant of 1½ inches and slack of ¼ inch. On the bridge, the cant is 1½ inches.

EVIDENCE.

Mahomed Hyat, driver.—I left Chhindwara with 10 wagons of coal and four of manganese, in all 15 wagons. At Seoni I attached two more loaded wagons. The train went all right up to mile 116½ where there is a gangman's hut. I shut off steam at this place and began putting on vacuum to 5 and 10 inches, and the fireman put on the hand-brake hard. I kept putting on and releasing the brake and when I arrived at the bridge by which time the speed of the train had increased the engine jerked and left the road. I don't know whether it was the fault of the engine or the road.

Q.—When you left Seoni what vacuum had you ?
A.—17 or 18 inches.

Q.—When you shut off steam what vacuum had you ?
A.—18 inches.

Q.—At what speed were you travelling when you shut off steam ?
A.—15 or 16 miles per hour.

Q.—Why did you apply the hand-brake in addition to the vacuum ?
A.—The speed was increasing and I put it on to control the train better; otherwise the speed would have still further increased.

Q.—When did you leave Seoni ?
A.—It is written on the line clear; I cannot remember at present.

Q.—When you found the speed increasing did you apply the vacuum on fully ?
A.—No, I kept it at 5 or 10 inches.

Q.—Did the guard put the vacuum-brake on also ?
A.—No, I was working the vacuum, so what was the use of the guard doing so.

Q.—Have you ever had a heavier load than you had with 255 down from Seoni to Bhoma ?
A.—No.

Q.—Have you ever taken a greater load than 350 tons ?
A.—I don't know. I had a load of one under maximum as far as vehicles were concerned.

Q.—How long have you worked on this District ?
A.—One month. I came from the Raipur-Dhantari railway.

Q.—Have you ever worked on the broad-gauge ?
A.—Yes, as shunter between Asansol and Adra.

I have also worked as shunter between Bojudih and Mhoda on the coal trains.

Q.—What class of engine did you work on ?
A.—A class.

Q.—Have you ever worked a vacuum-braked train before?

A.—I worked the Kamptee Local as a shunter.

Q.—Do you understand loads as far as tons are concerned?

A.—No.

Q.—Have you had any complaints about the hopper wagons?

A.—I have heard that drivers complain about them.

Q.—In what way do they complain about them when they are loaded up fully?

A.—The brakes don't act properly.

Q.—What do you know about these hoppers from your own experience?

A.—I cannot say, all I know is from hearsay.

Re-examined.—What is the usual speed of your train when going down the decline from mile 116½ and round the curve?

A.—Fifteen or 16 miles an hour.

Q.—Did you whistle for brakes when you found your train was getting out of hand?

A.—Yes, I gave three sharp short whistles from the danger whistle.

Benarsilall, relieving assistant station master.—I was guard of 255 down goods leaving Chhindwara on the 23rd December. I left Seoni at 20-16 hours; after having gone about 4 or 5 miles the speed of the train increased and my hand signal lamp fell down. I got up to pick it up but I could not stand up in the brake. Again I tried as I had fallen down, and this time I dashed against the window and broke it; after that the accident took place.

Q.—Have you ever worked as a guard before?

A.—No, this was my first trip on this section. I had worked a trip to Gondia before.

Q.—Did you know the train was going at an excessive speed down the bank?

A.—Yes.

Q.—What action did you take?

A.—I tried to put on vacuum.

Q.—How did you know the train was going too fast?

A.—By the fact of the lamp falling down, the lamp was on the floor, the lamp went out.

Q.—How did you try to put on vacuum?

A.—By getting hold of the handle and pressing it.

Q.—Did you do it?

A.—No.

Q.—Why?

A.—Because I was not able to stand up in the brake.

Q.—Can you say now whether the brakes of your train were on or not going down the bank?

A.—No.

Q.—Did you hear the brakes on when you first started going down the bank?

A.—I don't know.

Q.—Can you say when you first felt the brake-van oscillating?

A.—I cannot say definitely, about 1 or 2 minutes before the accident; about half or 1 mile before the accident.

Q.—Was it about a mile away from the accident when your lamp fell and you found the train going at an excessive speed?

A.—Yes.

Q.—What were you actually doing when your lamp fell down?

A.—I was sitting on the box near the door.

Q.—What lamps had you in your brake?

A.—One hand lamp and two side lamps.

Q.—Was the gas light?

A.—No.

Q.—Had you any gas in the brake?

A.—No.

Q.—Did you see the vacuum indicator prior to the lamp falling?

A.—No.

Q.—Have you any idea what speed you were travelling?

A.—I cannot say.

Q.—Are you a passed guard?

A.—Yes.

Q.—When did you pass?

A.—In July 1906.

Q.—Did the driver call for brakes at all?

A.—No.

Q.—Do you know the actual time the accident happened?

A.—No. But about 15 minutes after I sent for assistance and that was 20-55.

S. N. Singh, stores clerk.—After leaving Seoni station for about 5 or 6 minutes everything went all right, but when we came into a cutting the speed became excessive and we had to hold on to the wagon which was rolling very much and expected the train to upset any moment. After crossing the bridge there was a big crash and I was shaken violently. The train then stopped; after that I got down and called out to the guard who tried his best to get out of his brake but could not do so. Then we took a message from him and went to Seoni station to give information.

Q.—Do you know the exact time the accident took place?

A.—No.

Q.—Have you ever travelled on the Satpura railway before?

A.—No. This was the first time.

Q.—Where were you travelling?

A.—In a wagon.

Q.—Where was it on the train?

A.—Third vehicle from the rear.

Q.—Did you hear the driver whistling at all?

A.—He only whistled when starting from Seoni.

Abdul Haxiz, assistant stores clerk.—About 7 or 8 minutes after leaving Seoni the speed of the train increased. When we got into a cutting the speed increased. After that I heard a sound like a cannon and the train came to a stop.

Q.—Did you hear the driver whistle at all after leaving Seoni?

A.—No.

Q.—Did your carriage or wagon roll about?

A.—Yes. I had to hold on to the side of the door.

Q.—Could you have walked to the other end of the wagon if you had tried to?

A.—No.

Q.—Had you a lamp in the wagon?

A.—Yes. Hung up in the middle of the wagon.

F. J. Marshall, assistant engineer.—I was informed by the permanent-way inspector at 23-15 hours that a serious accident had taken place on the Bhoma ghats. I immediately proceeded to the scene of the accident and took along with me the permanent-way inspector, the hospital assistant and station master, and arrived at the scene of the accident at about 0-5 hours. On my way down I called out the gang at the top of the ghats. On arrival at the site I first called out to the guard who was in his brake. At first I got no answer from him. I then went towards the brake and got him out. I asked him if anybody had been injured, and if so, where they were. He pointed in the direction of the engine. I went straight down and took the hospital assistant with me. I first saw the fitter sitting on the engine. I asked him what his injuries were and he told me both his legs were broken. I turned round to the hospital assistant and told him to attend to him. I then asked the fitter where the driver was and found him near by and found that his injuries were slight. I then asked about the fireman, and after a little time eventually found him about 6 or 7 yards from the engine dead. After this I had a look round at the wreck and when the gang came up with their tools I checked the super elevation and the gauge on both sides of the bridge and found both absolutely correct. After that, about an hour after I had been there, the District Traffic Superintendent and Medical Officer appeared on the scene. I asked the driver how the accident had happened and as he made no

reply I concluded he was in pain and so left him alone. I also asked the guard before I went down towards the engine as to the cause of the accident and he replied excessive speed. The permanent-way was ripped up for a length of 107 feet.

On the following morning I again checked both the super elevation and the gauge in the presence of the Deputy Commissioner and the District Traffic Superintendent in places asked by the Deputy Commissioner and they were found to be correct as far as my instructions were concerned. The super elevation was $1\frac{1}{2}$ inches on the bridge and $1\frac{1}{4}$ inches on either side gradually run out. The bridge was one of 4 spans of 20 feet girder.

G. Ward, permanent-way inspector.—

Q.—How long have you worked as permanent-way inspector on this section?

A.—Two years.

Q.—Have any drivers complained to you at all about any difficulty in controlling trains going down from Seoni?

A.—No.

Q.—When did you last trolly over the spot where the accident took place?

A.—The day before the accident.

Q.—When did the gang last work at this spot?

A.—About 7 or 8 days before; the keyman worked about this spot two days before the accident.

Q.—Have drivers complained to you at all about going up the banks?

A.—Yes, about the difficulty in getting up the grades.

Q.—Have drivers ever complained that the brakes on hopper wagons do not work properly?

A.—They have complained to me that they don't catch properly. They referred chiefly to the Chandameta-Chhindwara section.

M. H. Oldfield, district locomotive superintendent.—

Q.—Have you heard anything about the brakes

of hopper wagons being less effective than others?

A.—No.

Q.—With 7 hopper vehicles out of the 17 vehicles on the train being out of order could the train be effectively controlled?

A.—Yes. The engine and train were too badly wrecked for me to state anything about the effectiveness of brakes, but I have had no report saying they were not effective. If the brakes had not been in order the matter would have been noticed at the time, but according to the driver's own statement the brakes were in order.

Copy of the statement made by Khuda Baksh to Deputy Commissioner, Seoni, on 24th December 1906. The evidence of this witness could not be taken at the joint enquiry as he was certified by the Medical authorities to be too unfit to make a statement.

I was riding on the engine. I was on the coal.

The train began oscillating violently so that to save myself I had to get down. The driver and fireman had both the vacuum and hand brakes full on, but they would not work. The train was out of control. We said we can't stop the train, it has got out of control. The train oscillated violently. I and the fireman were on the hand brake, the driver was on the vacuum brake. The hopper brakes do not work properly. Sometimes one inch, sometimes two inches, sometimes three inches pressure. This is indicated by the indicator.

The train was going faster than the Mail train. The driver said "Ghari ka bharosa nahin hai." The driver is a very brave man. He is not afraid of death. The train was going 40 or 50 miles an hour. I felt two violent oscillations and at the third the train left the line.

On the Chandameta line the trains pulling coal go as fast down the inclines, even with full brakes on that "Jan ka bharosa nahin hai." The driver and fireman both did their duty in my opinion and had the brakes on from the very beginning of the incline.

FINDING.

We, the undersigned, are of opinion that—

1. The cause of accident was due to excessive speed.
2. That the person in fault is the driver of 255 down goods of 23rd December 1906 Mahomed Hayat.

J. LAW.

M. H. OLDFIELD.

C. CARROLL.

Remarks by the Government Inspector of Railways.

An inspection of the scene of the accident left no doubt as to its immediate cause, but whether control of the train was lost through negligence or incompetence or both is not clear. In this case the driver had only been one month on this section, his previous experience having been on the "Kamptee-Nagpur Local." This part of the Satpura railway is a hill section with long grades, sharp curves and heavy (compared to other 2' 6" gauge lines) rolling-stock, and although the goods trains are vacuum-braked, this in the hands of an incompetent man, by producing a false sense of security, becomes a positive danger. Regarding the hopper wagons which have been comparatively recently introduced, they are undoubtedly disliked by a section of the driving staff; but though this unpopularity may be due to the brakes being really defective, on the other hand it may be on account of the fact that they are, in the hands of second rate drivers, difficult to manage, and its never having been reported to the Locomotive officer rather lends colour to this.

Whatever the reason, it seems very necessary that the matter should be thoroughly investigated, and the question settled whether the brakes are or are not defective, and if not, what standard of driving is required to control a full hopper wagon train load on the longest and stiffest grades, and whether the drivers on this section are all up to this standard.

J. H. LOVELL,

Government Inspector.

CALCUTTA;

The 4th January 1907.

Remarks by the Senior Government Inspector of Railways, Calcutta.

I agree with the Government Inspector that the reason for the train getting out of control is not clear from the evidence. It seems to me quite possible that the driver had neglected to couple up his vacuum brake hose pipe to his train.

The attention of the Agent is drawn to the fact that not only was the driver an inexperienced man but the guard also was not qualified for his duties.

R. W. EGERTON,
Senior Government Inspector.

CALCUTTA,
The 4th March 1907.

Appendix XX to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry held on the 8th March 1906, to investigate the cause of the derailment of No. 34 Down Mixed train at mile 202-17, between Purna and Limbgaon stations, metre gauge, His Highness the Nizam's Guaranteed State railway, on the 7th March 1906.

The committee was composed of the following officers:—

Captain W. C. Smyth, R.E.	. . . . .	Chief Engineer.
C. P. George.	. . . . .	Locomotive and Carriage Superintendent.
W. Gaye	. . . . .	Traffic Manager.

Description.

As No. 34 Down train of 7th March was running between Purna and Limbgaon the whole train, with the exception of the engine, tender, four rear carriages and brake-van, was derailed at mile 202/17—18. The site of the accident is at the foot of a falling gradient of 1 in 133 and on the straight. The front brake-van, two third class carriages and five goods wagons fell down the bank on both sides of the line and were more or less damaged.

A policeman travelling in one of the third class carriages which was overturned had his foot slightly injured.

Evidence.

G. F. Hughes, driver.—I have seven years' service in the Company and ten months' as a driver, and have worked eight months on this section.

I was the driver of 34 down of the 7th March from Purna. I left Purna at right time, *viz.*, 13-20. When I reached the top of the incline at about mile 201, I closed the regulator and came down with steam off.

Just after passing the culvert at mile 202-16, I saw the gangmen with the mucedam working at that spot. I whistled for them to clear off the road and they did so. After I passed the gangmen standing at the side of the line, my engine slewed to one side. I applied my steam-brake, knowing that the line had buckled.

The engine first slewed to the left and then to the right and then to the left again. When I applied my brake, I looked round but could see nothing but a cloud of dust. My engine ran about 150 yards after I applied the brake.

As soon as my engine stopped, I got down and went back to see what damage had occurred. I found the whole of the train derailed except the engine, four carriages and the rear brake-van. The first three wagons remained coupled to the engine and stood on the line with all wheels off the rails. The couplings of the fourth wagon at both ends were broken. This wagon also remained on the bank, but was derailed. The next five wagons were down the bank on the left of the line.

The 10th, 11th and 12th vehicles, which consisted of brake-van, six-wheeled 3rd and a bogie 3rd were thrown down the bank on the right, the six-wheeler lying on its side at the foot of the bank.

The next two vehicles,—the 13th and 14th, six-wheeled 3rds—were standing on the bank derailed. The remainder of the train was not derailed.

When I reached the spot where the gangmen were working I noticed the ballast had been opened out. The line looked perfectly straight in front of the train, and must have buckled under the engine.

About a week ago at mile 195-3 and 4, the line buckled in a similar manner under my engine, but the train was not derailed. I was driving the same train with the same engine from Jalpa to Purna.

The weather was very hot, especially on the 7th I looked at my watch as soon as I stopped and it was 13-40.

I think I was running at a speed of about 18 miles an hour when the accident occurred.

Pandoo Gopala, Mucedam.—I have worked on this railway for three years and on the Southern Marhatta and East Coast railways before.

I have been in charge of this section of the railway for six or seven months. Previously I was working near Mugat.

On the 7th March up to 12 o'clock I was packing the joints at mile 202-16, and after eating my food, I returned to the line as the train was approaching to see if all was right. Every thing seemed to be correct. The train was approaching at a rapid speed and I saluted to the driver as he passed and he returned my salam.

Just after the train had passed about a telegraph post beyond me, I heard a great noise and saw a lot of dust rise round the train, the engine and some wagons ahead detached from the train, other wagons derailed and some vehicles thrown down the bank on each side. This all happened very suddenly.

I then went to the train with my men to render what assistance I could.

I cannot say what the cause of the accident was, but the joints may have buckled from the heat and want of ballast.

I have never had any trouble as regards buckling of the rails on the sections on which I have worked on this railway, but I have experienced the same on the East Coast railway.

My orders to my gangmen are that he should tighten up the bolts and, having done so, to give them a very slight back turn.

Dhurmiah Dasrathy, keyman.—I have been keyman for two years on this section. My orders are to leave the bolts a little slack.

When I attend to the fish bolts I slowly tighten them up and then give them a slight turn back. I had not touched the bolts where the accident occurred for 15 days.

The muccadam's orders to me are to see all the bolts on my section daily and to tighten those that are too slack and slacken those that are too tight.

A. Adams, second guard.—I have worked as second guard for three years—all the time in the district where the accident on 7th March occurred. I was working as second guard of 34 down on 7th March in the front brake which is placed between the goods wagons and the coaching stock. After leaving Purna all went right until I reached mileage 202-16, when I felt three severe jerks and when the third jerk occurred my brake was thrown down the bank. When I felt the first jerk, I was thrown to the right of my van and the second jerk threw me back to the left.

I put my brake on when I felt the first shock, and tried to jump out of the van when the second jerk occurred, but could not do so.

I did not see anything except that a number of wagons and vehicles were derailed in a cloud of dust.

E. Todd, guard.—I have been about five years a guard on this line. I was the guard of 34 down mixed on 7th March. My train left Purna at 13-20 or right time. All went well until we came to the incline at about mile 202, when I heard the driver whistle, and, looking out, I saw a cow grazing by the line. Thinking that he might require the

assistance of guard's brakes I put on my brake when I heard him whistle and, when I looked out again a few seconds later, I saw a number of wagons thrown off the line. I myself was travelling in the rear brake-van.

D. P. Korwin, permanent-way inspector.—I have been five years on this line as permanent-way inspector. I have been in charge of the section from Purna to Mudkhed for the last nine months. I arrived at mileage 202/16 after the accident had occurred at 5-30 P. M. On arrival I found the road ripped up for about 80 yards, and noticed the first sign of the derailment under the first-class carriage, the fourth vehicle from the end, and owing to the damage done to the line, could see nothing to give one any clue to the cause of the derailment.

From a point between the two third-class carriages to where the line was broken up, in front of which the second-class carriage was standing, I noticed the line was slewed to the right 6 or 8 inches. I cannot say whether this was the cause or the result of the accident. From the description of the accident given to me by the muccadam it would appear that the road buckled under the engine. The road in this place is short of ballast.

The first case of buckling on my section occurred on the 17th of December at mile 323-12 to 13, and the line there was also short of ballast. All my keymen have got instructions not to tighten up the fish bolts too much.

The line in the vicinity of the scene of the accident has ample expansion space at the joints.

I tried one of the joints after the accident and found the bolts to be too tight.

Finding.

After an inspection of the scene of the accident and hearing the evidence taken, the committee are of opinion that the cause of the accident was the line buckling under the engine, due to want of ballast, and the fish bolts being too tight to allow of the rails expanding in the heat of the day. The accident occurred at the hottest time of the day, succeeding a cold night.

They consider that the permanent-way inspector is to blame for not paying more attention to his joints and that the muccadam and keyman are also to some extent to blame.

W. C. SMYTH, Capt., R.E.,
Chief Engineer.

C. P. GEORGE,
Locomotive and Carriage Superintendent.

W. GAYE,
Traffic Manager.

Remarks by the Government Inspector of Railways.

I inspected the scene of the accident along with the Agent, Chief Engineer, and District Engineer, on the 15th March 1906. The line had in the meantime been restored and ballasted with broken stone.

I agree with the committee that want of ballast was the chief cause of the accident. How far the state of the fish bolts was to blame I cannot say, as it is possible that there had been some creep and that the expansion allowance was insufficient.

The permanent-way consists of 50-lb. F. F. rails, 36 feet long, with 13 wooden sleepers to the rail. There are only four bolts to each joint. The ballast in use was sand, offering very little resistance to buckling, and arrangements are now being made to ballast with broken stone. Steel sleepers will eventually take the place of the existing wooden sleepers. The section of the line where the buckling occurred is in good order, but until heavier ballast is added, special attention must be given to the joints.

C. DOVE WILSON,
Government Inspector.

Remarks by the Senior Government Inspector of Railways, Madras.

I accept the finding of the committee arrived at after a close examination at the site of the accident, and with the advantage of the Chief Engineer's knowledge of the road. It is

unfortunate that the state of the permanent-way after the accident was apparently such as to offer no clear evidence of the condition of the rail joints at the foot of the grade where the probability of jammed joints would be the greater.

Shortening the arm of the bolt-wrench has been found effective on other lines in preventing excessive tightening.

MADRAS,
28th March 1906.

G. A. ANDERSON,
Senior Government Inspector.

**Appendix XXI to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.**

Report of the proceedings of a joint enquiry held at Kotri station, North Western State railway, on the 23rd September 1906, to investigate the circumstances attending the collision between Nos. 111 up and 148 down goods trains at that station, on the 14th September 1906.

The committee was composed of the following officers:—

A. J. CHASE, <i>District Locomotive Superintendent</i>	. . .	<i>President.</i>
T. S. SCOTT, <i>Assistant Traffic Superintendent</i>	. . .	} <i>Members.</i>
F. C. T. MULLER, <i>Assistant Engineer</i>	. . .	

DESCRIPTION.

On the 14th September 1906, at 12-30, No. 111 up from Karachi to Kotri, collided with 148 down on the cross-over road at points No. 12 from the north yard to down mail line at Kotri station. No. 111 up had a load of 45 vehicles, of which the first 17 were fitted with the vacuum brake, and was stopped at Meting to attach the banking engine No. 469 H. for Kotri, which had banked a train from Kotri to Meting.

The banking engine, which was not fitted with the vacuum brake but only with a train pipe which was fitted with a dummy at the leading end of the engine, was placed between the train engine and the load, and in consequence the vacuum brake of the first 17 vehicles could not be used as the connection between them and the train engine, No. 633 K. R., was broken. The engine staff of both engines lost control of the train after leaving Bholari, ran past the distant signal at danger and into No. 148 down which had just started for Karachi.

