



GOVERNMENT OF INDIA  
**MINISTRY OF COMMUNICATIONS**  
(RAILWAY INSPECTORATE)

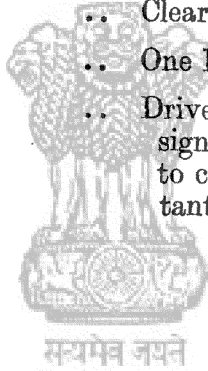
# RAILWAY ACCIDENTS

## REPORT

on  
HEAD-ON COLLISION  
of  
**31 DOWN FRONTIER MAIL WITH 1118 UP GOODS**  
at  
**FATEHSINGHPURA (WESTERN RAILWAY)**  
on  
**21 MARCH 1955**

## SUMMARY

Date	..	..	..	21st March 1955.
Time	..	..	..	14.50 hours.
Railway	..	..	..	Western.
Location	..	..	..	Fatehsinghpura Station.
Kind of Accident	..	..	..	Head-on Collision.
Trains involved	..	..	..	Mail and Goods trains.
Trains Numbers	..	..	..	31 Down Mail & 1118 Up Goods.
Engine Number	..	..	..	{ 31 Down: 919 WP. 1118 Up: 730 WD.
Consist	..	..	..	{ 31 Down: 13 Bogie Coaches. 1118 Up: 60 Wagons.
Estimated speed	..	..	..	{ 31 Down: About 10 M.P.H. at the time of collision. 1118 Up: (practically) Stationary
Operation	..	..	..	Absolute Block System.
Track	..	..	..	Single; Level; Straight.
Weather	..	..	..	Clear.
Casualties	..	..	..	One Killed & 34 Slightly Injured.
Cause	..	..	..	Driver of No. 31 Down running against signals due to excessive speed and failure to control the train well in rear of the Distant signal at 'Caution'.



TO

The Secretary,  
Government of India (Ministry of Communications),  
New Delhi.

Through the Chief Government Inspector of Railways,  
Ministry of Communications, Simla.

Sir,

*Reference to Orders*—In accordance with Rule 9 of the Railway Board's Notification No. 1926-T dated 19th March 1930, I submit herewith the result of my Inquiry into the circumstances of the Collision between No. 31 Down Frontier Mail and No. 1118 Up Goods which occurred at Fatehsinghpura station, Western Railway, at about 14.50 hours on 21st March 1955.

2. *Inquiry held*—The Inquiry was held by me at Bayana on 25th and 26th March. The site of the accident and the damaged rolling stock were inspected prior to the commencement of the Inquiry.

The following Officers were present during the Inquiry:—

1. Shri S. R. Woodmore, Regional Mechanical Engineer, Western Railway, Bombay.
2. Shri M.B. Patel, Regional Engineer, Western Railway, Bombay.
3. Shri M.G. Punoose, District Traffic Superintendent, Western Railway, Kotah.
4. Shri S.N. Mathur, District Mechanical Engineer, Western Railway, Gangapur City.
5. Shri S. A. Srinivasan, District Signal and Telecommunication Engineer, Western Railway, Kotah.
6. Shri G. K. Vyas, Section Officer, Government Railway Police, Kotah.

The District Magistrate was informed about the Inquiry, but his representative was not present.

Evidence of 25 witnesses was recorded at Bayana and of three others at Bombay.

3. *Brief Description of the accident*—No. 1118 Up Goods train was being received on the Loop Line and Up Reception signals had been 'taken off' for its reception. At about 14.50 hours, while the Goods train was just coming to a stop on the Loop Line, No. 31 Down Frontier Mail entered the same line from the other end, passing the Down Outer and the Down Home signals in the 'ON' position and collided with the Goods train at a speed of about 10 miles per hour.

4. *Casualties*—I regret to state that as a result of the accident, one passenger was killed outright and 33 passengers and one Goods train Fireman received minor injuries.

The injured persons were promptly given First Aid by the Guard of the train and were later on attended to by the Railway, Civil and Private Doctors from Bayana, Gangapur City and Hindaun, who arrived by the Relief Trains.

The injured passengers continued their journey by the same train and the dead body was also sent to the deceased's home town by the Luggage Van of the train. The injured Fireman was taken to Gangapur City and admitted in the Railway Hospital.

5. *Composition of the trains*—No. 31 Down Frontier Mail was hauled by Engine No. 919WP and its composition was as under:—

1. Composite Luggage—Brakevan Coach No. 3433.
2. Inter Class Coach No. 2461.
3. Second Class Coach No. 3082.
4. Second Class Coach No. 3083.

5. Second Class Coach No. 1781.
6. Dining Car No. 3110.
7. Air Conditioned Coach No. 1716.
8. Air Conditioned Coach No. 1665.
9. Third Class Coach No. 2400.
10. Composite Third Class-Postal Coach No. 1680.
11. Composite Second-Inter Class Coach No. 1969.
12. Composite Third Class-Luggage-Brakevan Coach No. 2448.
13. Inspection Carriage No. 2651.

All the above vehicles were bogie coaches with Central Screw Couplings and side buffers. They had steel underframes with wooden bodies and outside steel panelling except the 2nd, 9th and the 11th Schileren coaches which had all-steel bodies.

The total length of the train was 1017 feet and its weight 766 tons. The train was fully automatic-vacuum-braked and the engine was fitted with a speedometer in working order. Its calculated brake power was 531 tons.

No. 1118 Up Goods train was hauled by Engine No. 730 WD and consisted of 59 wagons and a Brakevan. All the wagons had steel underframes and steel bodies. These had standard Central Screw Couplings and side buffers.

The total length of the train was 1500 feet and its weight 1532 tons. It was also fully automatic-vacuum-braked.

6. *Number of passengers*—The carrying capacity of the Mail train was 373 passengers, and it was estimated that at the time of the accident, about 200 passengers were travelling in it.

7. *Damage*—Engine No. 919 WP of the 31 Down Mail—The front buffer beam, both buffers, buffer lamps, cow-catcher and swan neck had broken. The engine frame in front of the cylinders, the front platform plates, footsteps, splashers and a few gusset plates had bent or broken. Boiler saddle bolts had sheared and the tender frame had bent by about 5 inches.

Engine No. 730 AWD of the Goods train.—The front buffer beam had bent and buffers were drooping. Cow-catcher and draw hook had also bent. Train pipe swan neck and screw coupling were broken and the pony wheels alignment had been disturbed.

Third Coach No. 3082—The rear end of this coach had been telescoped into by the front end of the 4th coach for a length of about 6 feet. The rear end compartment had been entirely smashed and the body sides had been damaged for a length of about 11 feet. The lavatory partition had been ripped open. The trailing bogie pivot pin had been wrenched out and the bogie had separated from the underframe and had run forward about four feet and had derailed. Both the headstocks were slightly bent and the rear right buffer had broken.

Fourth Coach No. 3083—The front headstock had torn away on the left half and bent at right angles. Both the solebars had bent for a short length and the coupling had fractured. The front end compartment had been smashed and the side panels had been damaged for a length of about 12 feet.

Fifth Coach No. 1781—The body had shifted on the underframe by about 3/8". The rear headstock had bent by about 8", the right solebar had been slightly damaged and a few gusset plate rivets had sheared.

The other coaches on No. 31 Down and all the wagons on the Goods train were undamaged. Excepting the rear bogie of the 3rd coach, neither the engines nor any other vehicles were derailed.

There was no damage to the Permanent Way.

The total cost of damage to the engines and the rolling stock was estimated at Rs. 21,500 and Rs. 20,500 respectively.



8. *Weather conditions.*—It was a bright sunny day and the visibility was good.

9. *Relief arrangements.*—(a) The accident took place at about 14·50 hours and the District Traffic Superintendent and the District Engineer, who happened to be travelling in the rear compartment of the fourth coach of the train, immediately got down and went to the place where the front compartment of their coach had telescoped into the rear compartment of the third coach and the passengers were shouting for help. With the assistance of other passengers, they helped in taking out, through a window, Shri and Shrimati Lamba and their child who had been travelling in the front compartment of the fourth coach. But the passengers travelling in the rearmost compartment of the third coach had been badly entrapped and their rescue appeared difficult.

The District Engineer with the assistance of other passengers, tried to force open the doors of the fourth coach as these had been badly jammed and could not be opened, but did not succeed. The District Engineer then went to the engine to get some implements from the Driver and returned with a hammer. In the meantime, the Guard, who had come to the site, went back and brought his emergency tool box from the Brakevan and the shutter of one door was broken open. A Canadian Missionary Rev. Jennings, his wife and 3 children were then taken out through a window of the fourth coach. It was learnt from them that one Sikh gentleman, a retired Professor, who was sleeping on the upper berth of the compartment, had not come out and they feared that he was dead. The panelling of the compartment of the third coach was then broken open by means of crow bars and ropes and with great difficulty, the body of Professor Shivcharan Singh was taken out at about 15·40 hours.

(b) The Station Master gave information about the accident to Kotah Control at 14·54 hours. The General Manager of the Railway who was travelling in the last coach of the train and whose daughter had been slightly injured, went to the site and supervised the First Aid arrangements and then proceeded to the station to make arrangements for medical assistance and Relief trains. Arrangements were also made for drawing drinking water from the station well and for supplying it to the passengers in the train.

(c) The Relief Train from Bayana containing medical equipment was ordered at 14·59 hours. It was ready in the Shed at 15·40 hours and left the station at 15·50 hours accompanied by the Railway Assistant Surgeon and the Medical Officer in charge of the Civil Dispensary. This train reached the site of the accident at 16·20 hours, and immediately on arrival, two Medical Aid Posts were set up, one near the telescoped coaches and the other opposite the Air Conditioned coaches and the medical treatment of the injured persons was started.

(d) The Relief Train at Gangapur City with a Medical Van was ordered at 14·56 hours. It left Shed at 15·15 hours, reached station at 15·20 hours and left at 15·35 hours after loading some oxy-acetylene cutting equipment. The Assistant Medical Officer and his Assistant Surgeon accompanied this train and a Civil Doctor, who had been summoned by the Station Master also joined the train at Hindaun. This train reached the site at 16·30 hours when these three Doctors joined in the work of attending to the injured.

(e) One Fireman of the Goods train complained of pain but there were no visible marks of injuries on his person. He was given a Morphia injection and was later on taken to Gangapur City by No. 352 Up and was admitted in the Railway Hospital at 23·30 hours.

10. *Restoration of communications.*—(a) After the injured passengers had been attended to, the Bayana Relief Train was utilised for pulling back No. 1118 Up Goods (including its damaged engine) to Dumariya.

(b) The engine of the Gangapur City Relief Train was coupled to the rear of No. 31 Down and the rake was pulled to separate the two telescoped coaches. This operation was commenced at 17·15 hours and completed at 17·45 hours. The rear portion of No. 31 Down along with the fourth coach was then taken to Hindaun where the two damaged coaches (4th and 5th) were detached.

(c) A fresh engine was ordered from Gangapur City for working the undamaged portion of the train to Delhi. This engine was attached to the rear eight undamaged coaches at Hindaun and at Fatehcinghpura the first two undamaged coaches were also

attached to it and the Frontier Mail left Fatehsinghpura with 10 coaches at 20·25 hours i.e. 5 hours and 30 minutes late, after the stock had been examined by the Train Examining Staff and certified 'Fit to run'.

(d) The third coach which was derailed at 23·49 hours, was placed in a siding. After attending to the Permanent Way, the Loop Line was handed over to Traffic at 0·15 hours on 22nd.

11. *Detention to trains*—Apart from No. 31 Down, which was detained for 5½ hours. No. 352 Down Passenger was detained for 30 minutes and seven Goods trains suffered detentions of upto 31 hours.

## II. DESCRIPTION OF LOCAL CONDITIONS

12. *Description of the locality*—(a) The collision took place at Mile 715/14-15 T.P. on the Loop Line of Fatehsinghpura which was a station on the Ratlam-Mathura Main Line Section of the Western Railway. There were 24 telegraph posts in a mile on this Section. The mileages (from Colaba) of some of the stations referred to in this Report were as under:—

Bombay Central	..	..	..	..	4
Baroda	..	..	..	..	247½
Ratlam	..	..	..	..	408
Kotah	..	..	..	..	573½
Gangapur City	..	..	..	..	680
Hindaun City	..	..	..	..	707½
Fatehsinghpura	..	..	..	..	715¾
Dumariya	..	..	..	..	722½
Bayana	..	..	..	..	728

(b) The general direction of the line was South-West to North-East and the country near the site of accident was open with cultivated fields on both sides, outside the Railway land.

(c) The Headquarters of the District were at Kotah where the District Traffic Superintendent, the District Engineer and the District Signal and Telecommunication Engineer were stationed. The Train Control office was also located there. The District Mechanical Engineer was, however, stationed at Gangapur City and the engines were also changed there.

13. *Description of the Station*—Fatehsinghpura was a 'B' Class 2-line station on the Single Line with a long siding taking off from the Loop Line for stabling a full train load. The rail level platform and the station building were along the Loop Line. There was an elevated Central Cabin on the station platform near the Station Master's office and all Points and Signals were worked from this Cabin by a Cabinman under the orders of the Station Master. At the Gangapur City end, there was a snag dead end in continuation of the Loop Line.

14. *Train Working*—Trains were worked on Absolute Block System with Single Line 'Tyers' Tablet Instruments.

For receiving an Up train on the Loop Line, the Station Master released Key 'C' from the Interlocked Key Box and issued it to the Cabinman who inserted and turned it in the lever lock of Route-setting Lever No. 15 which was then operated to the 'centre' position. This enabled the operation of Points-setting Levers Nos. 8, 9, 22 and 23 for setting the Loop Line. After the Loop Line was set, the Route-setting Lever No. 15 was operated to the 'Push' position and Key 'B' was released from the Signal Frame and handed over to the Station Master. The Station Master inserted this Key 'B' in the Interlocked Key Box and released Key 'A' for an Up train which was sent to the Cabinman to enable him to operate the signal levers for an Up train. On arrival of the Up train, the above operations were required to be reversed to enable the Cabinman to reset the points for the Main Line if it was required to receive a Down train on the Main Line.

15. *Signalling*—The station was provided with Multiple Aspect Upper Quadrant signalling to Standard III. Distant, Outer, Home, Loop and Main Starters and Advanced Starter signals were provided in both directions. The Home signals were near the Facing Points with the Outers 1920 feet from the Homes and the Distant 1320 feet from the Outers.

The 'Caution' aspect of the Distant Signal indicated 'Caution, proceed and be prepared to stop at next stop signal'.

The interlocking at this station ensured that signals for the reception of only one train at a time could be taken 'off.' For receiving a train on the Loop Line, the trailing points were set to connect with the Main Line.

There was an Interlocked Key Box with the Station Master from which only one Route and one Signal Key could be taken out so that the Station Master had effective control over the setting of the proper Route for the reception of trains and the lowering of the Reception signals.

16. *Curves and Gradients*—For a Down train approaching Fatehsinghpura, there was a falling gradient of 1 in 1000 for a length of about  $\frac{3}{4}$  mile which ended 208 feet in advance of the Down Distant signal, and this was followed by a level for more than a mile. The collision took place about 3792 feet after the commencement of the level portion. The track was straight for a distance of about 5 miles approaching the site of accident.

17. *Sighting distances of Down signals*—The sighting distances of the Down Distant, Outer and Home signals as noticed from the footplate of a Down train engine were 1466, 1650 and 1760 yards respectively.

18. *Permissible and booked speeds*—The maximum permissible speed on the Section was 60 miles per hour and the Booked speed of the Frontier Mail was 54 miles per hour.