EVIDENCE.

L. de Costa, guard.—I left Karachi with a load of 45 vehicles—41 of coal, 3 of packages, and a brake-van—with 111 up on the 14th September 1906, at 3-14, and arrived at Meting at 11-15. I signed my in-report and the station master said he had an engine to attach for Kotri. I went out to supervise the shunting and attached the engine next to the load and behind the train engine. The station master ordered one of his staff to lower the starting signal and we started at 11-20. We ran through Ongar Block Hut to Bholari and ran through Bholari. On leaving Bholari I found the speed of the train rather excessive and screwed down my brake about three hundred yards after passing the down distant signal. This had no effect. Near the level-crossing gate I saw Kotri signals were at danger. The driver ran past the outer signal and then opened his danger whistle. I screwed the brake on harder. I then got on to the foot-board and was thrown off my brake-van by the collision when I was inside the distant signal.

Cross-examined.—I had 17 vacuum braked vehicles next to my engine when I left Karachi. They were all coupled up to one another and to the engine. I did not notice whether the vehicles were coupled up to the banking engine when the train left Meting. The station master, Meting, came out of his office and told me to hurry on. The station master did not leave the down platform. I had no conversation with the driver of the banking engine, and only told my own driver to hurry on. My driver had no conversation with the station master. My driver made no complaint to me about the station master declining to attach the banking engine to some other position on the train. We ran through Bholari at about 20 miles per hour, and subsequently were going about 35 or 40 miles per hour. We were going about 10 miles per hour when the accident occurred. I saw two firemen jump off the engine before the accident took place.

N. deSouza, guard.—I was the guard of 148 down of 14th September 1906 from Kotri to Karachi. We should have left at 11-13 but actually started at 12-15. We had a banking engine. I started from the sixth line out of the north yard. Just near the starting signal I heard a whistle. I looked out on the right side and saw a train approaching. Before I could do anything this train pitched into my train at 12-20.

Arjun, driver.—I was the driver of engine No. 630 K. R. and came out of Kotri shed to work 148 down on the 14th September 1906 to Karachi. My train started at 12-15. There was a banker at the rear of my train. I was starting from the sixth line. I got my starting signal and was pulling out across the yard on to the down line, and was on the down line when I saw a train coming in on the up line. I saw it come inside the distant signal without stopping and as I saw it would run into my train on the cross over I opened out my regulator wide and cleared 29 of my vehicles, but the up train ran into the other vehicles. The collision took place at 12-20.

Khora, shunter.—I was the shunter of engine 471 H. banking 148 down out of Kotri on the 14th September 1906. I left Kotri about 12-13 and was pushing the train out. My engine got to points No. 13, when an up train ran into us. I could not see it as we were going out from the north yard across to the down main line. We were going about 5 miles an hour when the accident occurred.

Khudoo, driver.—I was the driver of engine No. 633 K. R. working No. 111 up goods from Karachi to Kotri. I left Karachi with a full load of 45 vehicles of coal on the 14th September 1906. I arrived at Meting at 10-55. The pilot engine was standing there. My engine was cut off and taken ahead, and the banking engine was brought on to the load and coupled up when I got the signal to back on to the banking engine and did so and coupled up. I then got off my engine and asked the driver of the banker if he had vacuum brake on his engine, and he replied "I have no vacuum on my engine only the vacuum train pipe." I went to see and found a dummy on the leading end of the engine, and no hose pipe. I said to the station master "I have a heavy load of coal so put the banking engine either behind the 17 vacuum-brake wagons or at the end of the train, so that I can make use of the vacuum on the wagons." He replied that the banking engine was always put between the train engine and the load, and that those were the orders of the District Traffic Superintendent. As the station master would not listen to me I called the driver of the banking engine and said to him that he would have to be a witness to the fact that the station master refused to alter the position of the banker. The station master insisted on my starting and I left at 11-10; from

Meting I ran through Ongar Block Hut and arrived at Bholari distant signal at about 12 hours, and ran through Bholari as all signals were lowered. I ran through Bholari at about 12 miles an hour. After I passed the inner signal I shut off steam and whistled, and the banker did the same. My fireman took the guard's signal and I then told him to put on the tender brake. The banker also put on his tender brake. When I was about 3 miles from Kotri and on the level piece of road I put on my vacuum brake as I was travelling too fast. As I neared Kotri outer signal I saw it was at danger. I whistled and reversed my engine when I was half a mile away from the outer signal, and made signs to the driver of the banker who also reversed his engine. When I got inside the outer signal I was able to see that the starting signal was off for a down train, and the three of us put the tender brake hard on. I signalled to the driver of the down goods, No. 148 down, that I could not stop my train. He opened his regulator wide and came on. The speed of my train was then 3 miles an hour. Although 30 vehicles of 148 down got over the cross-over road on to the down line, I could not stop and pitched into the rest of the train. The guard did not look out of his brake-van all the time I was whistling, nor did he put on his brake. The fireman of the pilot engine was told to get off the engine and put down as many wagon brakes as he could, and to tell the guard to put on his brake as the train was out of control without the assistance of the hand brakes. I was going 3 miles an hour when the collision took place. No. 148 down when I first saw her was going at about 5 miles an hour, and when the driver saw me he tried to increase the speed. No. 148 down had a pilot or banking engine at the rear of his train. The banking engine on my train was tender first.

Cross-examined.—At no time between Bholari and Kotri did the speed of my train exceed 13 miles an hour. The station master, Bholari, was sitting in his office with the window open while I ran through, and the points jemadar was on the lever frame on the platform and waved me through with a green flag. The accident occurred at 12-20. The brake power, both vacuum and hand, on my engine and tender was in good working order.

Re-called.—I did not stop at Bholari to try and get my engine put next the vacuum wagons, nor did I tell the guard at Meting, nor did I give it to the station master in writing.

Bhuda, fireman.—I was the second fireman of engine No. 633 K. R. of 111 up of 14th September 1906. We ran through Bholari station, and then the driver shut off steam and told me to put on the tender brake. We were going fast when I was told to put on the brake, and when we got on the level the driver asked me if I had put on the brake and came to see for himself. At this time the speed was reduced somewhat, but not much. Near the gate-house the driver told me to open the cylinder cocks and he reversed the lever and opened steam. Near the piece of level line I was told to get out the red flag. When we were outside the distant signal the train was going very fast. I saw smoke in the distance but we could not stop. When we got inside the distant signal, which was still at danger, the driver told me to get down and put on some wagon brakes. I managed to put on three brakes and then the accident occurred. I did not see the guard. One man got off the banker going towards the brake-van before we got to the distant signal. When the accident occurred we were going quite slowly. I was at the time near the distant signal.

Waddoo, fireman.—I was the first fireman of engine No. 633 K. R. working 111 up goods of the 14th September 1906 from Karachi to Kotri. When we arrived at Bholari the signals were all down for our train to run through. When we got near the starting signal the driver shut off steam and whistled. The banking engine driver also shut off steam. When we got on the bit of level about three miles from Kotri the driver opened his whistle and

told me to put on the tender brake, and the driver put on the vacuum brake on the engine. He then opened both whistles. When we got near the level-crossing gate the reversing lever was put in back gear and steam was opened. The driver then got his red signal when we were near the home signal and waved it towards the driver of a down train which was coming out of the yard. We could not stop and collided with the train.

Cross-examined.—I received no orders to get the hand-brake on the tender put on till I did so on the level, three or three and a half miles out of Kotri. I think we went through Bholari about 18 miles an hour, and when I was told to put on the tender brake we were going 20 to 22 miles an hour. We reduced the speed about 2 miles per hour by putting on the tender and vacuum brake. The banking engine also reversed and put on the brakes the same time as we did. My driver told the second fireman at the home signal to get off and put down some of the wagon brakes. We were going 3 miles an hour when the accident occurred. We stopped at Meting about 20 minutes. My driver and the banking driver and the station master of Meting were talking about something. I do not know what but the driver, told me afterwards that the station master insisted upon the banker being put between the train engine and train, though he pointed out it would be impossible to use the vacuum on the vacuum-braked wagons. I saw the station master and pointsman on the platform at Bholari: the former waved us through.

Salamat Rai, station master.—I attached banking engine No. 469 H. to 111 up at Meting on the 14th September 1906, at 11-15, and the train started at 11-20. I had no conversation with the driver of either the train engine or the banking engine, and neither of them spoke to me; nor did I speak to the guard except to tell him to hurry away. I did not notice how many vacuum-brake vehicles were on the train, nor did I notice how many vehicles had their vacuum brakes coupled up.

Hote Chand, signaller.—I was on duty on the 14th September 1906 at Kotri. I received the out-report of 111 up at 12-11 on the 14th September 1906. I called out, "ring the Bholari bell at once." I told the assistant station master at the same time and gave him the departure book at the same time. I cannot explain why the assistant station master shows 12-16 against the time he received the out-report from me. I gave it him at 12-11.

Ghulam Mohamed, peon.—I was on duty in assistant station master's office on the 14th September 1906. About 2 minutes after 148 down had started the signaller called out to me to ring the bell for the departure of an up train from Bholari, and I did so. The assistant station master was in the office at the time.

T. A. Cooke, assistant station master.—I was assistant station master on duty on the 14th September 1906. 148 down was ordered to run from Kotri to Karachi right time, departure 11-13, and left at 12-15 due to late arrival and marshalling. Out-report of 111 up was received from Bholari at 12-11 and her running time was 25 minutes; she left Bholari at 12-10. I received the report from the signaller at 12-16. I had made arrangements for receiving 111 up on the third line, north yard.

Cross-examined.—As far as I am aware there is no restriction of time as to when a down train can be started from the north yard after an up train has left Bholari. I did not receive the out report from the signaller for 111 up from Bholari till five minutes after it had actually been received by the signaller. The south yard was blocked and could not be used for the reception of 111 up. The warning for 111 up was received by me at 12-5, and

given by Bholari at 11-55. Had I received the out-report for 111 up at once I should have cancelled departure of 148 down and brought in 111 up first followed by 1 up.

Soomabha, shunter.—I arrived at Meting on the 14th September 1908, at 11 hours, with a train I had banked from Kotri. Station master told me that there was an up train coming, and that he would attach my engine to it. The train arrived, the engine was cut off and my engine, No. 469 H, was attached to the train and the train engine backed on to my engine. The driver of engine No. 633 K. R. told the station master that I had not got vacuum on my engine. It was only fitted for the train, and there was no vacuum pipe on the leading end of my engine as the pipe was fitted with a dummy. If the banking engine was placed next to the vacuum braked vehicles, he, the driver of engine No. 633 K. R., would not be able to make use of the vacuum fitted vehicles on the train. The station master replied that it was the proper place to put an attached engine and he could not alter it, so we started about 11-10. We ran through Ongar and Bholari, and I put on my tender hand brake at the level bit of road about 3 miles out of Kotri. At this place the train engine driver whistled for signals and then shortly after opened his other whistle. I also whistled. When near the level-crossing gate I put the tender brake on harder. I put on the steam brake on my engine, but it was not working properly. When I got near the outer signal I put both my firemen off to put on hand brakes of wagons and to warn the guard to look out. When I got inside the outer signal I reversed my engine and opened steam. I could not stop,

and we ran into a down train which was coming out of the Kotri yard over the cross-over from the north yard on to the down line. My khallasi came to me after the collision, and said that when he told the guard to apply his brake he at once jumped out of the brake-van and did nothing.

Cross-examined.—I have worked this engine with two other crews for three weeks before the accident. I told the shedman to book the repairs to the steam brake. I cannot say whether they were booked. I passed Bholari at about 15 miles an hour, and before I put on the brake at the level bit of road we were going twenty to twenty-one miles an hour. About two miles from Kotri we had reduced the speed to about 14 miles an hour. When we got inside the distant signal we were going about 4 miles an hour. When the collision occurred we were going about 3 miles an hour. I only saw three or four brakes put down after the collision by the fireman I had put off my engine. I shut off steam near the down line outer signal after passing Bholari. I did not shut off steam earlier because the driver of the train engine had not done so. The guard was not near my engine at Meting. I saw the down train coming out of the Kotri yard when I was near the distant signal. The station master of Bholari was in his office and the jemadar on the platform when our train passed.

Khushal Dass, station master.—I was on duty on the 14th September 1908 when 111 up passed through my station. I was on the platform with a green hand signal. The train passed at 12-10 at about 30 miles an hour, and I signalled him to get on faster as 1 up was coming.

FINDING.

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

(i) That driver Khudoo, engine No. 633K. R., of No. 111 up is responsible for running down the bank from Bholari to Kotri at an excessive speed and so losing control of his train; that he was unable to pull up at the distant signal which was at danger. The running time is 25 minutes, start to stop, and according to the Bholari out-report and time of collision only 10 minutes were occupied in the run.

(ii) Shunter Soomabha, in charge of the banking engine No. 469 H., is similarly guilty of contributory negligence.

(iii) Salamat Rai, station master, Meting, is not to blame for the position of the banking engine, as we are of opinion that since driver Khudoo made no complaint to the guard of his train as to the position of the banker at Meting, or gave in writing to the station master that he was unable to proceed without his full vacuum power, or even stop at Bholari to have the position of the engine changed before descending the grade, he accepted the station master, Meting's, marshalling without demur.

(iv) We believe that had the signaller Hote Chand at Kotri advised the station master on duty of the departure of No. 111 up immediately it was received from Bholari, precedence would have been given to that train and the departure of No. 148 down cancelled till after departure of No. 2 down.

(v) We believe that the guard of No. 111 up made every effort to control his train down the grade from Bholari to Kotri, but owing to the high speed attained the efforts were ineffectual.

(vi) We do not consider the driver Arjan of No. 148 down in any way to blame and believe he did his utmost to clear his train off the crossing to prevent the accident.

A. J. CHASE,
President.

F. C. T. MULLER,
Member.

T. S. SCOTT,
Member.

Remarks by the Senior Government Inspector of Railways, Lucknow.

I agree with the committee that the accident was due to the driver of No. 111 up goods train running down the grade from Bholari at a high rate of speed and losing control over his train. The fact that he took only 10 minutes to run from Bholari to Kotri, instead of 25 minutes allowed in the time-table, shows that he was running very much in excess of booked speed. If driver Khudoo knew at Meting (as he states in his evidence he did), that the placing

of the banking engine between his engine and the train would prevent his using the vacuum brakes of the 17 vehicles and leave him insufficient brake power, he should have objected in writing to the station master. His failure to do so renders him responsible.

The placing of the banking engine next to the train and behind the train engine was, however, in accordance with North Western railway Rule No. 96 (a).

I do not agree that the delay on the part of Hote Chand, signaller, Kotri, in informing the assistant station master on duty of the departure of No. 111 up from Bholari had any bearing on the accident, as there would have been ample time for No. 148 down goods to clear the yard and leave on the down line before the arrival of No. 111 up at Kotri. Moreover the yard was protected by the distant signal which was at danger. No. 148 down left at 12-15 hours and No. 111 up goods could not have been expected to reach the distant signal before 12-31, allowing only 20 minutes for the run from Bholari; hence, under the circumstances I think the assistant station master would not have cancelled the departure of No. 148 down as stated in his replies to cross-examination.

J. E. GABBETT,
Senior Government Inspector.

Appendix XXII to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint enquiry held at Rikhi Kesh Road station, Hardwar-Dehra section, Oudh and Rohilkhand State railway, on the 22nd August 1906, to investigate the circumstances attending the derailment of the engine and 9 vehicles of No. 58 down mixed train at mile 26—15 between Doiwala and Rikhi Kesh Road stations on the 20th August 1906.

The committee was composed of the following officers :—

F. D. FOWLER, <i>Engineer-in-Chief</i>	President.
P. RAINIER, <i>Traffic Superintendent</i>	} Members.
P. A. HYDE, <i>Locomotive and Carriage Superintendent</i>	
J. N. D. LATOUCHE, <i>Government Inspector of Railways</i>	Present.

DESCRIPTION.

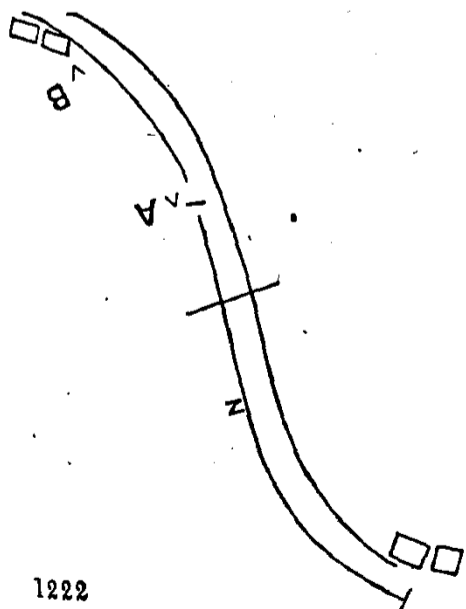
While No. 58 down Saharanpur mixed train was proceeding from Doiwala towards Rikhi Kesh Road on the 20th instant, the engine and 9 vehicles were derailed at mile 26—15. The line at this point, which is 10 miles from Doiwala and 2 from Rikhi Kesh Road, is on a gradient of 1 in 166, falling in the direction of Rikhi Kesh Road and on a left-handed curve (looking towards Rikhi Kesh Road) of 1,273 feet radius.

The train consisted of A class tank engine No. 4 with six wheels coupled and a radius trailing wheel, and was fitted with vacuum brake. Four bogie coaches followed the engine, also fitted with vacuum brake, which was in operation. Then followed 9 goods wagons all loaded and then another bogie brake. On reaching the 11th joint from the commencement of the curve the leading wheels of the engine dropped between the rails, the engine ran about 12 rail lengths on the ballast and formation, and then encountered the coping of a culvert and fell down the bank just beyond the culvert. The 4 following coaches remained on their wheels, though somewhat inclined, and were very little damaged, 2 wagons of boulders following the coaches were very badly damaged, and of the remaining goods vehicles one was slightly damaged and the others hardly at all.

The permanent-way was torn up for a distance of about 300 feet. The damage to engine does not appear serious. Driver and guard were slightly injured, the latter not sufficiently to keep him off duty; no passenger complained of injury. Traffic was carried on by transshipment while the diversion was being built round the wreck.

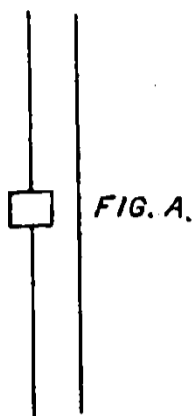
EVIDENCE.

A. K. Stimson, *Permanent-Way Inspector, Dera Dun to Lakhsar*.—Arrived at scene of accident by 55 up at 17.5 hours about an hour after



accident. On arrival at site of accident I went back to look at line to near springing of curve and found outer rail of curve tilted outwards and the inner rail also, and the inner spikes of both rails drawn. I inspected these curves on the 16th August, and found nothing wrong with them. I tested the gauge on that occasion and found that it was $\frac{3}{8}$ " slack on both curves. I tested them also for superelevation and found little difference between the superelevation at different points. There is no superelevation in the middle of the tangent; it increases gradually towards the centre of both curves from the middle of tangent. Many of the sleepers on these curves have been renewed since the line was built. Last month I renewed 27 sleepers on the near curve (*i.e.*, where accident occurred), and 40 on the far curve. Some tie bars had been put in at the far end of the far curve before my time to prevent spread. I have not noticed on this line any excessive spreading of gauge, but I have noticed a tendency to tilt owing to the outer flange cutting into sleeper. I made no special report after my examination on 16th. I have never at any time found anything wrong with my beat and have reported nothing to Sub-Divisional Officer. I always drill a new hole when I re-spike. When I find that a spike is not holding the rail properly I

drive another spike to keep the first one in place as in fig A.

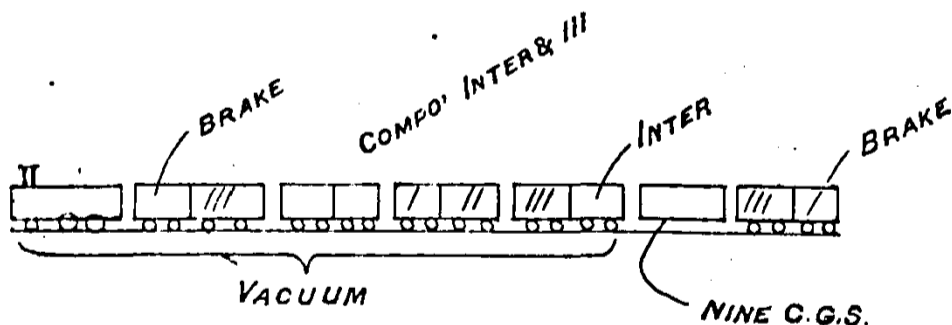


Q.—When did you inspect curve at mile 24-9—24-11.

A.—On 2nd, I did not gauge it but saw from the distance between the inner edge of spikes and flanged rail that the rail was pushed out, not tilted, spikes not drawn. I had my gauge but I did not use it. I am out every day, sometimes by trolley and sometimes by train. I was out about 20 days in month by trolley. When I put in new sleepers I don't adze. I have received no instructions on this point. Sub-Divisional Officer instructed me not to give more than 3" slack on these particular curves, or on those at Rai Nuddes which are sharp.—R = 1273; but he has given me no general instructions. I know the practical rule for superelevation, which is to take a chord of 20 feet and measure versed sine and take that to be the superelevation, but in practice I don't use this rule.