### III. SUMMARY OF EVIDENCE AND DISCUSSION

19. *Statement of the Driver*—Driver D'Souza of No. 31 Down stated that he came on duty at Gangapur Shed at about 13·00 hours on 21st March after having had 12 hours rest. He examined his engine and left shed at 13·45 hours and was coupled to his train at 14·05 hours. The vacuum on his engine was 18 inches. The train left Gangapur City at 14·11 hours right time and he travelled beyond Hindaun without any incident. Shortly after leaving Gangapur City, his speed, as indicated by the speedometer, was 50 to 55 miles per hour.

While approaching Fatehsinghpura, he shut his regulator at Mile 714/11 as was his usual practice and was rolling towards the station. He checked his speed at mile 714/18 and while at mile 714/21, he observed the Distant signal clearly although he knew at mile 714/18 that he was approaching it. While he was at mile 714/18-19, he noticed that the Distant signal was at Caution and all of a sudden he applied the vacuum brakes, but noticed that the speed of the train did not appreciably decrease. He had hoped that he would be able to stop the train before passing the Outer signal but the train continued to roll. Realising that something was wrong, he reversed his lever and opened the cylinder cocks and the regulator. This was done after passing the Outer by about 50 yards, but this also did not have the desired retarding effect and he asked his Fireman to apply the tender hand brake. By that time he had passed the Home signal and the speed was about 20 miles per hour. The engine swung into the loop at about 15 miles per hour and bumped into the Goods train at a speed of a little over 10 miles per hour. After the impact, he shut the regulator and remained on the engine. He was so shocked that he was unable to correctly answer the District Engineer when he came to his engine. After the arrival of the Relief Train, he was taken out of the engine by a Doctor and was brought to the station. Later on, he went back to his Headquarters by the Break Down Train which left Fatehsinghpura at about 03·00 hours on 22nd March.

In reply to questions, he stated that none of the Railway Officers travelling by the train or those who came by the Relief Train questioned him about the circumstances of the accident while he was at Fatehsinghpura. His Loco Foreman sent for him on the 22nd evening, but he went to his office on the 23rd morning where he made his first statement.

While leaving Gangapur City, the vacuum on his engine was 18 inches, but it increased to 21 inches soon after leaving Gangapur City. He had examined the entries in the Engine Repair Book before leaving Shed and all the repairs had been attended to.

He was fully acquainted with the road and had been working on the Section for the last six months. According to him, the weather was slightly dusty and visibility had been reduced to about 1/4 mile. He stated that while passing the Distant signal, his speed was about 50 miles per hour but he had no idea of his speed while passing the other signals.

He stated that he first saw the Distant signal while he was at mile 714/19 and at the same time he saw the Outer signal. Asked as to why he could not see the Distant signal earlier when there was a distance of about 6½ telegraph posts between these two signals, he stated that due to glare and dust he could not see it earlier.

Asked if the weather was dusty and there was glare, why he did not reduce the speed of the train to such a speed as would enable him to stop at the Outer signal, he replied that he had full confidence that he would be able to stop his train before the Outer. Asked as to why he could not properly control his train, when the same rake had been stopping at various stations from Bombay to Gangapur City, he suggested that this might be due to the Train Examining Staff at Gangapur City having wedged in some pieces of stones under the vacuum release valve levers to expedite the dropping of the pistons and they might have forgotten to remove these stones before the departure of the train.

Asked if he brought this difficulty of inadequate brake power to the notice of the District Mechanical Engineer and the Loco Foreman on the day of the accident, he replied in the negative and stated that this did not occur to him on that day as he was suffering from shock, and had no presence of mind.

20. *Statements of the Firemen*—First Fireman Sukhai stated that the vacuum on the engine when leaving Gangapur City was 14 to 15 inches, but it increased to 21 inches by the time they passed the Cabin. While approaching Fatehsinghpura, he noticed the Distant Signal from a level crossing about half a mile away and he told the Driver that it was at Caution. The Driver closed the regulator and made a service application of the brakes, but this did not have much effect on the speed of the train. After passing the Distant signal, the Driver reversed the lever and opened steam and he and the other Fireman applied the hand brake on the tender. The engine took the turnout and collided with the Goods train at a speed of about 15 miles per hour.

In reply to questions, he said that the Distant signal was passed at 50 to 55 miles per hour, the Outer at about 40 miles per hour and the Home at about 15 miles per hour. As to the weather, he said that it was a sunny day and slightly dusty. The signals could be seen from about 1/2 mile distance. They saw the Outer signal when they were just near the Distant and it was in the 'ON' position. None of the Railway officers who came to the site of the accident asked him or the Driver about the circumstances of the accident. His statement was first recorded by the Police on the evening of 23rd.

21. Second Firemen Babulal corroborated the statement of his First Fireman and had nothing new to state.

22. *Statement of the Guard*—Guard Ellis stated that his train left Gangaur City at 14.11 hours right time, passed North Cabin at 14.14. Chhoti Godai 14.23 right time, Pilauda 14.28 right time, Shri Mahabirji 14.36 right time, Hindaun 14.44 (one minute before time) and collided with Goods train at Fatehsinghpura at 14.50 hours. The speed in the Block Section between Hindaun and Fatehsinghpura should be about 60 miles per hour.

While approaching Fatehsinghpura, he observed an application of brakes and slowing down of the speed of the train. Looking out of the window, he noticed that the Driver had already passed the Outer signal at danger. He applied his hand brake and within half a minute of his having first noticed the application of the brakes, the collision took place and he fell in his Brakevan.

Asked if he had noticed any regular slowing down of the speed after the application of brakes till the time of the collision, he stated that there was a regular reduction of speed till the train came to a stop against the Goods train. He did not hear any whistles from

the engine before the collision. In his opinion, the collision took place at a speed of about 5 to 8 miles per hour. According to him, it was a clear warm day; there was no dust storm and visibility was good.

23. *Statement of Assistant Travelling Luggage Guard*—Luggage Guard Shyam Nath who was travelling in the Brakevan compartment of the first coach next to the engine, stated that while the train was travelling at its usual normal speed, he noticed some application of brakes about 1/2 to 1 mile before the accident. The application of brakes appeared to be gradual and the speed was reduced to some extent. He did not notice the amount of vacuum in his Brakevan nor did he notice whether the vacuum was destroyed gradually or suddenly.

24. *Statement of the Driver of the Goods Train*—Driver Moola of No. 1118 Up Goods stated that his train was being received on the Loop Line and he was rolling into this line. When his engine was opposite the station building, he noticed that No. 31 Down was opposite the Distant signal. When he had travelled 20 to 25 feet further, he noticed that No. 31 Down had passed the Outer and when he was nearing the place where the train generally came to a stop, the Mail train had passed the Home signal and had taken the Loop. In his opinion, the impact took place at a speed of 10 to 15 miles per hour.

In reply to questions, he stated that he could not judge the speed of the approaching train, but he had noticed that it was coming against signals and when it passed the Home signal, he realised that it might not be able to avoid a collision. He did not hear any whistles being sounded by the Mail Driver. After the accident, he asked the Driver and the Fireman as to why they had not been able to stop at the Outer and the Driver told him that he had been unable to stop the train.

25. *Statement of the District Traffic Superintendent*—District Traffic Superintendent Shri Punoose stated that he was travelling in the rear compartment of the 4th coach along with the District Engineer Shri Lobo. While approaching Fatehsinghpura, he felt that the Driver was applying the brakes in an effort to stop quickly. He and the District Engineer had a short conversation as to why the train was being stopped and when he got up to see what the matter was, there was an impact and he fell on the opposite berth.

In reply to questions, he stated that the speed of the train prior to the application of the brakes would be about 60 miles per hour, but it had come down to about 10 to 12 miles per hour when he got up to see what was happening. He considered that the Driver might have made a service application of the brakes somewhere between the Distant and the Outer signal, possibly nearer the Distant signal, and an emergent application must have been made at the Outer signal.

From the nature of the application of the brakes and the rate of slowing down, he felt that the application of the brakes was not quite effective. He felt that the Driver had not applied the brakes well in rear of the Distant signal. It was a sunny day and he did not notice any dust in particular. The visibility was not less than 3000 feet as from the site of the accident he could see the Distant signal. He did not make any enquiries from the Driver as to why he had not been able to stop at the Outer signal.

26. *Statement of the District Engineer*—District Engineer Shri Lobo stated that the train was travelling at about 60 miles per hour after passing Hindaun. While approaching Fatehsinghpura, the train started slowing down for a while and then he noticed strong braking action which continued till the train came to an abrupt halt at about 14.50 hours.

In reply to questions, he stated that he thought that the braking had started somewhere near the Distant signal and that the emergent application took place somewhere between the Distant and the Outer probably closer to the Distant. He felt that with the braking, the train should have stopped earlier and in a shorter distance than it actually did. According to him, it was a normal sunny day and the visibility of signals was good and there was no trouble from dust etc.

## DISCUSSION

27. *Did the Driver pass the signals in the 'ON' position?*—From the above evidence, it was clear that the Driver of No. 31 Down had passed the Distant signal at 'Caution' and the Outer and the Home Signals in the 'ON' position. The Driver had himself admitted this fact in his statement.

Further, the interlocking at Fatehsinghpura was such that reception signals for only one train at a time could be taken 'off'. From the evidence of the Station Master, Fatehsinghpura, and the train crew of No. 1118 Up Goods, it was clear that he had given Line Clear for this Goods train at 14.20 hours and that this train had left Dumariya at 14.24 hours and had arrived at Fatehsinghpura at 14.50 hours, having been held up at the Outer signal for about 5 minutes while No. 1109 Down Goods was being shunted into the Long Siding.

At the time of the accident, Assistant Signal Inspector Joshi happened to be at Fatehsinghpura and he and the Station Master went to the Cabin and noticed that levers Nos. 8, 9, 22 and 23 had been pulled for the reception of No. 1118 Up. They locked the Cabin in the position in which they had found it and when the District Traffic Superintendent inspected the Cabin, he also noticed the above levers in the pulled position. It was, therefore, clear that at the time of the collision, the road had been set for the reception of No. 1118 Up Goods on the Loop Line and therefore in view of the Interlocking at the station, the Down signals could only be in the 'ON' position.

28. District Signal and Telecommunication Engineer Shri Srinivasan tested the locking of the leverframe on his arrival at Fatehsinghpura at 09.00 hours on 22nd and found it to be in accordance with the Locking Table.

On my inspection of the site on 25th March I also tested the Interlocking at this station and was satisfied that if the signals had been taken off for the reception of an Up train, it was not possible for signals to be taken off for any Down train.

29. It was, therefore, established that the Driver of No. 31 Down passed the Down Distant signal at 'Caution' and the Down Outer and the Down Home signals in the 'ON' position, thus violating G.R.76(a) which laid down that "the Driver shall pay immediate attention to and obey every signal whether the cause of the signal being shown is known to him or not".

30. *Examination of the possible reasons for the failure of the Driver to obey the Signals.*—In his statement the Driver attributed his failure to obey the signals to (a) the difficulty in noticing the Distant signal earlier due to dust and glare and (b) weak brake power of the train. These would be examined in the following paragraphs.

31. *Visibility of signals*—From the evidence of the District Traffic Superintendent and the District Engineer, it was evident that the accident took place on a sunny day and that there was no dust trouble and visibility was good. I tested the visibility of the signals from the footplate of an engine at about 10.00 hours on 25th March and noticed that the Distant signal (located at mile 714/21) could be seen from mile 714/1, Outer signal (located at mile 715/3½) came into view at mile 714/5 and the Home signal (located at mile 715/11) was visible from mile 714/13.

32. In order to find out if there was any glare or special difficulty in sighting the signals at the time of the passage of No. 11 Down, the District Traffic Superintendent, the District Mechanical Engineer and the District Signal and Telecommunication Engineer were asked to carry out tests of visibility of Fatehsinghpura Down signals while travelling on the engine of No. 31 Down on 26th March. These Officers made independent individual observations and the minimum sighting distances of the Down Distant, Outer and Home signals were observed to be 1466 yards, 1650 yards and 1760 yards respectively.

These distances were much more than the braking distance of a Mail train travelling at a speed of 60 m.p.h. and it was clear that if the Driver had been vigilant and cautious, he should have been able to see the signals from an adequate distance and to stop the train in rear of such signals.

33. According to the Driver's statement, he first saw the Distant signal while he was at mile 714/18-19 whereas he should have been able to see it from mile 714/1. This shows that the Driver was not vigilant and cautious when he was approaching the signals of Fatehsinghpura.

Even accepting that there was some dust in the atmosphere which tended to obstruct the view of signals, it was the duty of the Driver, as laid down in General Rule 83 to take every possible precaution, especially when approaching a station, so as to have the train well under control.

34. *Question of any serious defect in the brake power of the train*—In his statement, the Driver suggested that his failure to control his train might have been due to some defect in the brake power of the train. He alluded in this connection to the alleged practice of some train examining staff, of inserting pieces of stones under the vacuum release valve levers to expedite the releasing of brakes at Train Examining stations. It was however significant that neither the Driver nor the Fireman made any mention of any defect in the brake power of the train to any of the officers at the site of the accident and did not even go round and examine the vacuum cylinders under the coaches to discover if there were any defects in the pistons, vacuum release valves or brake blocks.

35. District Carriage and Wagon Inspector Ambalal, who came to the site of the accident by the Relief Train from Gangapur City, stated that he and his staff examined the coaches of No. 31 Down at the site of the accident. He released 12 vacuum cylinders by pulling the release wires and his staff did the same for the other cylinders. He did not notice any defect in the vacuum cylinders and his staff also did not report any defects. He was of the opinion that there was nothing wrong with the brakes on the train.

In reply to questions, Ambalal stated that the alleged practice of inserting pieces of stone under the release valve levers used to be prevalent at some stations about two years ago, but by making surprise checks, this practice appeared to have been stopped. In the present instance, neither he nor his staff saw any stones inserted under the release valve levers and he did not think that this had been done in this case.

36. In his evidence, Train Examiner Suryakant stated that he and his staff examined the rake of No. 31 Down Mail at Gangapur City on 21st March. Except for one missing brake block on Coach No. 3082 which was replaced by him, he did not notice any defect in the vacuum cylinders or the brake rigging of the train.

37. Driver Solomon who worked No. 31 Down from Ratlam to Gangapur City stated that he left Ratlam 24 minutes late and arrived at Gangapur City right time. When running down the grade into Nagda, he had some difficulty in getting the train to respond to the normal 5 to 8 inches of service application and found it necessary to reduce the vacuum to about 5 inches before he got the train under control. At Lakheri also he had to apply about 15 inches of vacuum before he could feel the drag of the brakes. He attributed this sluggishness of the brakes to the release of all pistons by the Train Examining staff at Ratlam and Kotah. This difficulty was experienced only at the first halt after the Train Examining Stations. But he used to get over this difficulty by taking the precaution of testing the brake power of his train well in advance of the first stopping station.

In reply to questions, he stated that he did not make any report to his officers about his difficulty with the brake power of his train at Nagda and Lakheri. He also did not bring this matter to the notice of the Train Examining Staff at Gangapur City as the brake power was not so poor as to need a special report.

38. Driver Gopal who had worked No. 31 Down from Baroda to Ratlam was examined and he stated that he had 14" of vacuum when he started from Baroda but this increased to 21 inches within about a furlong of his starting. He did not have any difficulty in controlling his train at any of the various halts made during the journey. He stated that the brake power of various rakes varied and there was nothing special about the brake power or its deficiency on the rake of No. 31 Down.

39. Driver Kekhushru who worked No. 31 Down from Bombay Central to Baroda stated that during the course of his journey, he experienced no trouble whatsoever due to brake power and he always had his train fully under control. Even while making his first stop after Bombay, he did not have any difficulty in stopping his train.

40. At my request, a special vacuum test was carried out on 29th March by the Regional Mechanical Engineer, Bombay, on 12 of the 13 coaches of No. 31 Down which were involved in the accident. The 13th coach was not available as it was in use on line. This test showed that the pistons were working normally and there was no drop in the pistons for at least 30 minutes after the application of brakes. Condition of brake blocks and brake gear was also reported to be good.