Babu Lal, station master, Rikki Kesh Road.—I got the "out report" for 58 down from Doiwala at 15-43 on the 20th. The signaller wrote in the book 15-32 (being the book time). I altered it to 15-40, which was actually signalled. I made the correction at 15-45.

C. H. Kemp, guard.—I travelled on 58 down (in the front brake) on 20th. The engine was A class.

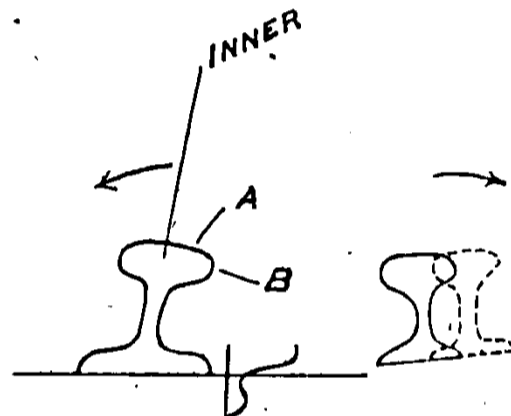


I travelled in the front brake because there was non-vacuum stock in rear. It was 16-10 when I looked at my watch a few minutes (not more than three) after the accident. The brakes were slightly on before the accident which is the usual practice on steep grades and curves, and I do not think the train was travelling more than 15 to 20 miles an hour. The train was travelling steadily before the accident occurred. I first saw the driver, who said he was slightly hurt in the side. I then assisted passengers, none of whom were hurt. I then despatched a man to Rikki Kesh Road at 16-15 to report accident, giving him a slip of paper with the mileage and general statement. I then protected my train with fog signals both sides, and placed a man with a red flag both sides. I was slightly hurt in the side by being thrown against the door. I saw no reason to think there had been any foul play.

Gulzari, driver.—I was driver of 58 down on the 20th. The engine No. 4 was a new one—only six months out from England. At mile 23-15 I felt the

wheels drop from the rail on the left side about joint No. 11 on the curve. I don't think I was travelling more than 10 or 12 miles an hour. I noticed nothing wrong till the wheels dropped. I was looking out, but saw no obstruction. It was not raining at the time, but had rained heavily up to 2-30 or 3 P. M. When I felt the wheels drop I put on the vacuum and reversed my engine. I travelled one rail length after the wheels dropped before I reversed. If the train were on the rails and travelling 10 or 12 miles an hour, and if I applied both brakes and reversed engine and the brakes worked well, I should expect to pull up in less than two telegraph posts.

J. N. Crosbie, Inspector of Maintenance, Sub-District Officer, Roorkee.—I arrived at the scene of the accident on the 21st at 8 A. M. and I went with Executive Engineer over the line as far back as mile 26-17. Nothing was touched when I came. We first settled about putting in a diversion, and then proceeded to measure the superelevation and gauge and to find out cause of accident. These are noted in the history of the accident. The fish-plates on the inner side of the curve at joint 11 bore the marks of a wheel. The next fish-plate No. 12 on the inner side had a bolt broken and the rail between joints 12 and 13 had a mark as at A and further on it was sheared as at B it was tilted in the direction of the arrow.



The outer rail had assumed the position shown in dotted line. Further on the inner rail was lying on its side and the outer rail also.

I inspected the road last some 10 or 12 days before.

I always take note of these curves as well as of the one at mile 40. There was nothing wrong with this curve when I inspected it. I told the Permanent-way Inspector to inspect these curves a month ago and to change any sleepers that required changing.

I gave no special instructions to Permanent-way Inspector about adzing; because I expected him to know without being told that this is the practice. I instructed Permanent-way Inspector to give 4" slack as stated by him, and as regards superelevation never to make it less than as shown on the board, but I never told him anything about making it more. I don't think that 5" is too much on a sharp curve like this. The drivers of Nos. 57 up and 58 down said that on their last trip they found nothing wrong; they always tell me when they do find anything wrong. I do not attribute the accident to any fault in the line. I think the sleepers were sufficiently good. I can only account for the derailment by supposing that the rails were spread by something falling from the engine gear.

As far as my observation went it was the inner rail that first began to tilt. I asked Executive Engineer, when I was Permanent-way Inspector, to do something to improve the curves.

In answer to further question.—There was an

accident during construction on this curve. I have made it a rule to keep the surerelevation and slack the same as when we took the line over from construction. I have had charge of the branch since 1903, and before that for 18 months as Permanent-way

Inspector in 1901-02. The same rule obtained then. The Locomotive Department exchange their leading or trailing wheels every so many months because of the excessive wear on one side. I have noticed the excessive wear on the outer rail on all the curves.

FINDING.

The cause of the accident cannot be determined with certainty: the various circumstances that might have caused, or contributed to, it are as under:—

- (1) an obstruction on the line;
- (2) excessive speed;
- (3) defective tyres of locomotive or of stock;
- (4) a severe jerk caused by sudden application of brakes;
- (5) something falling from the engine or vehicles and getting under the wheels;
- (6) a broken axle;
- (7) a broken rail or fish-plate;
- (8) subsidence of bank or wash-away of ballast;
- (9) spreading of gauge, lifting of spikes, overturning of rail.

As regards (1) the line at this point runs through forest: there are no villages in the vicinity and there can be no feud between gangmen or villagers; no bad characters have been seen about, the driver saw nothing. We may dismiss this conjecture as being very improbable.

(2) *Excessive speed.*—The Doiwala "out-report" shows that the train left that station at 15-40 (the first entry 16-40 is an obvious clerical error). The guard's evidence, which we have no reason to disbelieve, fixes the time of the accident at not earlier than 16-7. The distance from Doiwala to the scene of the accident being about 10 miles, and this distance being traversed in 27 minutes, the mean speed of the train between the two points was 22 miles an hour. The train must, therefore, in all probability, have been travelling at a higher rate of speed than this at the point where it was derailed, since it had to start from rest. This conjecture is confirmed by the distance travelled by the engine after it left the rails, and by the fact that it would probably have travelled further still had it not encountered the parapet of the culvert and been turned off the bank.

- It will be noticed that in the "out-report" received at Rikhi Kesh Road, the first entry made was 15-33 (the time at which the train was supposed to start), and that this has been altered to 15-40 to correspond with the Doiwala "out-report." We have little hesitation in asserting that the evidence given by the station master at Rikhi Kesh Road is untruthful, and that the corrected entry was made after receiving notice of the accident.

The driver's assertion that the speed was 10 or 12 miles is manifestly incorrect. Native drivers are seldom able to estimate speed correctly, particularly when their interests lie in under-estimation. In this case the driver knew that a speed of 25 miles was permissible, hence his statement that it was only 10 or 12, which he must have known to be untrue, raises the suspicion that he may have been aware that his speed exceeded the sanctioned limit. The super-elevation of the outer rail, which was 5 inches on a curve of 1,273 feet, would permit of a speed of about 38 miles an hour. It is, therefore, quite possible that excessive speed may have been a contributory factor, though we do not think it was the chief cause of the accident.

(3) Examination showed no defects in tyres, either of the locomotive or of the leading coaches.

(4) The guard's evidence shows that brakes were applied gradually in the usual manner. We reject this explanation.

(5) Nothing could be found on the track to support this theory, and we are not inclined to think it at all probable.

(6) All the axles of the locomotive and leading vehicles were intact. We dismiss this suggestion.

(7) Up to the point where the engine is supposed to have left the track no rails were found broken, and although two twisted fish-plates were found at about the 12th joint, the probability is that they were deformed after the derailment of the engine. There is thus no evidence to warrant this assumption.

(8) There were no signs of subsidence or low joints.

(9) It will be seen from the plan that, before entering the curve on which the derailment occurred, the train had to traverse a curve of the same radius but of opposite inclination, followed by a short intervening piece of straight road 150 feet in length.

Previous to the arrival of the committee the rails, from joint 8 counting down hill from the commencement of curve No. 29 on which the accident took place had been shifted and

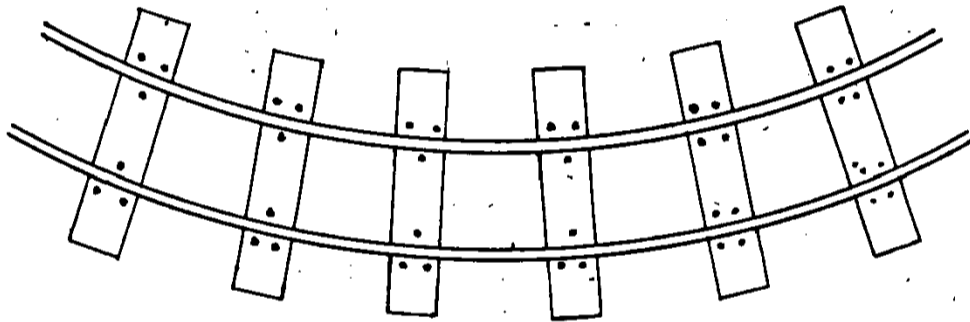
re-spiked in order to enable a wagon to be removed; but the gauge and superelevation were measured by the Executive Engineer, who arrived at the spot on the previous day, and are given below:—

CURVE No. 29.

Position of joints counting down-hill from commencement of curve.	Superelevation.	Slack gauge.	REMARKS.
26/17 Commencement of curve	0	Nil.	
Joint No. 1	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	
" " 2(a)	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	
" " 3	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	
" " 4	Not observed.	1 $\frac{1}{2}$ "	Vehicles standing here.
" " 5	Do.	1 $\frac{1}{2}$ "	Ditto.
" " 6	3"	1 $\frac{1}{2}$ "	
" " 7	4"	1 $\frac{1}{2}$ "	
" " 8	Not observed.	1 $\frac{1}{2}$ "	Ditto.
" " 9	Do.	Not observed.	Gauge began to spread.
" " 10	5"	1 $\frac{1}{2}$ "	
" " 11	Not observed.	1 $\frac{1}{2}$ "	Both rails began to tilt outwards.
" " 12	5"	2"	
" " 13	Not observed.	2"	

Beyond this point no observations could be taken.

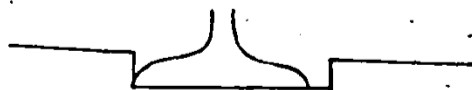
The sleepers were of deodar and spiked as shown in the diagram below. They were of very fair quality, but the long continued rain had made them softer than usual. The ballast was good and sufficient, and there were no signs of settlement of the road or of low joints.



The rails appeared to have no inward inclination, and we formed the opinion that the original adzing had been done as in figure below:



but whether this was the case or not, it is certain that there is little, if any, inward inclination now, and it certainly looked as if, in places, there was an outward inclination. The inner spikes were holding well and do not seem to have lifted even when the rails had been completely torn from the sleepers, but it was noticed that both rails had bitten into the wood on the outside, raising a "burr" as shown below.



Though this was more noticeable in the case of the outer rail. This is a condition which might be expected, since slow trains going up-hill round a curve with superelevation of 5" would press out the inner rail, and trains descending with a high velocity would tend to press out the outer rail.

This outward pressure had, in some cases, caused a slight gap between the inner spikes and the flange of the rail, and had removed (if such ever existed) the usual inwards inclination of the rail of 1 in 20. In many cases spikes had been shifted and new holes bored (in some cases without bushing), and in several instances the Permanent-way Inspector had adopted the expedient described in his evidence to keep the road in gauge.

As will be seen from the plan, the superelevation and expansion proceeded fairly regularly from the entrance of the curve, and Mr. Crosbie's evidence shows that the superelevation is the same now as it always has been.

The slack of $1\frac{1}{4}$ " at joint 10 is greater than is commonly allowed ($\frac{3}{4}$ " is the maximum ordered); but some engineers purposely allow as much as this on a sharp curve, and a slack of 2", or more, would not be enough, in itself, to cause the accident; but seeing that $\frac{3}{4}$ " was the order, it is probable that the road was laid to something more than this and that the difference, namely, $\frac{1}{2}$ ", represents the amount by which the rail had been pushed outwards at this point, an amount which would give practically no holding power to the inner spike.

In order to form an opinion of the probable condition of the road on curve No. 29, before the accident, it was decided to examine curve No. 30, which has the same radius, namely, 1,273 feet. The test for curvature using chords of 100 feet is (counting down-hill from the tangent) as under:—

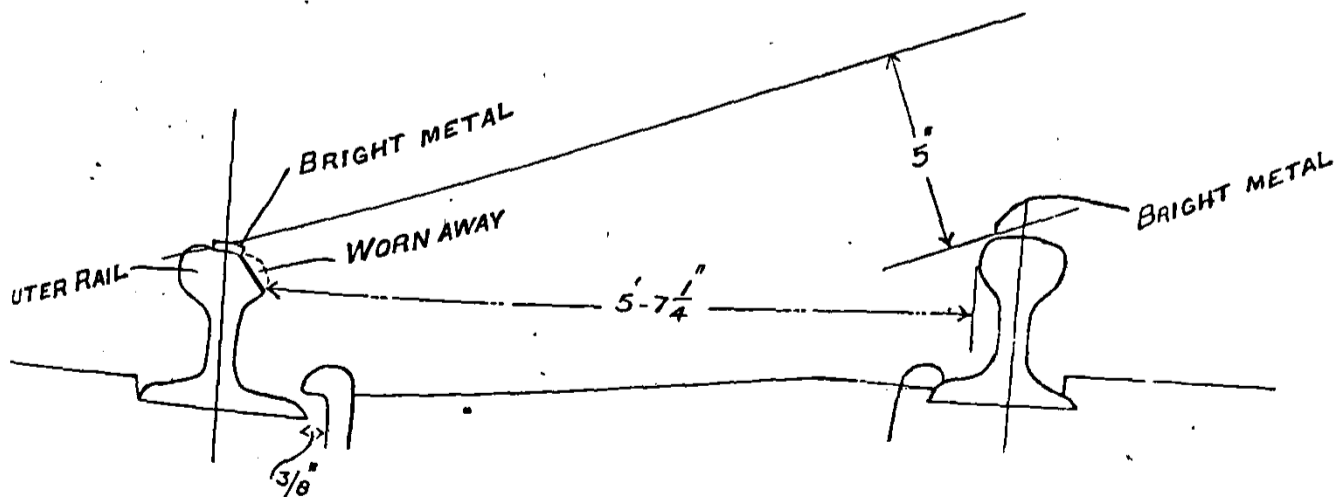
1st 100 feet	versed sine in inches	8
2nd 100 "	" " "	15
3rd 100 "	" " "	11
4th 100 "	" " "	12
5th 100 "	" " "	10
6th 100 "	" " "	10
7th 100 "	" " "	12

The correct versed sine for 1,273 feet being $11\frac{1}{4}$ ", it is evident that the curve was not a circular one and that, in the endeavour to give an easy entrance, the radius of the curve in the second chord of 100 feet was reduced to 1,000 feet.

The measurements for superelevation and expansion are as under:—

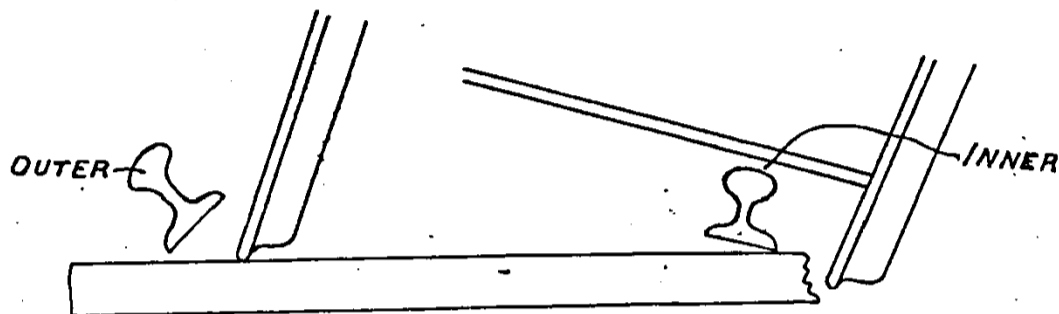
	Gauge.	Superelevation.
Tangent	$\frac{1}{2}$ " tight	$\frac{1}{2}$ "
Joint 1	$\frac{1}{2}$ " slack	1"
" 2	$\frac{1}{2}$ " "	$1\frac{1}{2}$ "
" 3	$\frac{1}{2}$ " "	$2\frac{1}{2}$ "
" 4	$\frac{3}{4}$ " "	4"
" 5	$\frac{3}{4}$ " "	$4\frac{1}{2}$ "
" 6	$\frac{7}{8}$ " "	5"
" 7	$\frac{7}{8}$ " "	5"
" 8	$\frac{3}{4}$ " "	5"
" 9	$\frac{7}{8}$ " "	5"
" 10	$1\frac{1}{4}$ " "	5" $\frac{1}{4}$ " between rail flange and inner spike.
" 11	1"	5"
" 12	1"	5" $\frac{1}{4}$ " between rail flange and inner spike.

At joint 10, the conditions were as shown in figure below:—



This was the worst case, but in most others, both rails were more or less forced outwards, though, as in curve No. 29, they showed no tendency to draw.

It may reasonably be assumed that the general condition of curve No. 29 was (before the accident) much the same as that of curve No. 30, and, if it happened that a number of consecutive sleepers were in the state shown in the figure above it might well happen that a train coming down-hill at a higher speed than ordinary would force out the outer rail until quite clear of the inner spike, when it might pivot on the outer spike and overturn outwards. From joint 13 onwards, the outer rail was detached from the sleeper and lying inclined outwards at an angle of 45 degrees, while at the rear end of the fourth coach from the engine, where it was possible to make an examination, the inner rail was in place thus :—

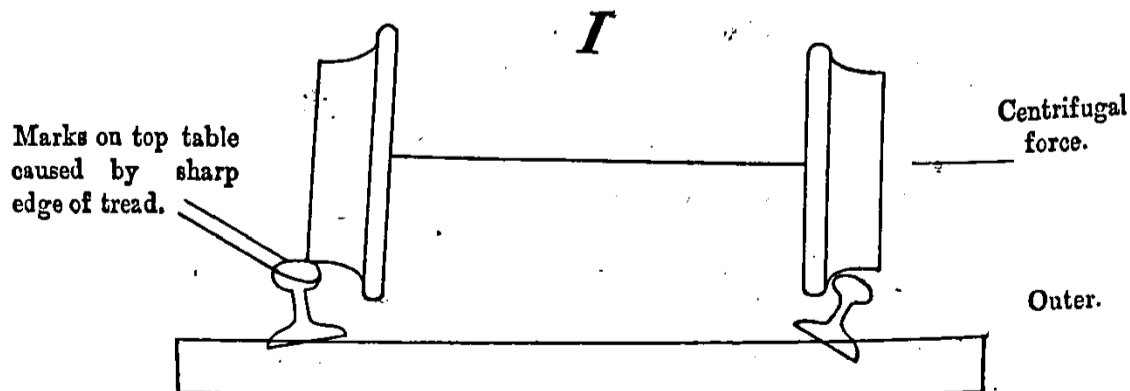


What probably happened then was that, owing to the extra soft condition of the sleepers due to heavy and long continued rain, unusual speed being possibly a contributing factor, the outer rail was pushed outwards by the centrifugal force until its inner flange escaped from the inner spikes when it pivoted on its outer flange and the outer wheel ran for some distance along the web of the rail, and the inner wheel dropped between the rails. The greater resistance encountered by the latter then caused the engine to slew round towards the left-hand side, the inner rail being then in its turn overturned or jumped, the engine then ran with its inner wheel on formation and its outer on the sleepers and ballast, the life guards pushing the sleepers in front of them until the parapet of the bridge was encountered, which turned it down the bank.

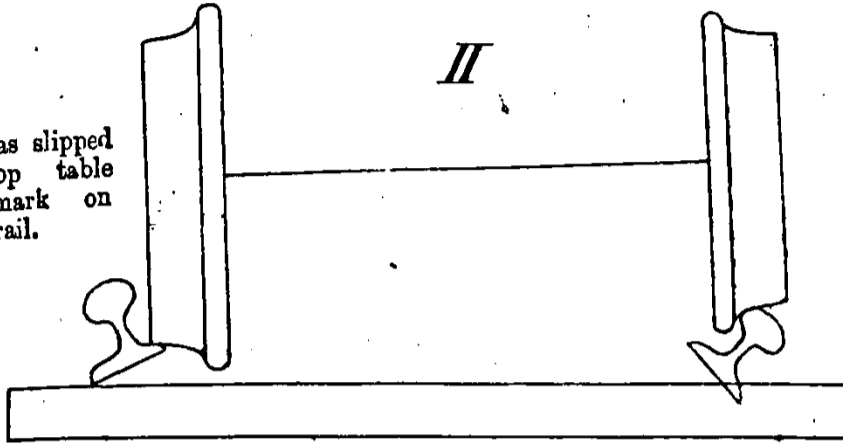
It was noticed that about joint 13, the head of the *inner* rail was marked as if by a wheel flange or by the edge of the tread (from its sharpness, probably the latter); further on, there was a cut on the inside of the rail and further on again a mark on the flange, and, finally, a groove along the web.

It will be noticed that the Sub-District Officer thinks the inner rail tilted first. The Executive Engineer, whose evidence was, however, not taken, thought that *both* rails had an outward inclination at joint No. 11 and onwards, and they deduce from this and from the marks described that it was the *inner* rail that overturned first. This, however, is hardly possible unless the train was proceeding at a very low rate of speed, which is contradicted by the timings taken. The diagrams below illustrate what we believe to have been the various phases of the accident.