41. From the above evidence, it was apparent that there was nothing particularly wrong with the brake power of the rake of No. 31 Down which had travelled from Bombay



Central to Gangapur City and had stopped at several halts. The fact that Driver Solomon made no report of his alleged braking difficulties at Nagda and Lakheri to his officers or to the Train Examining Staff showed that the alleged difficulty which he met with was nothing 'out of the ordinary'.

42. I, therefore, consider that the failure of Driver D'Souza to control his train while approaching Fatehsinghpura was not due to any abnormal defect in the brake power of the train. If Driver D'Souza really believed that the brake power of a train was liable to reduction on passing through a Train Examining Station, there was nothing to prevent him from destroying a few inches of vacuum shortly after leaving Gangapur City in order to get the 'feel' of the brake power of the train. He could also have started controlling his train well in rear of the Distant signal at Fatehsinghpura which had a long sighting distance and which was the first station where the signals were at 'ON'.

43. *Speed of the train*—Timings of No. 31 Down Mail passing the various stations from Gangapur City to the site of the accident as obtained from different sources are tabulated below—

	As per Time Table	As per Guard's Journal	As per Control Chart	Minimum Running Time allowed	Time actually taken according to Guard's timings
Gangapur City 3/4 mile dep	14.11	14.11	14.11	16	17
North Cabin 7 1/4 miles ..	14.14	14.14	14.15		
Chhoti Codai 4 3/4 miles ..	14.23	14.23	14.23		
Pilauda 8 1/2 miles ..	14.28	14.28	14.28		
Shri Mahabirji 6 1/4 miles ..	14.38	14.38	14.36	10 1/2	10
Hindaun City 8 1/4 miles ..	14.45	14.44	14.45	7	6
Fatehsinghpura .. ..	14.55	14.50	14.50	9	6

44. Evidence is unanimous that the accident took place at 14.50 hours as that was the time recorded by the Station Master, Fatehsinghpura, Guard of No. 31 Down and Guard of No. 1118 Up Goods. In his evidence, the District Engineer also gave the time of the accident as 14.50 hours. The District Traffic Superintendent said that he looked at his watch just after the accident and it showed 14.50 1/2 hours and on checking it with Control time, he found that his watch was half a minute fast. There is thus no doubt about the accident having taken place at 14.50 hours.

45. From the above table of timings, it would be noticed that according to Guard's Journal the train covered the distance of 6 1/4 miles between Shri Mahabirji and Hindaun City in 6 minutes and a distance of 8 1/4 miles between Hindaun City and Fatehsinghpura also in 6 minutes. The average speed of the train, therefore, over a distance of 14 1/2 miles between Shri Mahabirji and Fatehsinghpura was 72 1/2 miles per hour. The average speed between Hindaun City and Fatehsinghpura was 82 miles per hour. It was therefore, clear that Driver D'Souza had been working his train rashly at a speed of about 75 miles per hour when he met with the Distant Signal of Fatehsinghpura at 'Caution'. The Driver admitted in his statement that he saw the Distant signal at Caution when he was only 2 1/2 telegraph posts from it and it was therefore no wonder that travelling at an average speed of about 75 miles per hour, he over ran the Outer and Home signals at Danger and collided with the Goods train.



46. The fact of the Driver travelling at an excessive speed has been confirmed by the evidence from another unexpected source. The General Manager of the Railway was travelling by this train in his Inspection Carriage, and after his lunch at about 14.40 hours, he had retired to his room, but his daughter Kumari Rajeshwari Saxena was in the observation room reading a book. After passing Hindaun City, this bright young lady wanted to take down some notes, but found it impossible to do so on account of the high speed of the train. She looked at the speedometer and it indicated 67 miles per hour. She looked out of the window but was unable to see anything due to the dust created by the train. After four or five minutes, the train got slow and looking at the speedometer, she saw the speed to be 50 miles per hour. She took out her pen to commence writing when there was a sudden braking accompanied by screaming noise of the brakes which continued till the ultimate bump.

47. *Possible course of events*—From the above evidence and discussion, it was obvious that between Shri Mahabirji and Fatehsinghpura, the train was running at a very high average speed of about 70 to 75 miles per hour, when the Driver came across the Down Distant signal of Fatehsinghpura at 'Caution'. It appeared that the Driver was not vigilant and cautious and he did not look out for the signals from an adequate distance and did not control his train in accordance with the indications of the signals. Perhaps he expected the signals to be 'taken off' at any moment. When he did start controlling his train, its speed was so high that adequate braking distance was not available and he passed the Outer and Home signals at 'ON' and collided with No. 1118 Up Goods train which was at that time coming to a stop on the Loop Line.

48. In his evidence, the Driver made a mention of his attempt to reverse his lever, when he found that the train was not decelerating fast enough. According to the District Mechanical Engineer, when he saw the engine, he found the lever in the reverse and the ejector handle was in the 'ON' position. On the other hand, the Loco Foreman stated that reversing lever was in mid-gear and the ejector handle was in the 'ON' position. This conflicting evidence showed that these witnesses did not carefully note down the positions of the engine controls when they inspected the engine after the accident. Further, there was no evidence of the Driver or the Firemen having made any mention of their reversing the levers, to any of the several Railway Officials at the site of the accident. Station Master, Fatehsinghpura stated that he did not notice any steam coming out of the cylinder cocks of the Mail train engine, which would have been the case if the lever had been reversed and the regulator opened.

I consider that apart from the statements of the engine crew, there was no evidence to show that the Driver had reversed his reversing lever before the accident. But even if he had done so, it would not have made much difference, because of the very high speed of the train and the late application of the brakes. Further this could not exonerate the Driver from his violation of the General Rules referred to earlier.

49. Driver D'Souza was 49 years of age and was appointed as a Fireman in 1924 and was promoted as Driver in 1941. His Service Sheet records 12 entries of punishments, of which 4 were for 'time failure' of engines, one for proceeding to Shed without a tail lamp and one (on 20th May 1953) for passing a "Stop Dead Indicator" at Danger by about 270 feet. He last passed his periodical eye sight test in Class A on 6th October 1953 and at the time of the accident, his eye sight test was overdue by 5 months. He was sent for this test after the accident and passed it in Class A. Driver D'Souza's duty hours for the fortnight preceding the accident were scrutinized and it was noticed that he had not put in any long hours which might have caused him fatigue and impaired his efficiency.

50. *Question of setting of Facing Points when two trains are to cross on the Single Line.*—At Fatehsinghpura, the Loop Line was provided with a Snag Dead End at Gangapur City end and adequate distance in the shape of a Dead End Siding at Bayana end. If the interlocking was slightly altered, it would be possible, in the case of crossing of trains, to receive an up train on the Loop Line with the trailing points set for the Snag Dead End and to set the Down Facing Points for the Main Line. With such a setting of the points, the accident under Inquiry would have been avoided as the Frontier Mail would have come on to the Main Line instead of on the Loop Line on which the up train was being received.

This practice of setting of Facing Points for the respective trains when two trains were to cross was already in force on non-interlocked stations on several Indian Railways and even at interlocked stations on a few Railways (e.g. Central Railway).

51. This question was taken up by the Chief Government Inspector of Railways with the Railway Administrations during his Winter Tour in 1949—50 and he had recommended that when trains were to cross at stations on the Single Line, the Facing Points should be set for the respective lines on which each train was to be received. Though the Railways generally agreed with the principle of this recommendation, they were reluctant to adopt it at interlocked stations either on grounds of extra expenditure involved or for the reason that under certain circumstances a side collision could still take place near the trailing end of the station. The ex-B.B. & C.I. Administration accepted the suggestion as being 'a very desirable course of action' but stated that they would have to look into the matter of what it was going to cost. It appears that no further action was taken in this matter.

One objection that was put forward against the proposal was that this would lead to an increase in another type of accidents i.e. the failure of Drivers of trains received on the Loop to come to a halt at the Starter signal and to go into the Sand Hump. As the speed of trains coming on to the Loop Line was supposed to have been reduced to 10 miles per hour while taking the turnout at the Facing end, the chances of Drivers failing to stop at the trailing end were remote; and even in case of a failure, the resulting damage was not likely to be heavy.

In any case, this procedure was already being followed by Railways where the interlocking permits simultaneous reception of trains and this practice was likely to grow with the increase of traffic.

52. The practice on the Central Railway meets with the objection referred to above, as under the procedure followed on that Railway, if only one train was to be received, the trailing points were set in favour of this train but if two trains were to cross, the trailing points were set for the Snag Dead End.

53. *Brake power of trains and means of testing* —From the evidence of the train crews and the Train Examining Staff, it appeared that there was some laxity in the matter of ensuring efficient brake power for trains. Some Drivers started their trains from stations with only 14 to 15 inches of vacuum as according to them, the vacuum increased after running a short distance. The signing of the 'TXR Vacuum Book' was considered just a formality, as on examining a few of these books, I noticed that in several cases, the amount of vacuum had not even been entered in these books. No record was kept of the amount of vacuum in the Guard's Brakevan. Nor was any record kept of the number of 'operative' pistons on a train. Therefore, apart from the amount of vacuum on the engine, the Driver did not have full information about the brake power of his train. Cases have occurred in the past of trains leaving stations with the vacuum hose pipes of the tender plugged on to the dummy and the existing conditions appeared to be favourable for such occurrences.

54. I attended a vacuum test of the coaches of No. 31 Down (which had met the accident) at Bombay Central on 29th March and was surprised to find that for about one hour the staff were unable to create more than 11 inches of vacuum in the rake while the gauge on the Exhauster was registering 20 inches. This was probably due to the fact that on account of the absence of cocks at suitable places on the pipe line, there were no means of isolating the vacuum over small areas of the yard. It was noticed that when the vacuum in the rake was 11 inches, its destruction did not actuate the brakes.

It appeared to me that in actual practice, the performance of the vacuum cylinder pistons and of the brake rigging was not being properly tested before the trains left Bombay Central.

55. Under my instructions, a Braking Test was carried out on 26th March with No. 31 Down Frontier Mail while she was approaching Fatehsinghpura, at a speed of about 55 miles per hour. The regulator had been shut in rear of the Distant signal and the vacuum was completely destroyed and brought down to zero while passing the Distant signal and the steam brake was also simultaneously applied. The braking distance was measured to be 3120 feet. The load of the train was 12 coaches and its total weight 742 tons. Its calculated brake power was 494 tons. According to the usual

calculations and assuming the efficiency of brake rigging as 85% and allowing for 2 seconds for the application of the brakes, the train should have come to a stop in a distance of about 1966 feet. Thus the actual braking distance was 59% more than what it should have been. This test confirmed the opinion expressed by me in the previous paragraph, that satisfactory procedure did not exist for testing and checking the brake power of trains in actual practice.

The spacing of the signals was based on the braking distances of the trains and if the efficiency of the brakes were to deteriorate, it would obviously affect the ability of the Drivers to control their trains properly.

56. *Examination of trains before leaving originating stations.*—According to the records at Bombay Central, the rake of No. 31 Down (which had met with the accident) had been thoroughly inspected before the train left Bombay. When the train was examined at Gangapur City, it was noticed that one axle box bolt was deficient on Coach No. 1680, a brake beam safety bracket had broken on Coach No. 1781 and a brake block had fallen out during the journey from Coach No. 3082. Falling of a brake block during the journey is a serious matter as such occurrences have, in the past, resulted in derailments of trains attended with serious consequences. I cannot help feeling that the examination of the rolling stock of this rake by the Train Examining Staff at the originating station did not receive efficient and conscientious attention which requirements of safety demand.

57. *Failure to record the first statements of the staff involved.*—It was noticed that though the District Traffic Superintendent and the District Engineer were travelling by the train involved in the accident and the District Mechanical Engineer arrived shortly by a Relief Train, no attempt was made by anyone to record the preliminary statements of the Driver and the two Firemen who were fortunately uninjured. Such delay in recording the first version of the persons concerned, about the circumstances of the accident, sometimes results in true facts being suppressed during subsequent enquiries.

#### IV. CONCLUSIONS

58. *Cause of the accident.*—I find that the accident to No. 31 Down Frontier Mail at Fatehsinghpura station at about 14.50 hours on 21st March 1955 was due to excessive speed of the train and the failure of the Driver to control his train well in rear of the Distant signal at 'Caution', thus resulting in his running fast the Outer and the Home signals in the 'ON' position and colliding with No. 1118 UP Goods train which was at that moment, coming to a stop on the Loop Line and which had been properly received on clear signals.

59. *Responsibility.*—I consider Driver D'Souza responsible for the accident in that he drove his train at a speed much in excess of the maximum permissible speed and failed to regulate and control the running of his train in accordance with the Working Time Table, thus violating General Rule 89(a) & (b).

The Driver did not keep a good look-out and failed to see the Distant signal from an adequate distance, thus violating General Rule 122.

He further violated General Rule 76(a) in that he did not obey the Distant signal at 'Caution' and the Outer and the Home signals in the 'ON' position and ran past these signals.

60. *Relief Arrangements.*—The Relief arrangements were prompt and adequate, and medical aid was made available within 1½ hours of the accident.

The arrangements made for the onward journey of the train, after the accident, were also satisfactory.

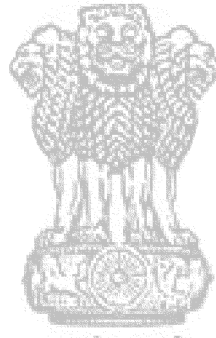
Yours faithfully,

R. C. SOOD

GOVERNMENT INSPECTOR OF RAILWAYS.

Bombay, dated 18th April 1955.

NOTE—Driver D'Souza was prosecuted in this case but was acquitted by the Court  
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To

THE SECRETARY TO THE GOVERNMENT OF INDIA,  
MINISTRY OF COMMUNICATIONS,  
NEW DELHI

(Through the Chief Government Inspector of Railways)

SIR,

*Reference to orders*—In accordance with Rule 9 of Railway Board's Notification No. 1926-T of 19th March, 1930, I have the honour to submit herewith the result of my inquiry into the circumstances of the accident to 348 Down Passenger at mile 83/12-13 between Rampura Phul and Tapa stations on Rajpura-Bhatinda section of Northern Railway which occurred at about 0.20 hours on 5th October, 1955.

2. *Inquiry held*—The inquiry into the accident was held by me at Bhatinda Railway Station from 8th to 11th October, 1955. I inspected the damaged coaches and the site of occurrence in company with the Divisional Superintendent, Delhi, and the Deputy Chief Engineer (Central), Northern Railway, on the 8th, prior to the commencement of the inquiry and again on 9th and 10th October, 1955. The following officers were present at the inquiry:—

- (i) Shri Ghansiam Dickshit, Divisional Superintendent, Delhi.
- (ii) Shri D.N. Chopra, Deputy Chief Engineer (Central).\*
- (iii) Shri T.A. Rao, Divisional Engineer, Delhi Division.

The Superintendent, Government Railway Police, Patiala, met me at Tapa on the 8th when I visited one injured person in the Tapa Civil Dispensary and he deputed his Sub-Inspector to remain at Bhatinda to render any assistance necessary. The Magistracy was informed and nobody actually attended the inquiry but the Assistant Commissioner, Bhatinda, accompanied me on the 10th for the inspection of the breaches around Phul.

3. *Description of the accident*—(a) On the night of 4th and 5th October, 1955, No. 348 Down Passenger train was proceeding from Rampura Phul station towards Tapa slowly, on Caution Order, at 10 M.P.H. due to the track being weakened by heavy rain and also on account of rush of water through Bridge No. 236 at mile 82/16-17. The train was being piloted from engine by the Assistant Permanent Way Inspector, Rampura Phul, who after passing over Bridge No. 237 stopped the train at Bridge No. 236, examined it, and passed over the bridge safely. The train was again stopped by the night Patrolman at mile 80/9 as the line ahead had breached due to rush of water. The train was, therefore, unable to go forward any more and it was decided to bring it back to Rampura Phul and then to Bhatinda.