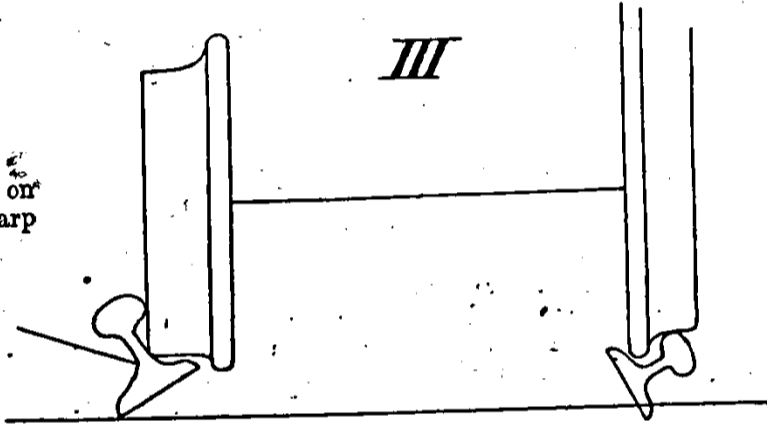
View looking down-hill; the left-hand side is the inner and the right the outer rail.



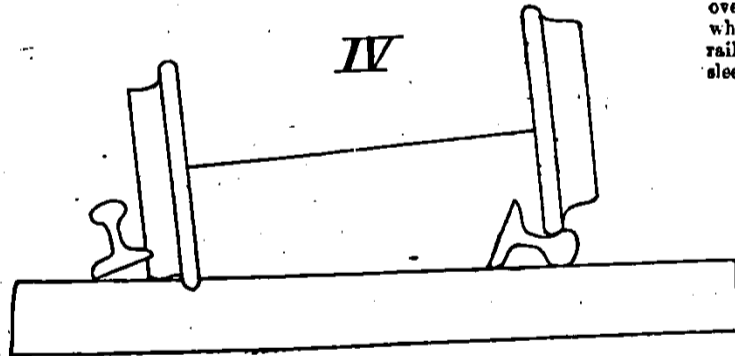
Wheel has slipped from top table caused mark on flange off rail.



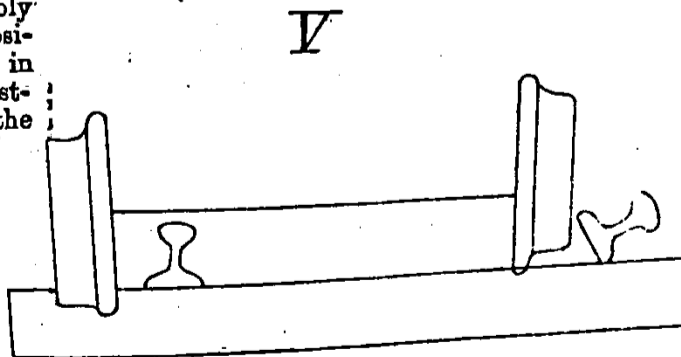
Mark caused on web of rail by sharp edge of tread.



Outer rail quite overturned; inner wheel escaped from rail flange on to sleepers.



Between phase IV and phase V the inner wheel probably escaped to the position shown in phase V by bursting through the fish-plates.



Position at tail of fourth coach, engine slewed round by resistance offered to inner wheel in figure IV and jumped over inner rail.

We find, therefore, that the accident was caused by the overturning of either the outer or inner, or both, rails, but probably the outer, owing to the soft condition of the sleepers, and that excessive speed may very possibly have been a contributing cause.

P. RAINIER, F. D. FOWLER,

Member.

President.

I agree with reservation noted below.

P. A. HYDE,

Member.

I do not agree to the supposition that *excessive* speed was the cause, except in so far as that it was excessive for the quality of road; a speed of 35 miles per hour was allowed, and I am satisfied that the train was not travelling at more than 30. Such a broad gauge road should, where 35 miles per hour is permitted, have a large margin of safety, and it should be possible to run on it at speeds higher than 35 without accident.

P. A. HYDE.

I agree with this.

P. RAINIER.

In submitting these proceedings the Manager, Oudh and Rohilkhand railway, states:—
“I agree with the finding, except as regards the speed of the train having been possibly excessive, for which presumption I see no grounds whatever. All curves on which there are any signs of the sleepers giving way in a similar manner are being relaid with hardwood sleepers, and this work is now well in hand.”

Remarks by the Government Inspector of Railways.

I agree with the finding of the committee as far as regards the way in which the accident occurred, *i.e.*, that the outer rail turned over, and that the inner leading wheel then slipped off the inner rail. The engine then apparently ran along with the leading wheels partly supported by the rails, which were being wrenched away from the spikes a little ahead, while the trailing wheels were running between the rails. This continued until the velocity was so far reduced that the wrenching away of the rails preceded the engine by a sufficient distance to allow the leading wheels to drop through. This caused the front of the engine to catch the sleepers, which were then run along under the rails until about twenty of them were jammed together, forming a continuous flooring. The resistance so caused, and the fact that a culvert happened to be situated just at the point where the sleepers were jammed together, threw the engine off the bank to the left. One reason for this theory is that the sleepers were cut through along the inside of the curve, which could only, I think, have been done by the heavy engine wheels. The carriage wheels did not run exactly in the groove along which the engine wheels travelled, but inside it; the marks on the web of the outer rail shewed that wheels had run along there.

As for the question of excessive speed, much depends on the meaning given to the phrase. If it is meant that the speed was within the permitted limit (which on the day of the accident stood at 35 miles per hour), I do not think there is good reason to suppose that it was excessive in this sense, and the driver stands exonerated. But if the epithet “excessive” is taken to mean (as I consider it should) a speed too great for the road as it stood, I am decidedly of opinion that the speed must be called excessive.

I think there is good reason to conclude that the speed was at least 30 miles per hour if it did not exceed that amount. This is, I consider, proved (1) by the distance which the train ran on the soft bank after leaving the rails, (2) by the way in which the engine had forced itself into the ground, which is very hard and stony, and (3) by the way in which the loaded wagons in the rear were knocked about. This last shows that the speed just before stopping was not low. The buffers of the train were jammed home, and one rear engine buffer was driven through the end of the brake-van. The carriages did not run along the overturned rail, but were quite clear of it; and the retarding effect of the ballast and soft earth (which was wetted by rain) must have been considerable. Fortunately the carriage couplings held, otherwise the coaches must have been wrecked.

The driver insisted strongly that his speed did not exceed 12 miles an hour. The obvious absurdity of this statement shews, to my mind, that he knew he had been going too fast, and was anxious to give the impression that he was running cautiously, as he might have confessed to any speed below 35 miles an hour without in any way incriminating himself. I must say that I consider a careful driver should not have run near his speed limit on a reverse curve on a steep down grade; but, as no speed board was put up nor special instructions given, he can hardly be held responsible.

The estimate of time, giving a mean speed of 22 miles per hour, depends on the correctness of the time taken by the guard. As he was suffering from shock at the time, there is no means of knowing what the actual interval was between the occurrence of the accident and

his observation. This would make so much difference that the estimate is considerably discounted thereby. Even the time of leaving Doiwala is not quite certain, as will be seen both in the "evidence" and in the "finding."

I have an additional reason for concluding that the speed approached 30 miles per hour. I inspected the branch from an ordinary train a short time after the accident, and though the speed restriction of 25 miles per hour had then been re-imposed, and in spite of the warning afforded by the accident, the speed, both going up to Dehra Dun and on the return journey was as high as 33 miles per hour at several points. This was taken both by timing with a watch and by a Boyer's speed indicator. The latter was tested and found correct at 35 miles per hour on another part of the line on the same day.

The state of the road is fully described in the "finding," and I am obliged to say that it was not such as to warrant a speed of 35 miles an hour.

I consider that in so damp a climate deodar sleepers are not fit for use on sharp curves. It was found where the rails, the foot of which is 4.2 inches across, had been wrenched from between the spikes, that the edges of the spike lugs were still 3 inches apart; the spikes were firm and had not been drawn. They must have sprung apart compressing the soft wood, the outer spikes being forced outwards, which had again expanded and driven them back into place. It was found on the curve preceding that on which the accident happened, that one or two spikes had a space of $\frac{1}{4}$ th inch between the stalk and the edge of the rail, *i. e.*, that the lug had a hold of $\frac{1}{4}$ th inch only. If three or four consecutive spikes were in this condition on the curve where the accident happened, it would only require a movement of $\frac{1}{4}$ th of an inch outwards to free the rail from their hold.

A speed restriction of 10 miles an hour has now been imposed on this and other similar curves where the rail shews signs of giving, pending the completion of re-sleeping with *sâ*l which is in progress. I consider that all curves should be so relaid; even the more easy curves shew, in places, a line of wear on the inside edge of the rail, which is a clear indication of tilting.

To conclude, I consider that the Permanent-way Inspector was responsible for the accidents. He knew of the condition of the curve, as will be seen from his evidence, but did not consider it to be his duty to report on it to his superiors or to take other than temporary measures to ameliorate it. He has, I hear, since resigned. I further consider that the inspection of the road by the Engineering Department was not so thorough as it should have been.

J. N. D. LATOUCHE,
Government Inspector.

Documents accompanying.

Annexures 1 and 2—Sketches of site of accident.

Remarks by Senior Government Inspector of Railways, Lucknow.

The accident was caused by the rails spreading, due to defective maintenance, and to deodar sleepers without bearing plates having been laid in the curves.

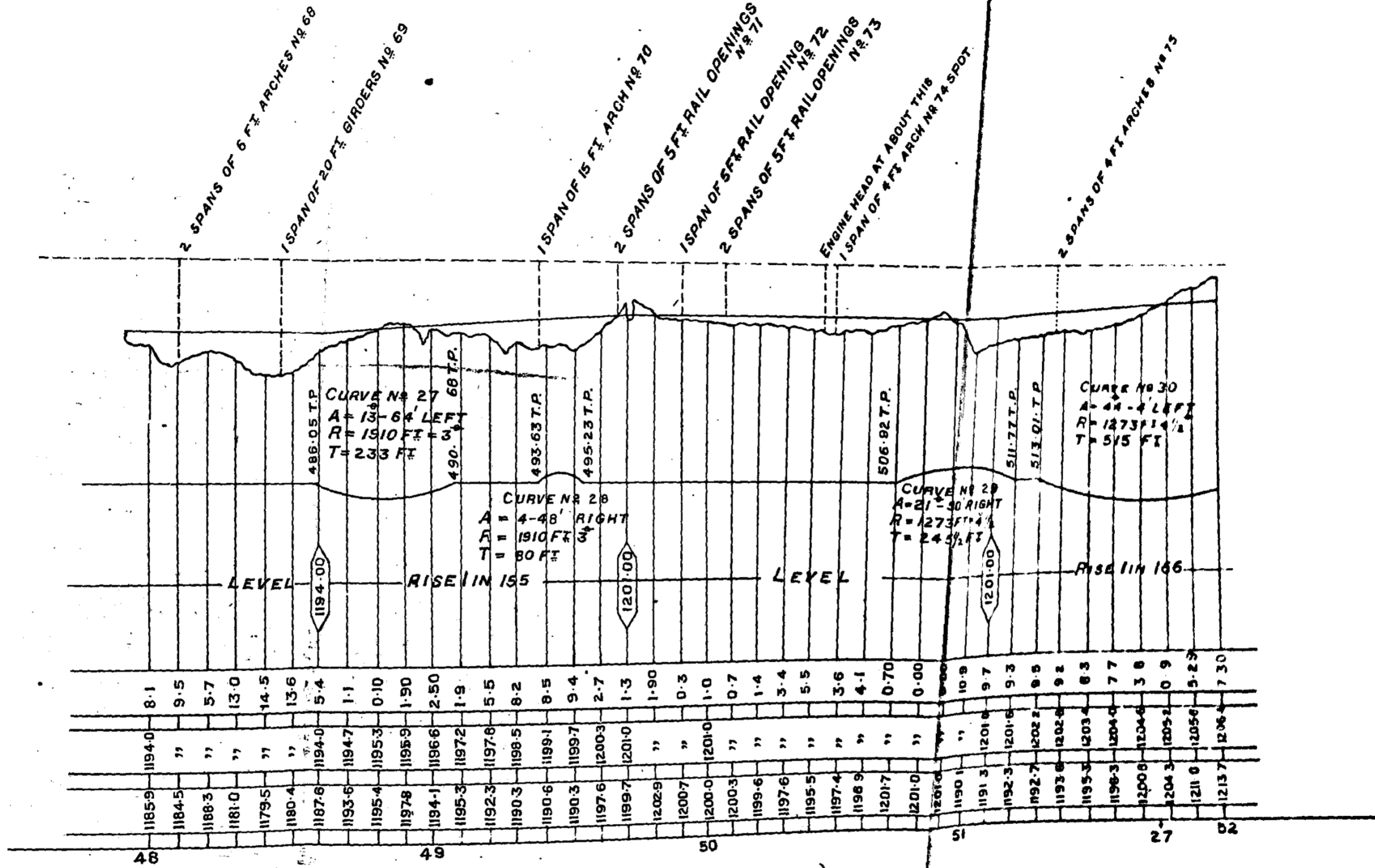
Steps are now being taken to put in hardwood sleepers.

LUCKNOW :
The 26th September 1906. }

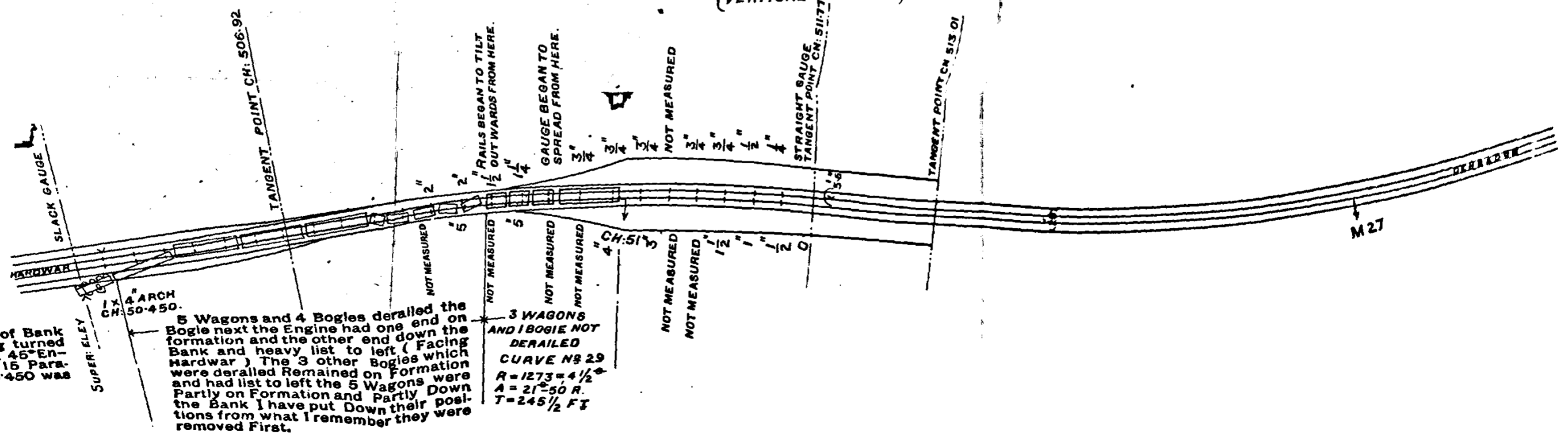
J. E. GABBET,
Senior Government Inspector.

O. & R. Ry.

SITE OF ACCIDENT TO NO. 58 DOWN OF 20-8-06
 BETWEEN RIKHIKESH ROAD & DOIWALA
 SCALE 100 FT. = 1 INCH



SCALES { HORIZONTAL 4000 FT } = 1 INCH
 { VERTICAL 40 FEET }



Engine Lying Partly on slope of Bank and Partly on Ground having turned over side ways through about 45° Engine lying between 25' 10 and 15 Parapet of 1x4 A at about Ch: 60-450 was Carried away by Engine.

3 WAGONS AND 1 BOGIE NOT DERAILED
 CURVE No. 29
 R=1273 FT
 A=21-30' R
 T=245 1/2 FT

Appendix XXIII to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of an officers' joint enquiry held at Saharanpur station, Oudh and Rohilkhand State railway, on the 5th November 1906, to investigate the particulars of an averted collision between No. 6 down Passenger and No. 1 up Mail trains at Locomotive Depot, Saharanpur, on the 29th September 1906.

The committee was composed of the following officers:—

M. P. SCHEMBRY, District Traffic Superintendent, Oudh and Rohilkhand railway	} President.
J. H. CHASE, District Traffic Superintendent, North Western railway	
J. ELL'S, Assistant Engineer, Oudh and Rohilkhand railway	} Members.
W. LEACH, Hony. Assistant Locomotive Superintendent, Oudh and Rohilkhand railway.	
C. S. RENNICK, Government Inspector of Railways	} Present.
E. A. SCOTT, Signal Engineer, Oudh and Rohilkhand railway	

Description.

On the 29th September 1906, Locomotive Depot Saharanpur started up light engine to work No. 6 down passenger, with tablet No. 20 at 2-30. The light engine on arrival made over the tablet No. 20, to the station master, Saharanpur. This tablet was inserted into the instrument and the procedure of tablet inserting was gone through except that Saharanpur did not acknowledge "tablet for up train in," and that Locomotive Depot Saharanpur instrument consequently still showed "tablet for up train out."

Locomotive Depot Saharanpur not getting any enquiry for No. 6 down passenger, and as No. 1 up mail had left, started drawing Saharanpur's attention on the tablet instrument but could get no reply. After a short interval Locomotive Depot Saharanpur again drew Saharanpur's attention on the tablet instrument and while doing so the assistant station master, Saharanpur, (who had No. 6 down to start) owing to his not having acknowledged the tablet for "up train in," and had No. 6 down to start, turned the commutator of his instrument, and as Locomotive Depot Saharanpur was holding in his plunger this caused the current to flow and enable Saharanpur to withdraw his switch and remove a tablet, on which he started No. 6 down, with the result that Locomotive Depot Saharanpur was not aware that he was giving Saharanpur "line clear," nor was Saharanpur aware that he was taking out a tablet without the consent of Locomotive Depot Saharanpur; both instruments therefore showed tablet out for up train and down train respectively. No. 6 down passenger left Saharanpur at 3-25 and as Locomotive Depot Saharanpur was not aware she had left, not having given a tablet as he thought, signals were not lowered and the train stopped outside signals. No. 1 up mail which had left Baliakheri at 3-18 arrived Locomotive Depot Saharanpur at 3-24, and as Locomotive Depot Saharanpur could not get any reply from Saharanpur on the tablet at 3-46 he asked Saharanpur "line clear" on the telegraph for 1 up mail and received reply at 3-48. No. 1 up mail left Locomotive Depot Saharanpur at 3-54. This train had got about $\frac{1}{4}$ a mile out when the driver seeing a red light, put on his brakes stopped and reversed his lever and backed about two carriage lengths when he saw the other train was also at a stand. Locomotive Depot Saharanpur was then informed and it was arranged for No. 1 up mail to back into Locomotive Depot Saharanpur and the signals were lowered for 6 down passenger—on her arrival both trains then started.

Evidence.

Shib Charan Lall, assistant station master.— At 2-30 on the 29th September 1906, I started up light engine from the Locomotive Depot for Saharanpur on tablet No. 20; at about 3 hours, I informed B. R. signaller at Saharanpur that No. 1 up mail was running to time, and asked him about No. 6 down passenger. He replied that the station master was not in the office. I waited till 3-15, and at 3-18 No. 1 up mail left Baliakheri. I then informed the signaller that No. 1 up mail had left Baliakheri and asked him to inform the station master to attend to the tablet and

give line clear for No. 1 up mail. I then waited, and while waiting No. 1 up mail arrived at my station (Locomotive Depot). I again informed the signaller that No. 1 up mail was waiting here, he replied "what am I to do, the station master is not in the office." I continued to call attention on the tablet; the second guard rolled Saharanpur signaller on telegraph instrument, after a few minutes he attended; the second guard asked him where his station master was and why he was not attending on the tablet; after a few minutes I got an answer on the tablet, that is, switch

moved four times and bell rang once sharp. I gave reply at once and turned my handle; at this my indicator did not change because Saharanpur gave a sharp tap instead of a steady pressure: I then thought my indicator was out of order so I asked line clear on tablet instrument, that is, I gave two strokes but I got no reply. I continued to give Saharanpur attention call on the tablet for about ten minutes but got no reply; I concluded that No. 6 down passenger was late; I then enquired on the telegraph for line clear for No. 1 up mail at 3-40 and got a reply at 3-48 that line was clear for No. 1 up mail; I then started No. 1 up mail.

No. 1 up mail arrived at Locomotive Depot at 3-24.

When I enquired for No. 1 up mail my indicator showed "up train out," the same as it did when the up light engine left. I did get "in" report of up light engine as the switch moved four times and the bell rang once.

I have frequently reported that the tablet instrument had not been working satisfactorily.

The reason I did not note the time of the arrival of the up light engine at Saharanpur in my register is because the indicator did not change, but from the switch I received the in report and was waiting for the instrument to get into its normal position.

W. O'Neil, relieving assistant station master.—On arrival of the up light engine at 2-49, tablet No. 20 was made over to me and it was returned into the instrument and the line was clear at 2-52; I put the tablet in myself and my instrument showed normal position, that is both white discs, after this I gave him the attention, and at 3 hours asked for line clear for No. 6 down; at 3-1 the tablet was returned to me through the instrument; at 3-25 tablet No. 20, which I got from the instrument, was made over to the guard, personally, and his signature was taken in my register and No. 6 down passenger left immediately. On my return to the office Locomotive Depot gave me "in" report of No. 6 down passenger at 3-34 he then asked line clear for No. 1 up mail, without inserting tablet, which I was unable to give him. About 3-46, Locomotive Depot asked line clear on the telegraph for No. 1 up mail. Before replying, I asked Locomotive Depot where No. 6 down passenger was and why he had not asked for line clear on the tablet? In reply, he said that the tablet had got out of order and that he could not do anything but to give him line clear for No. 1 up mail on the telegraph, to avoid detention; at 3-47 I replied to the line clear which was signalled at 3-48.

The reason I asked where No. 6 down passenger was, was because my indicator was not released.

By Government Inspector.—From the time the up light engine arrived at 2-52 to 3-15 I was in my office; after that I went outside to attend the hunting as the train No. 6 down, was being delayed. Between 2-52 and 3-15 while I was in the office my attention was not called by the tablet instrument nor did the telegraph signaller say that Locomotive Depot was calling me.

By District Traffic Superintendent, North Western railway.—The reason I accepted single enquiry for No. 1 up mail without any mention of No. 6 down being the last train to have left my station is, because I had already received "in" report on the tablet instrument.

M. Reid, driver.—I was driver of No. 1 up mail of 29th September 1906. I arrived right time at Locomotive Depot Saharanpur, and was detained there 28 minutes; I then received a line clear from the guard with a remark "Tablet out of order," I was signalled and proceeded on to Saharanpur; about the Gate Lodge, which is half-a mile from the Depot, I noticed a red light, I immediately put on my brakes sounded both my whistles and stopped; I reversed my engine and pushed back my train about two carriage lengths, after this I found that the red light was the light of the engine of No. 6 down; all signals were lowered for me to come into Saharanpur—both home and distant. After the opposite train, No. 6

down, was at a dead stop my guard and the guard of No. 6 down came up and I showed them the signals for my train, all lowered. My guard then signalled me, also instructing me to back to the Depot so as to allow No. 6 down, into the Depot; I did as ordered and No. 6 down, then proceeded into the Depot.

I was about one and a half or two telegraph posts away from No. 6 down passenger when I thought both of us were at a stop. When I backed to the Depot the signals for No. 6 down were at danger; in fact, when I stopped, No. 6 down was at a stand still outside of the Depot down distant signal which was at danger.

Mangal, driver.—I was driver in charge of No. 6 down passenger of the 29th September 1906, and left Saharanpur at 3-30 with a tablet No. 20 given to me by the brakesman; I whistled, the starter was lowered, the station master signalled me on, I then started; after passing the over-bridge I exchanged signals with the guard, after that I looked ahead and saw the home and (distant) outer of Locomotive Depot were at danger; I then whistled and continued whistling up to the outer signal and as the signal was not lowered I stopped outside the outer signal; I stopped here about ten minutes when I saw a train coming towards me; I then immediately open both my whistles, reversed my lever with the intention of backing when I saw the train coming towards me stop; the train that stopped in front of me backed into the loop line of the Depot station, when the mail returned to the Depot, after a short while the mail line signal was lowered for me and I proceeded on to the Depot and made over the tablet to the station master. When I looked back from where I stopped I saw both the outer and home signal of Saharanpur lowered for No. 1 up mail.

C. D. Reid, guard.—I was guard in charge of No. 6 down passenger of 29th September 1906, I got tablet No. 20 from assistant station master, Mr. O'Neil, to start; I sent the tablet with the brakesman to the driver to start, my train started at 3-30, the starter for my train was lowered and the starting signal given by the assistant station master. On arriving at Locomotive Depot outer signal, my train was brought to a stop and I saw the signal at danger; this was at 3-34; at 3-54 while at the signal I saw No. 1 up mail start and immediately looked back and saw the outer and home signals of Saharanpur for 1 up mail lowered; I ran up to the driver, when about half way he whistled, the driver of the mail also whistled and then I saw the train ahead stop.

I was on the platform when the tablet was made over to me; I did not see the assistant station master take out the tablet.

Guard Sorabjee, acting 2nd guard.—I was the 2nd guard of No. 1 up mail leaving Saharanpur on the 28th September 1906, on arrival at the Locomotive Depot, Driver Reid brought my attention to the lamps of the starting signal which were both out, the station master said he was just lighting it and in my presence they were lit, I then asked for the tablet in his office and the station master on duty informed me he had not received it; I saw him at the tablet and he gave two beats, but I did not ask him anything; after this guard Hearn came and he asked him where No. 6 down was and he replied not left yet; at the same time Saharanpur was giving beats and the needle was moving but the bell was out of order; it did not ring; the assistant station master gave two beats often and often but no reply was received from Saharanpur. The assistant station master asked on the telegraph which I know, told the signaller Saharanpur to tell the assistant station master to attend properly to the tablet instrument; the signaller replied, station master is not here, in the yard some where; the assistant station master Locomotive Depot started giving two beats on the tablet instrument, he received one beat and the assistant station master was trying to pull the tablet but he failed; then assistant station master, Locomotive Depot, asked for line clear for No. 1 up mail starting.

the tablet is out of order and he got line clear which was given to the driver and train started; as soon as I exchanged signals with the guard and was going to exchange signals with the driver I saw a red light ahead. I immediately yelled out and at the same time the driver whistled both whistles and brought his train to a stop. I then got out from my brake-van, driver Reid asked what this was, I said it must be No. 6 down; only one light, right side train buffer light, was lighted of No. 6 down; in the meantime I saw the driver was lighting all the lights of the engine; the distant signal Saharanpur for No. 1 up mail was lowered; I went to my guard and informed him, guard ordered me to go to Locomotive Depôt and arrange for No. 1 up mail to be received in the station yard; on returning from Locomotive Depôt I saw my guard was near the engine and saw the 2nd guard of No. 6 down coming towards us. The guard of 6 down came and all of us, that is driver of No. 1 up mail, and both guards saw that the outer signal of Saharanpur was lowered, driver Reid said to guard Reid engine light of No. 6 down was not burning

except one, guard Reid replied he was near the engine and advised the driver to whistle; the driver replied "am I to whistle all the while" No. 1 up mail was backed on to the loop and 6 down was taken in on the main at Locomotive Depôt.

Abdul Aziz, brakeman.— I was brakeman of No. 6 down passenger, the tablet No. 20 was given to me by the guard to be made over to the driver, I did so; after this the train started; as the outer signal of the Depôt was not lowered the driver whistled and stopped, after this another train came from the opposite direction when my driver sounded both whistles and the train stopped, and after this the guard came up and after some enquiry No. 1 up mail backed and when she got to the Depôt and the signal for my train was lowered, we started and went to the Depôt. The tablet was made over to me on the platform opposite the train, I did not see the tablet being taken out as I was not in the office.

FINDING.

After practical experiments with the two Tyer's electric train tablet block instruments set up for the purpose at Saharanpur under the supervision of the Signal Engineer, and which were the instruments working between Saharanpur and Locomotive Depôt Saharanpur, we are satisfied that the statements of the assistant station masters, Saharanpur and Locomotive Depôt Saharanpur that the tablet instruments at Saharanpur and Locomotive Depôt Saharanpur read respectively "tablet out for down train" "tablet out for up train" are correct. The incorrect indications given by the instruments were due to the fact that the assistant station master, Saharanpur, when replacing the tablet received from the light engine failed to complete the operations laid down in the instructions for working them.

We also find that after the tablet instrument was reported out of order and line-clear working on the telegraph introduced, that both the assistant station masters, Saharanpur and Locomotive Depôt Saharanpur failed to carry out the orders contained in Chapter VI of the General and Subsidiary Rules, the former for giving line-clear for No. 1 up Punjab mail when the enquiry received from Locomotive Depôt Saharanpur made no mention of No. 6 down passenger the last train out of Saharanpur, the latter for not obtaining "in report" of up light engine from Saharanpur before asking line-clear for No. 1 up Punjab mail.

We recommend that as the Tyer's electric train tablet instrument in use between Saharanpur and Locomotive Depôt Saharanpur, can show trains on road from both stations, it is defective and should therefore not be worked with. As regards the staff we do not suggest any prosecution, but that they be dealt with departmentally.

J. ELLIS,

*Assistant Engineer,
Oudh and Rohilkhand railway.*

M. P. SCHEMBRY,

*District Traffic Superintendent,
Oudh and Rohilkhand railway, Moradabad.*

W. LEACH,

*Hony. Assistant Locomotive Superintendent,
Oudh and Rohilkhand railway.*

J. H. CHASE,

*District Traffic Superintendent,
North Western railway,*

Remarks by the Government Inspector of Railways.

I agree with the committee as regards the culpability of the relieving assistant station master, Mr. O'Neil, Saharanpur, and Babu Shib Charan Lall, assistant station master, Locomotive Depôt, but the former is far more blameworthy than the latter; inasmuch as he failed to work the Tyer's instrument properly (due, I believe, to ignorance) and gave "line-clear" for No. 1 up without satisfying himself as to the whereabouts of No. 6 down.

2. The experiments of the committee clearly showed:—

(a) That the Tyer's instruments are only satisfactory when worked correctly by men fully accustomed to them.

(b) That incorrect procedure, either unintentional or designed, may result in a tablet being removed from the instrument (as in the present case) without due control from the station at the other end of the section concerned.

(c) That the bell signals are not always correctly transmitted.

(d) That false indications can be recorded by the instruments, rendering them unintelligible and useless for the time being.

3. Incidentally, the experiments proved that Mr. O'Neil did not call Locomotive Depôt on the instrument before removing the tablet for No. 6 down (which is equivalent to giving a line-clear without asking for one), and he did not give the "out report" for No. 6 down on

the instrument, because the instrument was so set that the first stroke of his plunger would have altered the indications on the instrument at Locomotive Depôt; and it was the want of this signal which caused the assistant station master, Locomotive Depôt, to have recourse to the telegraph in order to get "line-clear" for No. 1 up.

4. The facts noted in paragraph 2 above, would, however, not suffice to bring about an accident, as only one tablet can be got out at a time; the danger lies in having two methods of giving "line-clear" on the same section.

5. Wherever these instruments are in use, special instructions are required forbidding the reversion to the telegraph "line-clear" until both stations are fully satisfied that the section between them is absolutely clear; the messages necessary to establish this being recorded by both parties with secret numbers appended, as in the case of ordinary telegraphic "line-clears."

6. The statement of the driver of No. 6 down to the effect that he whistled continuously when approaching the outer signal of Locomotive Depôt, appears to be of doubtful accuracy; had he done so, the attention of the staff at Locomotive Depôt would have been drawn to his train. I think it is probable that, finding the signals against him, and seeing the lights of No. 1 up in the Depôt yard, he waited patiently to be admitted, and only commenced whistling when he observed No. 1 up coming out of the station towards him.

C. S. RENNICK,
Government Inspector.

Remarks by Senior Government Inspector of Railways, Lucknow.

Tyer's tablet instruments are found to give satisfactory results elsewhere when worked by properly instructed men.

This enquiry shows that more attention should be paid to the efficient training of the staff before entrusting them with responsible positions.

The Manager's attention is drawn to paragraph 5. Early steps should be taken to give effect to the Government Inspector's recommendation.

Under date the 30th November 1906, the Manager, Oudh and Rohilkhand railway, reports "that as the instruments at Saharanpur and the Locomotive Depôt were defective the party at fault has been dealt with departmentally" and, further, that "orders have been issued that these instruments are not to be used again until further notice."

J. E. GABBETT,
Senior Government Inspector.

CONSULTING ENGINEER'S OFFICE,
LUCKNOW;
The 5th December 1906.

Appendix XXIV to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of a subordinate joint committee of enquiry held at Chilbila station, Oudh and Rohilkhand State railway, on the 29th October 1906, to investigate the circumstances attending the accident to No. 34 Down mixed train at that station on the 28th October 1906.

The committee was composed of the following officials :—

W. PICARD, <i>Officiating Chief Traffic Inspector</i>	.	.	.	President.
J. BECK, <i>Locomotive Foreman</i>	.	.	.	} Members.
S. A. MONCREIFF, <i>Permanent-way Inspector</i>	.	.	.	

DESCRIPTION.

No. 34 down mixed train (Allahabad-Fyzabad section) of 28th October 1906 left Kohndaur at 22-38 hours, or right time. When approaching Chilbila station the driver could not have had his train under proper control, as from Guard Spikesley's statement it must have been travelling at the rate of 35 miles per hour when it passed Chilbila down distant signal and was 3 minutes before booked time. The consequence was that, in spite of driver Garbut Ali whistling for the guard's brakes and the fact of the brakes being hard on, the train rushed past the station, overshot the starter and dashed into the siding terminating in a dead end, where wagons Nos. 536 and 2993 were standing.

The dead end buffer stop was demolished, the two wagons were knocked completely beyond the dead end and six leading wheels of the engine were off the line. The engine and two wagons were considerably damaged. The passengers were not in any way injured by the accident.

EVIDENCE.

Brij Nandan Pershad, assistant station master.—I gave line clear to Kohndaur station for No. 34 down mixed of 28th October 1906, which left that station right time. After the train had passed within my home signal I heard the engine whistle for brakes. I did not hear any danger whistle when the train was passing the station. The speed at that time was about 15 miles per hour.

We went to the site of the accident and found that owing to the driver not being able to control his train, the engine had dashed into the two wagons standing in the dead end. The two wagons were knocked through the dead end; the engine also was past the dead end, and six front wheels of the engine were off the line. Considerable damage has been done to the engine and two wagons, and the dead end has been completely smashed.

The train arrived at 22-53 hours, or two minutes before time. The "in report" was signed by the guard after the accident. No one had been injured in any way.

My starter was at danger. The normal position of the points for in-coming trains from Fyzabad, when the starter is at danger, is for the dead end.

W. J. Spikesley, guard.—I was the guard of No. 34 down mixed train leaving Fyzabad on 28th October 1906. I left Kohndaur at 22-38 hours which was right time and when the accident happened I looked at my watch and found it was 22-52 hours or three minutes before time at Chilbila. I had 17 vehicles on my train, and the composition from the engine was as follows :—

E. I. R. wagon No. 8098.	
Brake van	623.
Coaching stock	11 vehicles.
E. I. R. wagon No. 7118.	
O. R. R. carriage truck No. 388	
O. R. R. horse box	699
Brake van	551.

E. I. R. wagon No. 8098 was booked to Allahabad and attached at Fyzabad. When the train reached the distant signal the driver whistled for brakes. The train must have been going at the rate of about 35 miles an hour, although the booked speed is 30 miles per hour. When I heard the whistle for brakes, I applied my brake hard on, but it had no effect on the train which overshot the platform, passed the starter at danger and dashed into the dead end, which takes off from the Allahabad-Fyzabad line at Chilbila. I could not possibly object to the marshalling of the stock as performed at Fyzabad as the train was a non-vacuum one.

Oudh Behari Lal, brakesman.—I was the brakesman with No. 34 down mixed from Fyzabad on 28th October 1906. When nearing Chilbila distant signal I heard the engine whistle for brakes, and when the train passed it I heard the danger whistle. I promptly applied my brake, and when near the station I put it on and off. The train was going at a good speed. I cannot tell at what rate. The brake had no effect on the speed of the train, which dashed into a dead end at Chilbila.

Garbut Ali, driver.—I was the driver of No. 34 down mixed train leaving Fyzabad on the 28th October 1906. When nearing the Chilbila distant signal, I shut off steam about a mile from it. I was then going at 20 miles an hour. I whistled for brakes at the distant signal, and when passing the platform, I opened the danger whistle for brakes also. I did not feel as if the brakes were on. The starter at Chilbila was at danger and when I passed it and found the engine going on to the curve towards the dead end, I reversed the lever and then opened the regulator so as to back, but I could not stop the engine which dashed into the dead end. There were two wagons in the dead end and they were dashed through the dead end.

At Bikarpur and Dwarakgunj flag stations the train overshot the platforms but at no other stations.

I started putting on the vacuum on the engine from the distant signal; even this would not stop the train. I was not asleep on my engine.

Hidayat, fireman.—I was the fireman with No. 34 down mixed train leaving Fyzabad on 28th October 1906. When nearing the Chilbila distant signal the driver shut off steam and I was told to oil the pistons. I did so. When we had passed the

distant signal the driver whistled for brakes, and as we were passing the platform the driver opened the danger whistle, but the train could not be controlled. The train passed the platform at about 10 to 12 miles an hour. As the train passed the starter at danger and it was going round the curve towards the dead end the driver made me put on the hand brake. This had no effect and the engine dashed into the dead end where two wagons were standing.

FINDING.

From the evidence recorded, and on inspection of the site of the accident, and judging from the nature of the damage caused, we are of opinion that No. 34 down mixed train of 28th October 1906, Fyzabad to Allahabad, when approaching Chilbila was running at excessive speed, and driver Garbut Ali had not his train under control, so as to stop it at the down starter, resulting in the train dashing into two wagons standing in the dead end.

We would invite attention to the marshalling of the train as given in Guard Spikesley's statement, which shows that Addenda and Corrigenda No. 22,* dated 24th July 1906, of the Working Instructions was not acted up to by the staff at Fyzabad.

East Indian railway wagon No. 8098 should have been attached in rear with the other goods vehicles and thus admitted of the coaching vehicles being connected by vacuum with the engine. This would have minimised the risk of an accident of this nature.

STUART MONCREIFF.

J. BECK.

W. PICARD.

Remarks by Manager, Oudh and Rohilkhand railway.

In forwarding these proceedings, the Manager, Oudh and Rohilkhand railway, remarks "with reference to paragraph 2 of the 'finding,' all goods vehicles on the train should have been next to the engine. The fact of the East Indian railway wagon No. 7118 being behind the coaching stock was irregular and the matter has been taken up. The driver responsible for the accident has been dismissed."

Remarks by the Government Inspector of Railways.

The accident was primarily due to the driver not having his train under control and passing the starting signal at danger.

In paragraph 2 of their finding, the Committee refer to a rule in the Working Instructions which does not apply in this case, in that mixed trains on the Allahabad-Fyzabad branch, though the engine and coaching vehicles may be fitted with vacuum brakes, are worked as non-vacuum braked trains, *vide* Load Table, page 2 of the Working Time Book. This system of working mixed trains on this branch has been introduced to enable shunting to be carried on at road-side stations without interfering with the coaching vehicles.

In a mixed train not working with vacuum brakes the proper position for goods wagons is undoubtedly between the engine and coaching stock. This explains the Manager's remarks which at first sight appear to be contradictory to paragraph 2 of the "finding." Rule No. 100 of the working instructions provides for this method of marshalling mixed trains.

Another point to be noticed in connection with this accident is the use made of a 'trap' siding for stabling stock on. The siding on which the two vehicles were standing was put in to 'trap' branch line trains running against the starter and so prevent them from fouling the main line. It was evidently never intended to be used as a siding to stand vehicles on, and had it been so, it would have been provided with a derailing switch.

C. S. ROSE, Major, R.E.,
Government Inspector.

Remarks by Senior Government Inspector of Railways, Lucknow.

This accident was due to the driver not having proper control over his train.

The attention of the Manager has already been drawn to the serious delay which has taken place in submitting the proceedings of the committee of enquiry.

J. E. GABBETT,
Senior Government Inspector.

CONSULTING ENGINEER'S OFFICE,
LUCKNOW;
Dated 17th March 1907.

* Non-vacuum stock when attached to mixed trains which are worked with vacuum braked coaching stock should be placed next to and within the rear brakevan of the train, the guard riding in the front brake and the brakesman in the rear van.

**Appendix XXV to the abstract return of accidents on Indian railways
for the twelve months ended the 31st December 1906.**

Report of the proceedings of a joint enquiry held at Lalkua station, Rohilkund and Kumaon railway, on the 29th September 1906, to investigate the circumstances attending the collision between a down locomotive fuel special and an up ballast train at mile 52—11, Rohilkund and Kumaon railway, on the 23rd September 1906.

The committee was composed of the following officers :—

J. A. POLWHELE, Resident Engineer.	. . . . .	President.
T. H. ROYLE, Officiating Traffic Superintendent	. . . . .	} Members.
J. WILSON, Officiating Locomotive Superintendent	
L. B. GOAD, Superintendent, Government Railway Police	
MAJOR C. S. ROSE, R.E., Government Inspector of Railways	. . . . .		Present.

DESCRIPTION.

The accident was caused by a special fuel train that had been loading fuel about a mile from Lalkua, between Lalkua and Mota Haldoo siding, running into a ballast train when returning brake-van foremost to Lalkua station, the ballast train being stationary on the main line near the down distant signal of Lalkua station.

The accident took place at 14-15 hours on the 23rd instant at mile 53/11-12 on the Bhojpur-Kathgodam section.

One person was killed and 22 injured. The rolling-stock was considerably damaged.

EVIDENCE.

Kallan, driver.—I was driver of the fuel train on the 23rd instant. At 11-40 on that date I got line-clear to proceed to mile 54½ to load fuel, and to return at 13-30. The station master gave me this order when I went to get line-clear. The guard gave me the line-clear when I was on the engine, and gave me orders to return by 13-30.

The station master came up afterwards while the guard was examining the train, and told me that I must return at 13-30 as an engine was coming then from Kathgodam to run up the goods vehicles. I then proceeded to mile 54½, and, when we got there, the guard on one side and the brakeman on the other put down all the brakes from the rear end and came to the engine.

The whole train was fully loaded by 13-45.

After waiting 15 minutes for the coolies to drink water and get into the wagons, and after the guard had seen that the coolies were all sitting down, the guard gave me the signal at 14 o'clock.