(b) The Guard and the Assistant Permanent Way Inspector then rode on the foot-board of the last coach and the train started backing slowly on the signal given by the Guard. The Brakesman was on the look out for the Guard's signal and was manning the brakes in the Guard's Brakevan, which was the third coach from the rear. The train thus backed slowly and after it had stopped short of Bridge No. 236, the Assistant Permanent Way Inspector examined the bridge again and cautiously passed the train over it safely. As the Assistant Permanent Way Inspector knew that the section behind was all right he jumped onto the engine in motion. While further backing slowly the Guard was still on the foot-board of the last vehicle, watching the track and signalling to the Driver, and the Brakesman was in the Brakesvan, as mentioned above, until the train came at mile 83/12-13 over Bridge No. 237, which suddenly collapsed under the leading vehicle. The last vehicle bumped against the earthen bank behind the far abutment. The two rear-most vehicles fell into the breach caused in the bank by the failure of the bridge, while the rest of the coaches remained on the rails.

NOTE:—(i) The terms 'right' and 'left', 'front' and 'rear' mentioned in the report have reference to the direction of travel of 348 Down.

(ii) There are 20 Telegraph posts per mile on this section.

4. *Casualties*—I regret to state that as a result of the accident four persons died and four persons were hurt, the injuries of one being grievous.

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\*Present on 8th and 9th only.

5. *Composition of the train*—The train consisted of 8 bogie coaches, hauled by an XA—1 class engine. The vehicles were marshalled on the train in the following order:—

Engine No...	..	..	2674	XA/I (4—6—2)
NR 'T'	..	..	2586	44 tons
NR 'T'	..	..	2889	44 tons
NR FSQ	..	..	522	44 tons
NR SYTY	..	..	2152	44 tons
NR 'T'	..	..	2576	44 tons
NR TLR	..	..	4962	44 tons
NR TPPQ	..	..	2285	39 tons
NR 'T'	..	..	2900	44 tons

The total length of the train including the engine was 620 feet; its weight and brake power were 428 tons and 210 tons respectively. The train was fully vacuum braked.

6. *Damage*—(a) Bridge No. 237, which consisted of two spans of 6'—0" R.C.C. Slab, had completely collapsed. Its pier remained structurally sound and complete with the concrete foundation but had sunk and shifted bodily towards the down stream side by a distance of about 9 feet. The top of the pier which was horizontal before the accident, tilted towards down stream side making an angle of about 20 degrees with the horizontal. The two abutments, partly broken but otherwise complete with their concrete foundation, also shifted towards the down stream side and were standing on either side of the pier. The R.C.C. Slabs were quite close to them. The scour, as noted after pumping out water, was found to be approximately 80 feet in diameter, with about 10 feet depth below ground level but there was a local pocket, slightly towards the north of the track alignment, which was about 20 feet deep below ground level.

(b) The last two bogie coaches were in the above scoured pit. The rear-most bogie did not suffer much damage in the accident but it telescoped into the postal van, which was marshalled next to it and smashed up half of it. The obstruction caused by these two coaches made the turbulent water to scour the bank further and the breach thus became 110 feet long. The track for that length was consequently broken up. The total cost of damage is as under:—

						Rs.
Rolling stock	--	--	..	..	..	19,750
Permanent Way	..	संयोजन नयते	..	..	..	4,700
Bridge	..	..	..	..	..	5,000
Total						29,450

7. *Construction of the coaches*—The coaches had steel under-frames with wooden bodies. They had timber casing inside and steel panelling outside. The vehicles had central couplers of standard type with side buffers.

8. *Number of persons travelling in the train*—It has been estimated that about 125 passengers were travelling in the train at the time of the accident.

9. *Description of the accident*—(a) The country around the place of occurrence is open and gently undulating with sand dunes. There is no cultivation in the immediate vicinity but cotton is usually grown from about half a mile away. There are sand dunes on both up and down stream sides of the bridge.

(b) The bank at the site consists of sandy soil and is 7 feet in height. The railway line here runs on straight alignment and level grade from East to West, Tapa being on the East and Rampura Phul on the West side.

(c) The mileages of the various stations of interest in the report are—

Delhi ..	..	0 mile	}	Delhi-Ferozpur Main Line.
Bhatinda ..	..	185 miles		
Bhatinda ..	..	107/16 miles		
Rampura Phul ..	..	87/14 miles		
Site of accident—	..	83/12-13 miles		
Bridge 237			}	Bhatinda-Rajpura Branch Line.
Jethuke ..	..	82/10-11 miles		
Tapa ..	..	79/8-9 miles		
Patiala ..	..	15/15-16 miles		
Rajpura ..	..	0 mile		
Ambala Cantt. ..	..	155 miles	}	Ludhiana-Saharanpur Main Line.
Rajpura ..	..	138 miles		

(d) The Divisional Headquarters of the section are at Delhi where the Divisional Officers are posted. The Control Office is also located at Delhi and it connects the stations up to Bhatinda, but Bhatinda-Rajpura Section is non-controlled. The means of communications on this length is by telegraph on Morse Instruments. Through wire and also train wires are provided on the section. One Assistant Engineer and one Assistant Surgeon are posted at Bhatinda. The break-down train is also stationed there.

10. *Weather*—It was cloudy at the time of the accident and there was occasional drizzling with moderate wind.

11. *Relief arrangements*—(a) The accident occurred at 00/20 hours on 5th October, 1955, and the Guard issued an Accident Memo and sent it at 00/45 hours through the Trolleyman of the Assistant Permanent Way Inspector, who reached Rampura Phul on foot at 2/20 hours. The Assistant Station Master, Rampura Phul, transmitted the accident message to the Assistant Station Master, Bhatinda at 2/40 hours, while Assistant Traffic Superintendent No. 1, Delhi, happened to be in the A.S.M. Bhatinda's room. The Chief Controller, Delhi, was immediately informed at 2/43 hours and the Loco Shed, Bhatinda was asked to turn out the Relief Train at 2/45 hours. The Relief Train left Shed at 3/12 hours and arrived at the station at 3/15 hours. This train left Bhatinda, at 3/43 hours with Assistant Traffic Superintendent No. 1, Delhi, Assistant Surgeon, Loco Foreman, Permanent Way Inspector, Inspector, Watch and Ward and Head Train Examiner, Bhatinda, with their staff. The train arrived at Rampura Phul at 4/15 hours. As the track beyond Rampura Phul was flooded and was suspected to be unfit for the train to pass, the Assistant Traffic Superintendent, the Permanent Way Inspector, the Assistant Station Master etc. left Rampura Phul on foot at 4/35 hours for the site of the accident. The Permanent Way Inspector en-route checked up the track and certified it as safe for a very slow speed, whereupon the Relief Train started for the site of the accident from Rampura Phul at 5/40 hours. It arrived at the site of the accident at 6-25 hours at a slow speed. The Permanent Way Inspector, Assistant Surgeon, Train Examiner and their staff crossed over the site of the breach by crawling over the semi-submerged bogies and went to Tapa side to help the injured.

(b) Soon after the accident the Guard and his Brakesman rendered First Aid to the injured with the equipment of the First Aid Box in the Brakevan. The Assistant Surgeon and his party on arrival at site gave further medical assistance to the victims. The Permanent Way Inspector uncoupled and left the derailed coaches at the site and brought the train forward to Jethuke with the passengers in it. Due to a breach at mile 80/8-9 the train was not able to go to Tapa station ahead. The Permanent Way Inspector, therefore, took most of the stranded passengers to Tapa across the breach on his trolley. The train was thus empty by about 12-00 hours, the same day. As the train was trapped between the two breaches no suitable assistance by the Railway to the passengers could be rendered except evacuation to Tapa as mentioned above. Light refreshment, however, in the form of tea was served by the villagers of Jethuke to the passengers.