My engine was at the Kathgodam end, engine foremost, and the wagons all at the Lalkua end. The guard was signalling me on with a green flag, and I was sounding my whistle as the train was backing into Lalkua. The brakeman was giving signals on one side, and the guard on the other. They were both in the rear brake. I was moving at 10 miles an hour. I saw the brakeman and the guard put down the brakes when we arrived at mile 54½, but I did not see any one take them off again. When the train arrived at about two telegraph posts on the Lalkua side of mile-post 53, I got a red signal on the west side. I put on the vacuum at once and tightened up the hand brake. After passing about 3½ or 4 more telegraph posts my fireman said "there is a

red flag on this side also" (east). When I first saw the red flag I thought the distant signal was against the train. I was whistling all the time, and when I heard of the second red flag I reversed the lever and put on steam. The lever was in the back gear when the train started to come back to Lalkua, and I reversed it to the front gear. The train slowed down to about 5 miles an hour, and after proceeding about length of 1½ telegraph posts the collision took place. When the collision took place I saw wagons falling right and left. I left the fireman in charge of the engine and went up to the scene of the accident and saw that the two trains had collided.

Cross-examination.

Q.—When you went up-hill why did you not have your engine behind instead of in front, and what orders on the subject have you received?

A.—As the engine happens to be placed so I go, and I have no special orders on the subject.

Q.—Did the station master tell you that the other ballast train was going out on the line to work?

A.—No.

Q.—Did you see the ballast train in the yard?

A.—Yes, it was on the fourth line.

Q.—What did you think the other train was doing there?

A.—I thought it was going to work, but as I had line-clear I did not think the other train could go on the line.

Q.—What was your load.

A.—Thirty-six—30 goods vehicles and 6 coaching. All the wagons were fully loaded.

Q.—When you went up to the scene of the accident, was it inside the distant signal or outside?

A.—One or 1½ posts outside. My engine was B. class No. 38.

Q.—When you were coming back could you see the home or distant signals?

A.—I could see neither of the signals. I did not look for them. I only looked at the guard's signals.

Q.—Did you see any wagons on the line as you were returning?

A.—I saw none, as it was a straight line.

Gafoor, fireman.—I was fireman of the fuel train on the 23rd instant.

(He corroborates the driver's statement.)

Cross-examination.

Q.—When starting from Lalkua who gave the line-clear to the driver, and where?

A.—The guard gave the line-clear accompanied by the station master. They called the driver off the engine and gave him the line-clear near the tank. The train was on the 4th line. The driver got off the engine and went 12 yards to get the line-clear.

I saw the guard and station master give the driver the line-clear, but did not hear the station master give the driver any orders.

The driver told me that the line-clear was endorsed to return at 13-30.

Q.—Did you hear the station master say anything about the other ballast train coming out on the same line?

A.—No. The collision took place about 14-15.

Ashfaq Hussain, guard.—I was guard of the fuel train on the 23rd instant. On that date I got working line-clear to work between Mota Haldoo and Lalkua and return to Lalkua at 13-30. I signed the line-clear in the office and gave it to the driver on the engine, and told him that it was working line-clear to return to Lalkua at 13-30. I started the train, and on arrival at mile 54 the train stopped. I on one side and the brakeman on the other put down all the brakes.

At 13-45 the train was very nearly loaded, and some of the coolies had gone to drink water. I thought that there was no down train coming, and so stopped a few minutes longer to fill up the train and settle the coolies. At 14 hours the train was ready, and I started the train. When the train had gone about a mile I saw some wagons standing on the line.

I gave a danger signal to the driver and felt that he had put on the vacuum brake and checked the train. When at a distance of two wagons' length the ballast train brakeman jumped out of his brake and standing on the ground on the east side of his brake held up both hands. My brake was on all the time, and I was giving a danger signal. When about one wagon's length away from the ballast train brake I jumped from my brake.

Q.—When you gave the line-clear to the driver was any one with you?

A.—No. After giving line-clear to the driver I did not speak to, or see, the station master on the platform or in his office. He stayed in the office after giving me line-clear, and did not come out. After getting line-clear, I came out of the office and saw the fuel inspector on the platform. He went a little way with me towards the engine and then went back. He did not get into the brake. I don't know where he went.

Q.—When you saw the wagons on the line did you see any one near them with a danger signal of any description?

A.—I saw no man or signal. After loading the train and seeing that all the doors were shut and the couplings fastened, I came to the brake and gave the signal to start. I looked down the line but saw no wagons or signal, nor did I see either the home or distant signal. When I saw the train on the line ahead of me I was 12 or 13 posts from it. When the train was being loaded I was present, sometimes at my brake and sometimes at the engine. The fuel inspector was there, part of the time at the engine and part walking down the train. The fuel inspector

was sitting in his carriage when we were returning. The train was travelling 10 or 11 miles on the way back, and 5 to 8 miles when the collision took place. The load was 36. I have Part I of the Working Time-Table, and can read it. I know that only 30 vehicles should be attached to passenger trains between Lalkua and Kathgodam. I have no special orders about working ballast trains between Lalkua and Kathgodam. At the time of the collision I did not see the ballast train guard. I saw the ballast train guard at the ballast train brake about 15 minutes later. I don't know where he came from. After the accident, I looked after the coolies who were in the 3rd class carriages near my brake.

The ballast train engine and undamaged wagons were at the station and not attached to the damaged wagons. I got to the station about 15 o'clock. I understand the line-clear and explained it to the driver. I did not return to Lalkua at 13-30 as the fuel inspector ordered me to wait until the train was fully loaded, and there was no down train. After the time shown on my line-clear had expired, I took no precautions to protect the train. When I left Lalkua the ballast train was in the station, but I was not told that it was going to work on the line and did not enquire. The fuel inspector is a witness that the driver was whistling and that I showed a red danger flag. I put down all the brakes on the train, both on the goods vehicles and the 3rd class. There was no brake on the intermediate class. There were four 3rd class vehicles. I asked the station master what the ballast train was doing on the line, and he said he had given orders for it to work inside the distant signal only. I did not say anything to the guard of the ballast train.

Mr. Donoghue, fuel inspector.—As far as I remember the line-clear was handed over to the driver by the guard alone. I did not see the station master go with him. I personally saw that all the brakes had been put down. Nobody said a word about another train coming out behind to work on the line. I had loaded 8 trips from the same place during the previous five days, but had never seen a ballast train working on the line behind my train. I have never heard any rule to the effect that a material train working on the bank has to leave the engine down the bank. I first saw the guard of the ballast train at the station when I came there with the guard of my train to wire about the accident. I saw the brakeman of the ballast train showing red flag just as the collision was about to happen. I am sure that no one connected with the ballast train was showing a danger signal until the collision was just about to take place.

I am sure the engine of the ballast train was attached to the ballast train when the collision occurred.

I first saw the ballast train when my train was about 600 yards away, and my attention was drawn to it by the driver whistling.

My attention was first drawn to the fact that something was wrong by the driver whistling, when I looked out and saw my guard on the foot board showing a red flag. I asked the station master what the ballast train was doing outside the distant signal. He said he was not aware that the train was outside the distant signal.

I did not ask the guard of the ballast train what he was doing outside the distant signal.

I asked the driver of the ballast train what he was doing, as I had heard that he was not on his engine at the time my train was coming down the bank. He said "I was not on the engine but was on the ballast sitting in the shade, and that when some of the coolies shouted 'the train is coming' I jumped on the engine and opened the lever. The collision broke one of the hooks of the wagons, and I went off with the remainder of the ballast wagons."

Sri Dutt, guard.—I was guard working the ballast train. The fuel special went away in front of me. I do not know what orders the guard of the fuel train had, or what work he was going to do. About 12 hours I had permission from the station master to go to the distant signal to load ballast. I had worked two trips before on the 20th and 21st. I never got line clear on other days. On the 23rd I

backed the train out from Lalkua to the distant signal. I was sitting in the rear brake-van. My rear brake did not go beyond the distant signal. At 14 hours my train was fully loaded. Then I told the contractor to stop work and signalled to the driver, who was lying under a tree to return to the station. The driver made a dash for the engine and opened his lever after giving one whistle. The train backed about 10 or 12 vehicles' length up to the bank. I put on my brake and signalled to the driver to go down.

My brakesman and I both showed red signals to the driver of the fuel train.

I heard the fuel train whistling just after giving the signal to my driver to return to the station.

I had 26 wagons and 2 brakes. While loading only every 3rd brake was down, I could see the fuel train in the distance. I sent out a red flag to about 3 telegraph posts towards the fuel train by my brakesman. He came back when he saw the fuel train coming, and after I had given my driver a signal to return to the station.

The station master gave me no time up to which I could work.

When the brakesman saw the fuel train coming he came back to my train and did not go forward to stop the fuel train.

Brij Mohan Lall, pointsman.—The guard gave me a red flag and told me to go four telegraph posts ahead and show a red flag. The ballast train was loading *dajri* near the distant signal of Lalkua. About three vehicles were outside the distant signal. The guard was on the brake looking on at the work. I could see the brake of the fuel train from where I was standing four posts behind the ballast train. When I heard the fuel train whistling I informed the guard of the ballast train. I ran back shouting to inform him. The guard called out to every one to be on the look-out and I went back to my post. The guard signalled to the driver to start. The driver gave two whistles, but I don't know why he did not start.

Muzaffar Khan, driver.—On the 23rd instant I was driver of the ballast train. After departure of the fuel train the guard gave me orders to proceed up the bank to load *dajri*.

I got the signal and backed the train until I got a signal to stop. This was about 12 o'clock.

On the 20th, I asked for line-clear to go out and load.

The station master said "you are working in the yard and don't require line-clear." So I backed the train out until I thought the rear brake was at the distant signal.

The guard then asked me why I had stopped the train without getting a signal.

I replied that I had no line-clear to go outside the signal.

The guard then said "my brake is in front and I am in charge and we are working according to ballast train rules, so you must obey my signal."

I then backed the train outside the signal till only four vehicles and the engine were inside the signal. On the 23rd my engine stopped at the same point.

On the 23rd when loading was completed or practically so, about 14 hours, some one shouted "the train has come."

I told the fireman to get down and see what is up.

He got down and went back a bit, and then shouted "clear out, there's just going to be collision."

I told the khallasi to take off the brake, and, putting the lever on the back gear (my tender was in front), started for the station.

Just then there was a bump and a coupling hook was broken, so I got away with about half of the ballast wagons.

I and the fireman and khallasi were all looking after the engine while *dajri* was being loaded, and never left the engine.

I did not see the guard at all that day while ballast was being loaded.

I am sure the guard was on the train and in the brake.

I got no signals at all, either from the station or elsewhere, recalling me to the station before I heard that the fuel train was returning.

Both on the 20th and 23rd the fuel train went out to load in front of me.

On the 23rd, I did not object in the same way that I did on the 20th.

I know that I ought not to have gone outside signals without line-clear, and I would not do it if I had a passenger train even if ordered to.

I did it on this occasion as the guard said his brake van was in front and he was responsible.

On the 20th, I asked the guard to make a remark on the engine ticket that I was working outside signals without line-clear, as I could not return to Bareilly to report it in the locomotive office.

I said nothing to the fuel inspector, or to any one else about it.

Tirbeni Sahai, station master.—On the 23rd, I gave working line-clear to the fuel train from 11-40 to 13-30 to work between Lalkua and Mota Haldoo and return to Lalkua. The train left at 11-40.

At 12, the ballast train guard came and asked leave to load *dajri* within distant signals. I gave him leave and told him that he must return at 13-20 as the fuel train was returning at 13-30.

I told both the guard and driver of the fuel train that the ballast train was going to work inside the distant signal.

I was in the office all day making up weekly returns, going out now and again to see what they were doing.

At 13-20, I started signalling the ballast train back. After 10 or 15 minutes a cooly came and said: "Don't be worried. I will return when I hear the fuel train whistle."

I told the jemadar to signal the train back. I then sent my assistant to bring the train back.

Before he got there the collision took place.

Q.—Do you know Rule No. 22 of Part II of the Working Time-Table?

A.—I have the Working Time-Table; but I have never read them, nor do I know anything about them. I had been working here 11 days before the accident. The station master I relieved did not point out these rules to me, nor did he hand over anything to me.

Q.—Do you know why the catch-siding is provided?

A.—I understand that the catch-siding is to catch runaway wagons, but I failed to realise that the presence of the ballast train on the main line defeated the object of the siding. I know of no rule that when ballast trains are working on the bank the engine must be on the down side of the train. On this line I have not passed the station master's examination, but I have passed it on the Oudh and Rohilkhand railway.

Tika Ram, assistant station master.—The station master woke me up a little before 14 hours and told me to go and bring in the ballast train. When I got to the points the collision occurred. I heard no conversation between the station master and the guard and driver of the fuel train. I heard the station master tell the guard of the ballast train that he was to be back at 13-20 as the fuel train was returning at 13-30.

FINDING.

We are unanimously of opinion that the ballast train was working outside the down distant signal of Lalkua station against all rules and regulations, and that guard Sri Dutt is chiefly to blame in that (1st), he took this train outside the distant signal against the station master's orders and without line-clear, (2nd) that he did not properly protect it when there,

(3rd) that he did not return to the station at 13-20 as he had been instructed to do, knowing that a fuel train was coming in at 13-30. We are of opinion that guard Sri Dutt should be prosecuted under section 101 (c) of the Railway Act.

Driver Muzaffar Khan is guilty of contributory negligence, in that he did not refuse point blank to shunt his train or part of it outside the distant signal without line clear, and should be punished departmentally.

We are of opinion that station master Tirbeni Sahai is to blame, in that he did not make sure that the ballast train was back at the station by 13-20. He shows want of common sense in allowing the ballast train to work on the main line with the fuel train working up the bank under line-clear to return to Lalkua. He should be dealt with departmentally.

We consider that the fuel train staff did their best to prevent the collision as soon as they realized that it was going to happen.

We consider that the rules for working the catch-sidings should be revised and expressed in plainer language, and that all ballast, fuel or material trains working on the bank should work with the engine down hill, and after loading return to the nearest station.

J. A. POLWHELE,
President.

S. B. GOAD,
Member.

T. H. ROYLE,
Member.

J. WILSON,
Member.

Remarks by Agent.

I approve of the Finding, and have issued orders for the prosecution of guard Sri Dutt.

The rules for working ballast and material trains on the incline between Lalkua and Kathgodam will be revised and specially issued to the staff.

The gradient at the site of the accident is 1 in 100.

J. A. POLWHELE,
Acting Agent.

The 6th October 1906.

Remarks by the Government Inspector of Railways.

I am unable to agree with the members of the Committee of Enquiry in their opinion that the guard of the ballast train, Sri Dutt, was chiefly to blame for this accident.

There can be no doubt that this guard did allow his ballast train to proceed beyond or outside the distant signal for the purpose of loading ballast, and the distance his brake was beyond the distant signal appears to have been from 1 to 1½ telegraph posts, or roughly from 200' to 300'. The question is—"Did he, by this act of disobedience and breach of the rules, cause the accident?" In other words—"Had his brake-van been just inside the signal instead of from 200' to 300' outside of it, would the accident have occurred, and would the result have been equally disastrous?" In my opinion a collision would have occurred just the same, and would have caused serious injury to the coolies and wagons.

Then again the guard denies having received orders from the station master to return at 13-20 hours, and the station master's evidence on this point is only corroborated by his assistant. Under the circumstances it does not seem to me that the evidence against the guard is sufficient to procure a conviction under section 101 (c) of the Railway Act.

Turning now to the action taken by the station master in this case, there is undisputable evidence of carelessness and neglect on his part which indirectly caused the accident. It is quite possible that the staff of the ballast train did not know what the fuel train was doing, or what were its movements, and *vice versa*. On the other hand, the station master knew well that the fuel train was due back at 13-30 hours, and he himself states that he ordered the ballast train back at 13-20; yet from this time till 14-15, the time the accident occurred, *i.e.*, 55 minutes, he does not seem to have concerned himself much about the ballast train or to have taken steps to ensure its return when it did not do so, as stated to have been ordered by him at 13-20. The evidence shows the staff of the fuel train to have committed every act of omission, neglect and disobedience of rules which was possible under the circumstances, *e.g.*, staying out after 13-30 against the strict orders indicated in the line-clear message; having stayed out beyond the time permitted, not having taken steps to protect their train in front and rear; returning to the station without taking any notice of signals; and, on a dead straight line in broad daylight on a clear day, not seeing the ballast train standing on the line in front of them. But as none of these can be said to have directly caused the accident, the staff of the fuel train can best be dealt with departmentally.

The question of catch-sidings and rules for working the same is being taken up with the Agent.

C. S. ROSE, MAJOR, R.E.,
Government Inspector.

Remarks by Senior Government Inspector of Railways, Lucknow.

This accident appears to me to have been primarily due to disobedience of orders and disregard of rules on the part of Sri Dutt, guard of the ballast train.

The station master, Tirbeni Sahai, was guilty of gross neglect of duty. The driver of the fuel train does not appear to have had his train under proper control, and the guard of that train could not possibly have been on the alert.

I agree with the committee that all ballast, fuel or material trains working on the bank should work with the engine down hill.

J. E. GABBETT,
Senior Government Inspector.

LUCKNOW,
The 17th October 1906.

Appendix XXVI to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of a joint committee of enquiry held to investigate the circumstances attending the collision between Nos. 8 Down Mixed and 21 Up Goods trains between Raibag and Chikodi Road stations, Poona Branch, Southern Mahratta railway, on the 16th August 1906.

The committee was composed of the following officers :—

A. J. HOGG, District Locomotive Superintendent	}	Members.
W. M. STEUART, District Traffic Superintendent		
W. C. FOX, District Engineer		
T. ROBERTS, Telegraph Superintendent	}	Present.
C. A. B. BEATTY, Superintendent of Police, Southern Mahratta railway.		
The POLICE INSPECTOR, Belgaum District		
C. T. R. SCOVELL, Government Inspector of Railways		

Description.

In this case No. 8 Down south bound Mixed train collided at about 4-45 hours with No. 21 Up north bound Goods train at a point 780 feet on the south side of the south Outer Home Signal of Raibag station. Both engines were considerably damaged and 9 wagons smashed. The damages are estimated as Rs. 8,940. One fireman was seriously injured; one driver, two firemen and one brakesman slightly injured.

Raibag and Chikodi are two small stations situated at miles 87 and 78½ respectively, from Londa on the Poona Branch.

There is a rising gradient of 1/200/1/100 from Raibag towards Chikodi, and just at the Outer Home Signal there is a long and sharp curve towards the left looking towards the south. It was on this curve that the collision occurred.

This branch of the Southern Mahratta railway system is worked by Winter's block instruments, which show on 2 dials "Train coming from" and "Train going to." Train signals are transmitted by a bell code. Unless the instrument be wilfully tampered with, the position of the needles can only be altered by the co-operation of the stations at both ends of the section.

The line clear tickets are then written out in ordinary counterfoil books. As an additional check the Private Number System is in use.

The assistant station master of Raibag absconded immediately after the accident, but gave himself up to the Cantonment Magistrate, Belgaum, on the 22nd, by whom he was admitted to bail. He refused to give evidence before the committee.

Evidence.

Krishnaji Gangadhar, assistant station master, Chikodi Road.—I went on duty at 19 hours on 15th August 1906. I always take night duty and work till 7-0 hours next morning. I assist the station master in the goods work for 3 or 4 hours during the day. I knew 21 Up was running as I enquired of the station master at Gokak about 2 o'clock; that was the first notice I had of the running of the train. I produce my Train Register book, which shows that I applied for Line Clear from Raibag and received Line Clear with private no. 22. The train left at 4-8. Departure signal given at 4-10, and section cleared back from Raibag at 4-35. The running time for a goods train from Chikodi Road to Raibag is 38 minutes. It always happens that when a goods train has a light load drivers make up time.

As soon as the section was cleared for 21 Up, Raibag applied at 4-35 for Line Clear for 8 Down

Mixed which I gave. In manipulating the Block Instrument Raibag gave clear signal beats. There was nothing unusual. I received no departure signal for 8 Down from Raibag and therefore enquired on the wire, but did not get an answer. Later I gathered that a collision had occurred.

Cross-examined.—When another station gives me the Warning Signal, I at once enter the time in my Register, and the same applies to all other signals. I am positive that I make the entries at once and do not write them up together afterwards.

I always give the correct private numbers, but sometimes I do not receive them correctly owing to beats being joined. For instance in signalling 22, the beats . . . might be mistaken for . . . 12 or . . . 4. I have to repeat the beats, and if in doubt I ask the other station to repeat them again.

I can only explain the entry of private No. 11 in my register for August 15, instead of 13 (the correct one) by some beats failing on the instrument. I repeated No. 11 to Raibag, who acknowledged it.

With regard to train 21 Up on the 16th August I received his Private No. 22 from Raibag and repeated it to him, and he acknowledged it. I am now informed the correct number should have been 12 and that there is no entry in Raibag's Register. I cannot explain why Raibag gave me the arrival signal for 21 Up when the train had not actually reached his station. I received the arrival quite clearly and distinctly.

Shaikh Ebrahim, pointsman jamadar, Raibag.—I was on the Raibag platform when 8 Down came in. I gave the Outer Signal for that train. The under guard went to the office and got the Line Clear from the assistant station master. The guard was at the rear of the train. The under guard took the Line Clear ticket to the driver. The assistant station master never left the office.

I received no information as to 21 Up running.

I heard 21 Up whistle, when the engine of 8 Down was still about 2 Telegraph posts inside the South Outer Signal.

When she whistled 21 Up was beyond the gate lodge (which is 1½ mile from the station). I could see the head light on the engine of 21 Up.

I saw all the lights on engine of 8 Down. They were burning properly.

When 21 Up whistled I went to the office and said to the assistant station master "Here's a goods train whistling for signals, and a Mixed train has just started." The assistant station master cried out "show danger signals," and we, that is, Babaji Hussain and Siddappa, ran towards the Chikodi Road side points showing danger signals. The assistant station master did not come out of his office. I never saw the assistant station master after this. Later I went to his house and his wife told me he had run away.

Sidda Pamanappa, pointsman.—I was sleeping on the platform, and when 8 Down whistled the assistant station master woke me up and told me to give the platform signal. The assistant station master gave the Line Clear to the chief guard of 8 Down. The assistant station master then told me to give the starting signal for 8 Down. After the Line Clear ticket was given for 8 Down the train did not leave for about 5 minutes. It had only got as far as the points when the goods train, then on the other side of the Level Crossing gate about 1½ mile away, whistled. I did not know 21 Up was running. I gave no signal for 21 Up; no signal was given at all.

When 21 Up whistled the jemadar, who was on the platform, asked the assistant station master "What's this you have done? Here's a Goods train coming, and 8 Down starting." Then I, the jemadar, and Babaji ran towards the Chikodi Road side points. After the assistant station master went to the office I did not see him again. When 8 Down started there was no one at the outer facing points. When 21 Up whistled I saw the head light of the engine.

Babaji Hussain, pointsman.—I was manning the North points for 8 Down. After she arrived I came to the station. I saw the guard of 8 Down hand the Line Clear ticket to his brakesman, who took it away to the engine. After 8 Down started I heard the Goods train whistle. When the Goods train whistled, 8 Down, as far as I could see, had not reached the Outer signal. No signals were given for the Goods train. Before 8 Down started I saw the assistant station master going back to the office.

Station master, Ragunath Narayan.—I have been station master at Raibag for 1½ months. I

was sleeping at home in the morning at about 5-40 when my brother came and told me that the assistant station master wanted me urgently. I went to the station and asked for the assistant station master but could not find him. I sent my brother to his quarters to ask where he was; his wife said he had gone away.

The assistant station master Narhai Narayan has been here all the time I have. I do know of his drinking or taking any drug.

Driver E. Cursetji.—I was driving 21 Up on the 16th instant. I left Chikodi at 4-10. I received the Line Clear ticket; it was correct. I stopped my train at mile 84-10 and put down 8 wagon brakes as usual. On approaching Raibag I whistled for the signal, which was against me, and was watching for the signal to be lowered when I suddenly saw the head light of 8 Down. I did all in my power to stop my train, but it was too late. The engine of 8 Down crashed into me.

It was about 1 telegraph post away that I saw the light of 8 Down. I was running about 10 or 12 miles an hour. I can see the signal about ¼ mile away. At the time of the collision it would have taken me 7 or 8 telegraph posts to pull up my train. It is the usual custom to find signals at danger when we first see them, they are not lowered until we whistle and I was expecting this one to be thus lowered.

Driver S. Framji.—I was the driver of 8 Down of 16th instant. I arrived at Raibag at 4-35. On stopping I called the under guard, whose brake was the 4th vehicle from my engine, to enquire whether 21 Up was running. He came back and said the station master had told him 21 Up was not running and that he had endorsed it on the Line Clear ticket which the guard would bring. Guard Rose gave me the ticket and I started at 4-38. I exchanged signals and was attending to my engine until we got about to the Outer signal where the line curves sharply to the left. Looking out I saw what appeared to be the flash of a light. To get a better view I crossed over to the left side of the engine and saw the head lamp and side lights of an approaching train. I immediately put on the steam brake and reversed the lever, but almost immediately the collision took place.

On going to the station after the accident I saw the block instrument still showing "train going to" Chikodi Road.

Guard Rose.—I was the guard of 8 Down. I arrived at Raibag at 4-35. I went to the assistant station master on duty to get Line Clear. He was standing near the office. I took the Line Clear to the driver. I told him 21 Up was not running and that the Line Clear was so endorsed. No conversation took place between myself and assistant station master regarding 21 Up.

We left at 4-38. On clearing the platform I exchanged the usual signals with the driver and sat down in my brake; shortly after I felt the collision. I protected my train in the usual manner and remained with my train until the arrival of the Traffic Inspector. About 3 hours after the accident when I got back to the station I looked up the block instrument; it was showing "train going" to Chikodi.

There was a special duty constable in the train whom I sent back to the station about 20 minutes after the accident occurred with instructions to look after the assistant station master as I thought the collision was his fault, because the Line Clear was endorsed "21 Up not running." He came back afterwards and said the assistant station master had absconded.

Guard Jagannath Mudliar.—I was guard of 28 Down Goods from Miraj to Belgaum on night of 15th August. I crossed 7 Up Mixed at Raibag. When my train arrived at 0-47 the assistant station

master was on the platform. He was standing about 25 yards from the station building, on the Chinchli side. I asked him for Line Clear for my train and followed him to the office where he gave it to me. There was a stranger in the office sitting on the stool whom I believe to be the station master's brother. For the last 20 days I have frequently seen this man in the station office; he might be about 20 years of age. I have never seen him meddling with the Block Instrument. He was awake and not sleeping.

The assistant station master, Raibag, made the entry in my journal of 1 empty on for Belgaum.

I crossed 21 Up at Gokak, that is the booked crossing.

When I arrived at Chikodi the assistant station master was not on the platform. I did not go into the office, but saw him lying on the table covered with a shawl; he came out when I called him. Before I went to the station office shunting was performed at the Raibag side points. I put off one load and took on one load and one empty. Shunting jemadar Bala attended to the points. I had no conversation with Bala, except in regard to the shunting.

The assistant station master did not appear while the shunting was going on.

Mr. T. Roberts, Telegraph Superintendent.—The reports of my Inspectors are forwarded to me regularly from all districts. I do not take notice of discrepancies under 5 minutes. The Poona District is the best on the line as regards the maintenance of the Train Registers. Frequently the reports show no errors and require no remarks from me.

Train Notices for extra goods trains are signalled to all stations on the section on which they are to run. They are acknowledged by recording the initials of the signaller at the intermediate stations receiving them.

The following is an extract from Company's General Regulations, Appendix C, paragraph 4:—
Running of Trains—Advice of—to be acknowledged—(1). All messages advising the running of trains must be acknowledged—

(a) By the out-station to the station ordering the train, after he has obtained the F. O's acknowledgment of the advice.

(b) By stations on the open or train wire circuit to the station on the close circuit through which the message was received.

(c) By stations on the intermediate or through circuit to the station ordering the train, after acknowledgment has been received from stations on the open circuit. These acknowledgments must be understood to cover the acknowledgments of stations on the open circuit.

(2) The acknowledgment must take the following form:—

From S. L. I. To K. R. G.

Your . . . received.

I produce the original Train Notices for 21 Up of the 15th instant *ex* Belgaum. It is time coded 19-15. It was signalled to Raibag at 20-16 to signaller N. N., and to Chikodi at 4-8 (on the 16th) to signaller K. G., and to Gokak at 9-6 (on 16th) to signaller.

I produce the Log Register of Belgaum Telegraph office. It shows that Belgaum was in communication with Raibag from 20-15 to 20-45 on the 15th and with Chikodi from 4-1 to 4-8 when it definitely records the sending of a Train Notice. The only other Train Notice sent that night was one cancelling a goods train coded 17-15 and this message was sent to Raibag and Chikodi at the same time as that for 21 Up.

Further statement.—I inspected the Train Signal Registers at Chikodi Road, Raibag and Chinchli. Chikodi Road shows the Warning Signal for 21 Up was given to and acknowledged by Raibag at 2-55.

He applied to Raibag for Line Clear at 4 hours. 21 Up was running to time and arrived Chikodi Road at 3-53. The run from Gokak Road is 60 minutes. Arrival of 21 Up signalled to Gokak Road at 4 hours. Gokak Road says 4-29. Under General Regulations, Appendix D, 6 (iii), Line Clear may be asked 10 minutes before the train is expected to arrive, but I see it was not applied for until 7 minutes after arrival of the train. Then I find the train did not leave Chikodi Road until 4-8 instead of booked time 3-58.

The run Chikodi Road to Raibag is 38 minutes. Chikodi Road shows the section was cleared at 4-35. Supposing 21 Up to have really reached Raibag, the arrival would be, had the train been running to time, about 4-33. But the train left Chikodi Road at 4-8, therefore she did the run in 25 minutes. Raibag Train Signal Register has no entries whatever about 21 Up.

Raibag shows the Warning Signal of 8 Down was given to and acknowledged by Chikodi Road at 3-55. (Chikodi Road shows 4 hours.) Chikodi Road shows Line Clear for 21 Up was applied for at 4 hours and that he (Chikodi Road) received and acknowledged the Warning Signals for 8 Down at 4 hours also. According to Chikodi Road the Warning Signal may have been received and acknowledged just before or after giving Line Clear for 21 Up.

Raibag shows. Line clear applied for 8 Down, and obtained at 4-30 (Chikodi Road shows 4-35), *i. e.*, Raibag shows line clear for 8 Down was obtained from Chikodi Road before the section was (according Chikodi Road) cleared for 21 Up but Chikodi Road shows line clear applied for and given at 4-35.

The following entry is endorsed in Chikodi Road Station Diary Book, *viz.*—

"Collision occurred between Raibag and mine just near Distant Signal of Raibag, as Raibag station master asked Line Clear without seeing 21 Up arrived to his station and clearing section asked Line Clear for 8 Down."

It should be noted here that Raibag has not made any entry in the Train Signal Register regarding the running of 8 Down Chinchli to Raibag.

The trains from Chinchli and Chikodi Road leave for Raibag in the following order:—

7 Up leaves Chikodi Road at 0-17.

21 Up leaves Chikodi Road at 3-55.

8 Down leaves Chinchli at 4-1.

According to the Train Signal Register Line Clear was given by Raibag as follows:—

To Chikodi Road for 7 Up at 0-20 (Chikodi Road says 0-15).

To Chinchli for 8 Down no entry at Raibag (Chinchli says 3-55).

To Chikodi Road for 21 Up no entry at Raibag (Chikodi Road says 4).

The order of private numbers according to Raibag number sheet is:—

No. 13 was given to 7 Up.

No. 12 was allotted to 21 Up.

„ 24 was given to 8 Down.

Chikodi Road acknowledges Raibag Private No. 13 and Chinchli acknowledges Raibag Private No. 24 as correct.

Chikodi Road says he received Private No. 22 and not Private No. 12 for 21 Up. Now seeing 13 and 24 are acknowledged I assume that Raibag either did give line clear for 21 Up and with it Private No. 12 or that he skipped it of which we have a few cases on record. Chikodi Road, however, does not acknowledge 12 but 22; this may be forgetfulness on the part of Chikodi Road due to not entering the Train Signal Register at the time of receipt.

Raibag Train Signal Registers do not contain any entries relating to the running of 21 Up and 8 Down. We assume the Raibag-Chinchli section was blocked for 8 Down. We might therefore reasonably assume that the Raibag-Chikodi Road section was blocked for 21 Up also.

I find the station master reported sick from 16 hours on the 15th with inflamed eyes. He has signed the Train Signal Register up to that hour but whether his brother or assistant station master did his work is unknown. It appears he went off duty at 16 hours.

Anant Gangadhar Palkar; signaller.—I recognize the original Train Notice advising the running of 21 Up on 15th August. I identify the entries relating to the signalling of the message to Raibag and Chinchli and Miraj.

I signalled the message to Raibag at 20-16 and it was acknowledged by N. N. I am quite sure that N. N. acknowledged the Train Notice. I signalled the Train Notice to Chinchli at 19-52, and to Miraj at 20-32 and it was acknowledged by V. P. at Chinchli and S. R. at Miraj. N. N. at Raibag acknowledged the Train Notice immediately, and I at once entered his initials on the original Train Notice.

Mr. W. M. Stewart, District Traffic Superintendent.—The Telegraph Inspector inspects the Train Register books of 8 stations per month and submits his report to the Telegraph Superintendent, who forwards the reports with his remarks to me.

The procedure is for me to ask the stations reported against for explanations and I award punishment accordingly. For wrong private number I would probably—remembering the pay of the assistant station master is only Rs. 20—fine him a rupee, or, in aggravated instances, recommend his reduction.

I produce the latest report affecting the stations concerned in this accident. Chikodi compared with Gokak the next station south. It shows 4 cases of wrong private numbers and other discrepancies.

Inspecting Signaller Kallu Dhondi.—I am Inspecting Signaller, Belgaum District. I inspected the instruments at Chikodi and Raibag as soon as possible after the accident.

Chikodi Road Block Instrument showed that Line Clear had been given for 8 Down Mixed. The switch handle being at *On*, and the Red Needle at Train coming from Raibag.

Raibag Block Instrument for Chikodi Road side showed that he had obtained Line Clear from Chikodi Road for 8 Down Mixed because his Switch handle was in the correct position, that is "Off", the black needle in "the Train going to" Dial was pointing to *On* line.

I examined the internal connections of both Block Instruments and they did not show any signs of having been tampered with in any way.

Finding recorded, 18th August.

The accident is in our opinion due to the assistant station master, Raibag, having blocked the line for 21 Up Goods and then, probably falling asleep, woke up suddenly on 8 Down Mixed whistling for signals, and, forgetting that 21 Up had not arrived at his station, released the block, asked for line clear for 8 Down, and started the train.

On 21 Up whistling for signals he realised that a collision must occur, and absconded.

The original line clear ticket for 8 Down is endorsed "21 Up not running," which tends to show that it must have been made out beforehand.

We are also of opinion that the collision might have been averted, or at any rate considerably minimized, had the driver of 21 Up Goods kept a proper look out, seeing that he whistled for the Distant Signal, as he states in his evidence, from the Level Crossing Gate, which is just over a mile from the signal, and from where the signal can be seen.

A. J. HOGG.

District Locomotive Superintendent.

W. G. FOX,

District Engineer.

W. M. STEUART,

District Traffic Superintendent.

19th August 1906.

Finding recorded by the Committee at the adjourned enquiry on the 25th August.

Further evidence was recorded, and the system of block working and issue of train notices considered.

It is clear from the evidence that the train notice of the running of 21 Up Goods was duly signalled to Raibag at 20-16 on the 15th August and we see no reason to alter our opinion that the assistant station master, Raibag, is primarily responsible for the accident.

The assistant station master, Raibag, did not attend before the Committee, but sent a letter as follows:—

"The Raibag assistant station master is unwilling to go and give his statement unless summoned regularly. This is an answer according to the instructions of his Pleader, he says."

We recommend that the assistant station master be prosecuted.

W. M. STEUART,

District Traffic Superintendent.

A. J. HOGG,

District Locomotive Superintendent.

Belgaum, 25th August 1906.

Remarks by the Government Inspector of Railways.

On inspection the line clear tickets of both trains showed, so far as the drivers were concerned, they were in order. The ticket for 8 Down was endorsed in the hand-writing of the station master, Raibag, "21 Up not running."

It is most difficult to satisfactorily explain how this collision took place. It is, however, certain that either 21 Up was started on a false ticket by Chikodi Road or that its occupation of the section was forgotten by Raibag.

Regarding the possibility of the first of these contingencies, *viz.*, that Chikodi Road did not obtain line clear for 21 Up :—

The private number which should have been wired by Raibag to Chikodi Road and repeated back to Raibag to ensure its correctness is entered in Chikodi's books as 12. There is no entry in Raibag's books, but, (see evidence of Mr. Roberts) the number should have been 22. Further, Raibag has no entries whatever regarding the running of this train, while Chikodi has complete entries including even its arrival at Raibag although the train never did arrive. In minutely examining Chikodi's books, it appears that at 4 hours 0 minutes he

(i) Acknowledge the warning signal for 8 Down given by Raibag at 3.55.

(ii) Applied for line clear to Raibag for 21 Up! Raibag has no entries!

(iii) Signalled arrival of 21 Up back to Gokak!—Gokak says 4.29!

The following is a plausible solution of what occurred from Chikodi's point of view :—

No. 21 Up arrived at his station at 3.53. He was unable to obtain line clear from Raibag, probably because the staff at the latter station was asleep, and in order to save the latter from getting into trouble, in return, doubtless, for similar concessions to himself, started the train, on a false ticket, arguing that the train even if a few minutes late would, being light, arrive at Raibag to time where its booked crossing was with 8 Down; that Raibag, of course, knew 21 Up was running and would not start 8 Down till 21 Up have arrived; all entries being subsequently adjusted. Accordingly the train was started at 4.10 instead of at 3.58, the extra delay being due to his attempts to obtain line clear. In due course Raibag, not knowing or forgetting that 21 Up was running that night, applied at 4.35 for line clear for 8 Down which was granted with correct private number. In view of the utter recklessness with which the trains are signalled and the registers kept (see below for further remarks), it is not unreasonable to infer that in the case of booked crossings one signal means "Your train arrived, may mine start;" hence Chikodi assumed 21 Up had arrived, whereas Raibag only meant to enquire for line clear for 8 Down.

Considering now the possibility of Chikodi having acted conscientiously to rule and the probability of all the blame resting on Raibag.

In the first place, of course (in order to put Chikodi right), Raibag must have given line clear for 21 Up. It is then difficult to explain why Raibag (i) allowed 8 Down to start while 21 Up, for which he had 40 minutes previously given line clear, was still on the section, his instrument showing "Train on line" coming from Chikodi; (ii) why the private number was wrong; (iii) why he endorsed the ticket for 8 Down "21 Up not running" Such "minor" discrepancies as the lack of a single entry in his (Raibag's) books for 21 Up is perhaps explained by the absence of a single entry in his other register for 8 Down approaching from Chinchli, the next station to the north, and by the non-completion of the entries for No. 7 Up, the previous Up train that night which left Raibag at about 1 A.M. for the north; the last entry recorded for this train was "Line clear obtained." The column "Train arrived" was blank though the station master's initials were duly recorded. Such a state of criminal slackness is almost incredible and, therefore, it may in Chikodi's favour be reasonably admitted that the mere fact for Raibag not having a single entry in his register for 21 Up is no argument that he did not give line clear, for it was not his custom to make any genuine entries in his register. To a man who carried on his work in this fashion anything can be attributed such, for instance, as the points which still require elucidation, *viz.*, why he endorsed the line clear "21 Up not running" when he had just given line clear for this train to Chikodi and had moreover, as proved by the evidence of Anant Palkar, acknowledged the train notice ordering the running of this train.

As regards the third possibility, *viz.*, that both trains were started on false tickets, I think it may be accepted that 8 Down had a genuine line clear, the entries in both books and the private number being correct.

Another and very probable explanation is that Chikodi applied for line clear for 21 Up and a signal of sorts was returned by one of Raibag's pointsmen ... neither instrument would show train on line ... but this was of minor consequence. When 8 Down arrived at Raibag the station master there doubtless woke up and not knowing anything about 21 Up asked for line clear which was given by Chikodi. In this case it is hard to conceive why Chikodi gave his private number before he was satisfied as to the arrival of 21 Up.

This enquiry has thrown some side light on the methods of signalling trains over the railway especially at night. In the Annexure 1; I have recorded some extracts taken at random from the train registers of Chikodi and Raibag. Of 15 trains signalled, the private numbers are wrong in no less than six instances, while inaccuracies of time are numerous. I regard an error of 2 minutes in the recording of a signal exchanged between two stations as rather

proving the authenticity of the message than otherwise. But errors of 6, 7 even 15 minutes such as are disclosed by a reference to the Annexure 1 prove the entries to be a mass of worthless fabrication and call for stringent measures of repression. It is further practically impossible, for instance, that the departure signal for a mixed train could be given at precisely the same minute on four consecutive occasions or that the arrival signal for the same train should be given at precisely the same minute on five consecutive occasions.

From the evidence of Mr. Roberts it will be seen that he considers this (the Poona District) the best on the line. If this is really so, urgent action is imperative. It appears to me that the system of inspection of train registers is as complete as possible, but doubtless the subsequent notice taken of these irregularities is insufficient to prevent their recurrence, else the state of affairs disclosed would not obtain after the 4 or 5 years that have elapsed since the register inspection was instituted.

Incidentally it is noticed from the evidence of guard Juggannath Modliar that, although one train had already arrived at a certain station, another train subsequently arrived, and having performed some shunting at the facing points, drew into the station only to find the station master if not asleep, "lying down on his table covered with a shawl."

The rules for signalling the train notices seem to be sufficient though it is not clear what useful purpose is served by the receipt of a notice by a station 7 hours after the train had passed through.

The accident points to the urgent necessity for the introduction of an approved type of Block Instrument all over the Southern Mahratta system.

C. T. R. SCOVELL,
Government Inspector.

Document accompanying.

Annexure.

Dhárwár, 18th September 1906.

Remarks by the Senior Government Inspector of Railways.

The enquiry into this collision brings to notice systematic disregard of rules on the part of the staff, and slack supervision, which call for immediate attention on the part of the Administration.

The most carefully framed rules are useless unless they are obeyed, perhaps, worse than useless inasmuch as they induce a false sense of security; and punishment for deliberate breach of them should be deterrent.

The disclosures brought to notice by the Government Inspector are startling.

J. S. BROWN,
Senior Government Inspector.

Bombay, the 4th-October 1906.

Annexure 1 in Appendix XXV to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Random Comparison Extracts from Train Registers for Up Trains.

	Train.	Private No. given by Raibag to Chikodi.	Warning Signal exchanged.	L. C. Recd. given.	Dep. Signal given. Recd.	Arr. Signal Recd. given.
8th August	{ Chikodi . Raibag . }	12	<i>Nil.</i>	3.50	3.58	4.30
		12	<i>Nil.</i>	3.50	4.1	4.36
9th August	{ Chikodi . Raibag . }	3	2.30	3.57	3.58	4.35
		12	2.55	3.55	<i>Nil.</i>	4.36
13th August	{ Chikodi . Raibag . }	31	2.30	3.45	3.58	4.30
		31	2.40	3.45	4.1	4.31
15th August	{ Chikodi . Raibag . }	11	2.45	3.50	3.58	4.35
		13	3.36	4.48	4.0	4.36
16th August	{ Chikodi . Raibag . }	22	2.55	4.00	4.10	4.35
		<i>Nil.</i> (but would have been 12).	<i>Nil.</i>	<i>Nil.</i>	<i>Nil.</i>	<i>Nil.</i>

Random Comparison Extracts from Train Registers for Down Trains.

	Train No.	P. No. given by Chikodi to Raibag.	Warning Signals exchanged.	L. C. Recd. given.	Dep. Signal given. Recd.	Arr. Signal Recd. given.
29th July	{ Raibag . Chikodi . }	24	4.00	4.35	4.40	5.35
		12	4.00	4.35	4.44	5.20
5th August	{ Raibag . Chikodi . }	24	3.50	4.30	4.39	5.20
		24	4.00	4.30	4.38	5.20
8th August	{ Raibag . Chikodi . }	11	<i>Nil.</i>	4.36	4.39	5.22
		11	4.00	4.30	4.38	5.20
14th August	{ Raibag . Chikodi . }	23	3.55	4.32	4.39	5.25
		4	4.00	4.30	4.38	5.20
15th August	{ Raibag . Chikodi . }	12	<i>Nil.</i>	4.36	4.39	5.22
		12	4.00	4.35	4.38	5.20
16th August	{ Raibag . Chikodi . }	24	3.55	4.30	<i>Nil.</i>	<i>Nil.</i>
		24	4.00	4.35	<i>Nil.</i>	<i>Nil.</i>

Down Trains during 24 hours previous to accident.

Raibag	:	:	:	22	5.50	6.14	6.16	6.47
Chikodi	:	:	:	13	5.50	6.10	6.15	6.45
Raibag	:	:	:	11	15.00	15.45	15.57	16.47
Chikodi	:	:	:	11	15.15	15.45	15.55	16.45
Raibag	:	:	:	1	18.45	19.13	19.19	19.52
Chikodi	:	:	:	1	18.50	19.15	19.20	19.50
Raibag	:	:	:	14	23.50	0.49	0.57	2.5
Chikodi	:	:	:	14	23.50	0.50	0.52	1.55

Appendix XXVII to the abstract return of accidents on Indian railways for the twelve months ended the 31st December 1906.

Report of the proceedings of an officers' joint enquiry held at Bahawalnagar station, Southern Punjab railway, on the 12th November 1906, to enquire into the cause of a collision which occurred at that station on the 6th November 1906 between No. 69 up goods train and a shunting engine with a rake of 13 vehicles attached.

The committee was composed of the following officers:—

R. B. ADDIS, <i>Executive Engineer</i>	. . . . .	<i>President.</i>
H. H. SPALDING, <i>District Locomotive Superintendent</i>	. . . . .	} <i>Members.</i>
N. C. HALDAR, <i>District Traffic Superintendent</i>	

Description.

No. 69 up goods left Chaweka Road, the next station to Bahawalnagar, at 5-32 hours on the morning of the 6th November 1906, and entering Bahawalnagar yard collided, at about 5-55 hours on the main line about 400 feet outside the facing points, with a shunting engine with rake of 13 vehicles attached.

The shunting engine with these vehicles running back into the yard, caused a second collision with the stock of 22 down mixed which was standing on the platform line.

No passengers were injured, and the injuries to guard L. Des Raj, and shunter Mir Dad are in neither case dangerous. The cost of damages to locomotives and rolling-stock amounted to Rs. 96 and Rs. 175, respectively. The permanent-way was not damaged.

Evidence.

Gulab, driver.—I was driver of 69 up on 6th November. After doing some shunting at Chaweka Road I left at 5-32 and was warned by the guard to make up some time so as not to detain 22 down which was due to leave Bahawalnagar on my arrival. It was a moonlight night, but there are no land-marks to guide a driver when approaching Bahawalnagar. After I had run some time I looked at my watch and saw it was 5-55. I knew I ought to be nearing the station but saw no signal light. Almost immediately I saw the fog signal post pass. I at once closed the regulator and applied the brakes. When I was getting near the level-crossing I saw something dark in front of me. I reversed the lever at once and opened steam. After travelling some little distance I collided with the dark object which proved to be an engine. After I got off the engine I heard someone shout "you must not light the lamps now." It was driver Marston who called out.

up and informed me that a collision had occurred and that it was not the jemadar's fault. I went with him and the station master on duty to the site of the first collision, and near there met driver McKinley coming towards the station. The last named drew my attention to the absence of a light in the distant signal, and I also noticed that the home signal lights were out, but that the arms were at danger. Some time after, the traffic inspector asked me whether I could see a light in the distant signal, and it certainly was alight then, but I told him I had looked once before when it was dark, and it was not alight then, and that it was my opinion that the lamp had subsequently been lit.

G. O'Sullivan, traffic inspector.—I did not myself notice whether the distant signal light was burning. The station master drew my attention to it about half an hour after the accident took place.

A. G. Grant, sub-divisional officer, Bahawalnagar.—I was sleeping in my carriage and had given orders to attach it to 22 down. On the morning of the 6th, I was awakened by a violent shock which caused my head to come in contact with the end of the carriage. I got out of bed and looked out of the window to see the cause. I then realized that the carriage was travelling at nearly 20 miles an hour, and looked in the direction we were moving.

I saw I was on the platform line, and running into another train which proved to be 22 down standing at the station. I heard some shouts and tried to open the door, but it had jammed, so went back to the bed and sat on it and waited for the bump. After the second collision I got out and called for the shunting jemadar, but the traffic inspector came

B. McKinley, driver.—I had been into Bahawalnagar to attend an Institute meeting, and intended returning to Ferozpora by the morning train. I accordingly got up early and was having chota hazri when I heard a collision. I went out. Driver Marston, who lives next door, also came out and we went together as far as the dead-end on which the relief train stands. We saw a man climbing the home signal with a lamp. Marston hurried on to stop him lighting the home signal lamps which were out. I looked towards the distant signal but could see no light. I left driver Marston standing at the signal and came towards the station where I met Mr. Grant, the traffic inspector, and station master

on duty. I called Mr. Grant's attention to the distant light not being visible.

The home signal was at danger, but no lights were burning.

E. A. Marston, driver.—I had come in with 22 down on 6th, and had just got home when I heard a collision in the yard. I went out at once and joined driver McKinley who had also come out. We went together as far as the dead-end, when I saw a man climbing the home signal, and hurried on and prevented him lighting the lamps which were out. I did not, at the time, take notice of the distant signal. Later on, when my attention was called to it, I noticed it was out. This was before day broke.

Deoki Nandan, assistant station master.—I came on duty at 19-30 on 5th, and was on the platform early on the morning of 6th seeing to the attaching of the sub-divisional officer's carriage to 22 down. I first saw the shunting engine and vehicles approaching on the platform line at a high speed, and called out to the jemadar to put on the brakes, but apparently nothing was done and the rake of shunted vehicles bumped into 22 down with great force. The traffic inspector who was in the station at the time came out and said that this was not due to rough shunting but to a collision.

In reply to question.—I inspected all signals on the arrival of 22 down, and found all lamps burning; 22 down came in at 5-27, this accident happened at 5-50, so both the up home signal lamps must have gone out in the meantime.

I arrived on the site of the accident with the traffic inspector about 10 minutes after the accident, and immediately pointed out to him that the distant signal light was burning.

Des Raj, guard.—I was guard of 69 up. As we were approaching Bahawalnagar I looked at my watch and saw it was 5-45. I looked out of the window to see if the signal was in sight. I saw the fog signal post when the brake-van was about five wagon lengths from it. Then I saw the distant signal, and saw it was alight and at danger. I began putting on the brake at once. Then I looked out for the home signal but could not see it. I looked out to the right after this and saw a red light exhibited. I put the brake on harder till the wheels began to skid, and then the collision occurred, and I got hurt. After passing the distant signal I felt the driver was trying to stop the train and heard him whistle too. It was a moonlight night and the home signal was not alight.

Bhagoli, fireman.—His statement is identical with that of the driver Gulab.

Nur Dud, shunting engine driver.—I was the shunting driver on the morning of the 6th, and on the arrival of 22 down was carrying out shunting operations under the direction of the shunting jemadar. I had attached the sub-divisional officer's carriage and had gone beyond the facing points to back the carriage on to 22 down. Just then I saw the goods train approaching and reversed the lever as soon as I could, but could not get away in time, and the collision took place. This caused the tool box and other tools to fall on the brake and it jammed, so that it could not be put on, and I consequently could not stop in time to avoid running into the train standing at the station.

My lamps were alight at the time, the head light of 69 up was alight. I was not thrown off my engine, nor did I leave it till it had come to a standstill after the second collision.

FINDING.

We are agreed that the signals were against No. 69 up, and that the lights of the home signal were out, and that, most probably, those of the outer signal were out too. The driver, knowing he was running at a higher speed than usual, should have been more on the look out and prepared to stop; as it was, he does not appear to have had his train under full control. The collision took place, as far as we can judge, at 5-55, or 9 minutes before No. 69 up was expected, so we exonerate the traffic staff of breaking Subsidiary Rule No. 187 (A).

R. B. ADDIS.

H. H. SPALDING.

N. C. HALDAR.

The Manager, North Western railway, in forwarding these proceedings on the 16th January 1907, remarks "that the staff to blame in this case have been suitably dealt with."

Remarks by the Government Inspector of Railways.

I agree with the above finding. Accepting, however, as appears to have been the case, that neither the home or distant signals were alight, and also bearing in mind that No. 69 up goods was expected shortly, I think that the assistant station master on duty showed gross negligence in not seeing that such precautions were taken in shunting in the face of an approaching train. The driver of No. 69 up was undoubtedly approaching the station somewhat incautiously; but appears to have applied his brake immediately he recognised where he was, and saw the signal at danger. As the signal lamp was not alight, it is difficult to blame him severely for passing it when the arm was at danger.

W. D. WAGHORN, MAJOR, R.E.,

Government Inspector.

Remarks by Senior Government Inspector of Railways, Lucknow.

The finding of the committee seems to me to fall very far short of what it should have done.

In the face of the direct evidence of the sub-divisional officer, corroborated by two independent witnesses, I do not see why there should have been any doubt thrown as to the fact that the outer signal lamp was out. The committee say, in their finding, that "the lights of the home signal *were* out, and that, most probably, those of the outer signal were out too."

The evidence seems most conclusive that the outer signal lamp was not alight. Again, the committee in their finding have taken no notice of the attempt to re-light the signal lamps *after* the accident. Unless the Manager, North Western railway, receives more help than this from officers entrusted with the duty of investigating accidents, all his efforts to reduce the number of accidents will be rendered futile.

From the evidence it is clear that the cause of the accident was that the signal lamps were not alight; for this the assistant station master on duty, Deoki Nandan, is responsible. The attempt to re-light the signal lamps after the accident was most reprehensible; if this had succeeded, the blame might have been thrown on the wrong man.

The driver of No. 69 up admits that he knew he was approaching the station; he should have driven more cautiously and not allowed his desire to avoid detaining No. 22 down to cause him to neglect his first duty, namely, the safety of his train.

J. E. GABBETT,

Senior Government Inspector.

CONSULTING ENGINEER'S OFFICE,

LUCKNOW:

The 31st January 1907.

6. Thus the total number of persons reported to have been killed and injured during the twelve months amounted to 1,899 and 2,012, respectively.

IV.—Number of persons killed and injured by accidents to trains, rolling-stock, etc., during the year 1907.

7. 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 1907.	PASSENGERS AND OTHERS.		SERVANTS.		TOTAL.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
5' 6" GAUGE.							
Bengal-Nagpur	12	3	6	..	7	3	13
Bombay, Baroda and Central India	1	..	2	..	..	..	2
Eastern Bengal State	7	2	4	1	3	3	7
East Indian	23	10	47	5	24	15	71
Great Indian Peninsula	5	2	10	1	..	3	10
Indian Midland	4	1	19	4	6	5	25
Madras	7	..	10	1	2	1	12
North Western State	30	35	57	20	41	55	98
Oudh and Rohilkhand State	7	3	4	2	2	5	6
3' 3 1/2" GAUGE.							
Assam-Bengal	3	..	..	1	2	1	2
Bengal and North-Western	4	1	6	..	4	1	10
Bengal Doocars	1	..	1	..	..	..	1
Bhavnagar-Gondal-Junagad-Porbandar	1	..	..	..	1	..	1
Burma	10	2	5	2	6	4	11
Cawnpore-Burhwal	1	1	4	..	..	1	4
Eastern Bengal State	4	..	4	1	1	1	7
Jodhpur-Bikaner	2	..	3	..	1	..	4
Rajputana-Malwa... ..	6	..	3	1	2	..	7
Rohilkund and Kumaon	4	..	1	..	..	..	4
South Indian	1	..	1	..	..	..	1
Southern Mahratta... ..	3	1	3	..	1	..	4
SPECIAL GAUGES.							
Jorhat (2' 0")	1	..	1	..	..	..	1
Kalka-Simla (2' 6")	1	..	..	..	1	6	7
Powayan Light (2' 6")	1	..	..	1	..	..	1
Total	139	61	191	40	311	59	364

of 10,232,000 miles, or accidents increased by 1,373.

The total number of persons of all classes killed by causes beyond 101 against 59, and the number injured 311 against 364. Out of a total of 3...

Report by the Railway Board on accidents which occurred on the railways in India for the twelve months ended the 31st December 1907, 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 101 persons and injury to 311 persons, against 59 and 364, 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 1,344 persons killed and 849 injured shown under this heading in Abstract No. 1, 150 of the former and 459 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 405 were killed and 546 injured, in addition to 40 killed and 120 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 1907 was as follows:—

	1907.		PREVIOUS YEAR.		INCREASE.		DECREASE.	
	MEAN MILEAGE OPEN 29,568 MILES.		MEAN MILEAGE OPEN 28,807 MILES.		MEAN MILEAGE OPEN 761 MILES.			
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
PASSENGERS—								
From accidents to trains, rolling-stock, permanent-way, etc. ...	45	150	9	194	36	...	...	44
By accidents from other causes ...	150	459	155	368	...	91	5	...
SERVANTS—								
From accidents to trains, rolling-stock, permanent-way, etc. ...	40	120	39	148	1	...	...	28
By accidents from other causes ...	405	546	341	451	64	95	...	...
OTHER PERSONS—								
accidents to trains, etc. ...	16	41	...	37	...	...	6	1
over railways ...	33	30	41	...	...	...	...	...
TOTAL ...	1,834	1,665	1,614	1,494	220	171	...	...

5. In addition to the above 65 persons are reported to have been killed and 347 to have been injured upon railway premises by causes not connected with the movement of vehicles used exclusively upon railways.

against 271.06 millions of passengers travelling, and of 11,840.65 millions of miles against 10,688.09 millions of miles travelled, 45 passengers were killed and 150 injured against 9 killed and 194 injured. This gives an average of one fatal casualty in 6.80 millions against one in 30.12 millions of persons travelling, and an average of one in 263.13 millions against one in 1,187.56 millions of miles travelled in 1907 and 1906 respectively.

9. Detailed reports of certain accidents are appended to the Abstract returns. A brief description of some of the accidents resulting in loss of life, injury to persons, or serious damage to rolling-stock, is given below:—

(i) *Bengal-Nagpur railway*.—On the 14th April 1907, No. 129 down goods train was derailed at mile 44-19 between Haur and Panchkura stations, due to the journal of an axle becoming overheated and twisting off. The rolling-stock was considerably damaged.

(ii) *Eastern Bengal State railway*.—On the 7th February 1907, Nos. 3 up and 28 down goods trains collided at mile 86-6 near Hilli station, northern section, due to neglect on the part of the station master, Chorkai, to record in the train signal book the movements of the latter train as given on the tablet instrument, and to his not enforcing the rule that the instrument should only be worked by those authorised to do so. The rolling-stock and permanent-way were considerably damaged.

(iii) On the 28th February 1907, No. 1-B up mixed train was derailed between Atrai and Raninagar stations, due to the removal of two pairs of fishplates and bolts at about mile 44½. The fireman was killed. The permanent-way was considerably damaged.

(iv) On the 10th November 1907, an up goods special parted between Ichhapur and Shamnagar stations. The portion left on the road was run into by an up troop special of the East Indian railway, owing to the staff at Shamnagar having permitted this train to enter the blocked section. The collision fouled the down line and the wreckage of the two trains was run into by a down special goods train running on that line. The driver of the troop special was killed and a passenger injured. The rolling-stock and permanent-way were considerably damaged.

(v) *East Indian railway*.—On the 14th February 1907, No. 29 up Ghaziabad-Moradabad railway mixed train collided with some wagons standing on No. 7 line at Ghaziabad, due to the second assistant station master, Ghaziabad, having set aside the rules for the working of the station and having allowed trains to be admitted without being in possession of the necessary badges. The rolling-stock was considerably damaged.

(vi) On the 12th March 1907 a special train collided with a shunting engine at the Dhanbaid station, due to the disregard of rules by the station staff. Twenty-two passengers in the special were more or less seriously injured, one of whom subsequently died. Three men of the engine staff also received injuries of a slight nature. The rolling-stock was considerably damaged.

(vii) On the 17th December 1907, Nos. 18 down passenger and 61 up goods trains collided between a temporary block hut at mile 230-6¼ and Dadpur block hut, due to the failure of the staff to give a caution order to the driver of the up goods train at Jhajha. Eight third class passengers were killed and eighteen injured. The guard of the goods train was also slightly injured. The rolling-stock was considerably damaged.

(viii) *Indian Midland railway*.—On the 18th February 1907, No. 6 up mail train collided with a shunting engine at Bina station, due to the disregard of rules by the assistant station master and the signalman in not putting the signals to danger and in allowing the shunting to be performed in the face of the incoming mail. Three railway servants were killed and three passengers and four railway servants injured. The rolling-stock and permanent-way were considerably damaged.

(ix) On the 26th October 1907, No. 14 up passenger and a down special train collided at Antri station, due to the driver of the latter train running against signals, and to the disregard of rules by the assistant station master. Four passengers and two railway servants were injured. The rolling-stock was considerably damaged.

(x) *North Western State railway*.—On the 25th May 1907, No. 12 down passenger train and an up special goods train collided at Sarai Banjara station, due to the driver of the latter train backing his train without having received instructions to do so, and also to the disregard of rules by the assistant station master and the driver and guard of the former train. Three passengers were slightly, and the guard of the up special was severely, injured. The rolling-stock was considerably damaged.

(xi) On the 24th October 1907, Nos. 9 up passenger and 154 down goods trains collided at Kot Lakhpat station, due to the driver of the latter train having started his train with a wrong line-clear and against signals. Eleven passengers were killed and 29 persons, including 4 of the train staff, were more or less seriously injured. The rolling-stock was considerably damaged.

(xii) On the 29th October 1907, Nos. 3 Rajpura down special and 27 up passenger trains collided at mile 1042-18 between Jagadhri and Kalanour stations, due to the

driver of the former train running through Jagadhri station yard against signals. Nine passengers and thirteen railway servants were killed and six passengers and six railway servants injured. The rolling-stock was considerably damaged.

(xiii) On the 25th December 1907, Nos. 5 up and 12 down passenger trains collided at mile 935-2, between Ludhiana and Ladhawal, due to the disregard of rules by the assistant station master, Ladhawal. Fifteen passengers and six railway servants were killed, and 3 passengers and 4 railway servants injured. The rolling-stock was considerably damaged.

(xiv) *Oudh and Rohilkhand State railway.*—On the 5th June 1907, Nos. 601 down Great Indian Peninsula railway mail and 225 up Oudh and Rohilkhand State railway goods trains collided at Amausi station, due to the driver of the Great Indian Peninsula railway train running against signals. The brakesman of the mail train was killed, and twelve passengers were severely injured, one of whom subsequently died. The rolling-stock and permanent-way were considerably damaged.

(xv) *Rajputana-Malwa railway.*—On the 21st May 1907, the engine of 27 up mail train was derailed and the tender and leading bogie composite third class and brake-van capsized at Rewari station, due to the sharp angle of the crossing and to the speed of the train at the time of the accident being in excess of the prescribed limit. One third class passenger and the engine Khalasi were slightly injured. The rolling-stock and permanent-way were damaged.

(xvi) *Southern Mahratta railway.*—On the 10th April 1907, a goods train was derailed at mile 5-17 on the Harihar branch between Hubli and Kundgol stations, due to the failure of the trailing axle of the second vehicle from the engine. The permanent-way and rolling-stock were considerably damaged.

For Railway Board

R. C. F. VOLKERS,

Secretary.

SIMLA;

Dated the 4th July 1908. }

Documents accompanying.

1. Abstract return of accidents for the twelve months ended the 31st December 1907, with appendices thereto.

2. Diagram showing for each year from 1890 to 1907 certain statistical results relating to accidents.