(c) 3 persons were given medical treatment for minor and one for serious injuries. The District Medical Officer, Delhi, arrived at the site at 14-50 hours and he also examined the injured at Jethuke. The persons with minor hurt went away after receipt of medical treatment. The Assistant Surgeon, Bhatinda, kept the seriously injured passenger in an Upper Class compartment of the train at Jethuke and remained with him to give him necessary help. After the water at the breach at mile 80/9 had gone down a bit the patient was removed to the Civil Dispensary, Tapa, on a charpoy at 15-30 hours. This passenger could not be sent to Patiala for X-Ray as there was a breach further on east of Tapa. Persistent attempts were made to fill up the breach but the strong current foiled them. However, by the 8th it was possible to partially close the breach and the injured man was removed across the above breach on a charpoy accompanied by a Railway Doctor and sent to Patiala for examination and treatment.

(d) About 20 to 30 passengers who just after the accident came out of the train and went over to Rampura Phul side, were taken to Rampura Phul in the Relief Train. Their tickets were made available for their destination by the longer route and they were sent at 10/25 hours to Bhatinda by the first passenger train running between Rampura Phul and Bhatinda.

(e) Through communication was restored by laying a diversion at 23-35 hours on 14th October, 1955. Until then the traffic remained suspended.

## SUMMARY OF EVIDENCE

12. SHRI HARI RAM, Driver of the ill-fated train stated that on the night of 4th October, 1955, he left Rampura Phul station with Line Clear along with a Caution Order to proceed at 10 miles per hour between mile 82/18 and 82/14. The Assistant Permanent Way Inspector who rode his engine stopped him, examined the bridge at the above mileage and thereafter came on his engine again and asked him to proceed ahead at a slow speed. He was then stopped at mile 80/9 by exhibition of red signal by the patrolmen. Water was found running over the track ahead and the bank there appeared to have been washed away to the depth of 5 feet. He then backed his train slowly. After he had thus proceeded 10 to 12 telegraph posts beyond a bridge at mile 82/18-19 he felt a slight jerk and stopped the train by applying vacuum brakes. He got down from his engine and proceeded to the rear when he saw that the last vehicle and also a portion of the next vehicle were in water. The Guard came from the rear of the train by walking over the roof of the bogies. He stated that although it had rained on his journey there was no rain at the time of the accident and the visibility was not bad. He could see for a distance of 2 to 3 carriage lengths. The clouds had broken in places and moonlight was filtering through to certain extent. In reply to another question he said that after leaving Rampura Phul he came across six patrolmen. One man was at the bridge where the accident occurred, two men at the bridge which was examined by the Assistant Permanent Way Inspector and three men at the site where the bank had breached and where he was stopped. When questioned he said that on his forward journey there was not much water flowing under the bridge where the accident occurred. The speed of the train before the accident, according to him, was 5 miles per hour.

13. SHRI HAR BHAJAN SINGH, Guard, said that his train No. 348 Down, left Rampura Phul at 22.17 hours on 4th October, 1955 with a Caution Order. The train was stopped at mile 80/9 by the exhibition of red signal by gangmen at about 23.00 hours due to the track having breached. He and the Assistant Permanent Way Inspector then went to the last vehicle after telling the Driver to go back at walking speed and he signalled the train to move back. He remained standing on the right foot-board of the last vehicle and was examining the track visually and signalling the Driver while the train was backing at a walking pace. When the rear-most vehicle was passing over bridge No. 237 he saw nothing unusual with the track but soon after he felt a jerk like an earthquake. He shouted to the Brakesman who was standing on the foot-board of the brakevan to apply vacuum brakes and he felt the rear bogies striking against the bank. He jumped onto the bank and saw the two rear bogies fallen in water. The passengers were coming out through the windows and jumping on to the bank on the Rampura Phul side. He went up to the roof and walked over it and reached his brake van by crossing the breach. First Aid was then given to the injured persons by himself and his Brakesman.

14. SHRI RAM ASRA, Assistant Permanent Way Inspector, stated that on 4-10-55 he carried out trolley inspection of certain lengths and also piloted certain trains on his section. The same night he piloted from the engine train No. 348 Down which left Rampura Phul at 22.20 hours. His train was then stopped at mile 80/9 by fog signals. Seeing that the bank ahead had breached, it was decided to take the train back to Rampura Phul. He and the Guard then rode in the last compartment of the train. The Guard with a hand signal lamp was on the right foot-board giving signals to the Driver, while he was on the left foot-board. The train stopped short of bridge No. 236 where the patrolmen showed red signal. He inspected the bridge and found it to be safe. He passed the train very slowly over the bridge and when the engine had crossed the bridge he jumped onto the engine. As he knew the section behind was all right he did not want to detain the train by stopping it and going into the last compartment. While further backing slowly at a speed from 4 to 5 miles per hour a small jerk was felt and he thought that the Guard might have applied vacuum brake and so he immediately came out. He went to the rear and found that two rear bogies were lying in a breach. Shortly after he saw a hand signal lamp showing white light on Rampura Phul side of bridge No. 237 about 8 telegraph posts away. After leaving Rampura Phul by 348 Down he saw 2 patrolmen at mile 85/13-14 and 2 men near bridge No. 237. In reply to a question as to why he did not stop at bridge No. 237 and examine it every time as he did for bridge No. 236 he stated that there was nothing wrong with bridge No. 237 which he had examined earlier while trolleying. The depth of water under this bridge when he passed it on his forward journey by 348 Down was about 1'-6" and there was no sign of any more water rushing in.

15. SRI DUKHAI, Gangmate of Gang No. 22, stated that he and five of his gangmen patrolled the whole length of his beat from mile 83 to 87. There was nothing wrong with the section he stated. When the Assistant Permanent Way Inspector piloted



train No. 348 from Rampura Phul he was very near bridge No. 237 along with Bhola Singh. He went right upto the end of his beat—mile 83—and then returned to mile 87. It was only when he had gone back from mile 87 to 83 once again that he saw the accident, very early in the morning. When passing train No. 348 Down over bridge No. 237 there was about 1'-3" of water below the bridge. In reply to questions he said that water was coming to the bridge from the high ground situated on the north of the bridge and therefore there was not much water along the railway line. He stated that this bridge had no flooring.

16. SHRI CHEDDI RAM, Gangman of Gang No. 22, stated that his patrolling duty started at 6 O' clock in the evening of 4-10-55 along with Bhola Singh and his beat was from mile 83 to 85. He and Bhola Singh patrolled from mile 85 upto mile 83 and on their return journey Mate Dukhai met them at mile 84/14-15. He and Bhola Singh examined bridge No. 237 from underneath during both the journeys across the bridge. There was about 1 foot of water flowing and there was nothing wrong with the bridge. The Mate took Bhola Singh with him and went towards mile 83 leaving Cheddi Ram to patrol the rest of the section. He reached mile 85 and returned when he met Bhola Singh and the Mate at mile 84/11 and accompanied them back to mile 85. The Mate then went to mile 87 leaving him and Bhola Singh to proceed towards mile 83. When he was at mile 84/1-2 he heard a low sound as if a tree had fallen. Strong wind was blowing at the time and there was slight drizzling. On hearing the sound he and Bhola Singh ran towards mile 83 and saw the accident.

17. GANGMAN BHOLA of Gang No. 22 stated that on the night of 4/5th October, 1955 he and Cheddi started patrolling at 18-00 hours from mile 85 towards mile 83. As that was the beat allotted to them they went to mile 83 and returned towards mile 85. When they were at about mile 84/15-16 Mate Dukhai met them. As the Mate wanted to patrol the section Bhola Singh returned with the Mate towards mile 83 leaving Cheddi behind. On their way they examined bridge No. 237 where there was about 1 foot of water under the bridge. There was no scour. They waited for train No. 348 to pass the bridge and thereafter they followed the train and reached mile 83 and returned towards mile 85 again examining bridge No. 237 on the way. Near about mile 84/11-12 they met Cheddi after which all three of them went towards mile 85. The Mate left them at mile 85. When they were at mile 84/1 he heard a sound as if a tree had fallen. He then ran towards mile 83 and saw the accident over bridge No. 237.

18. SHRI OM PARKASH, who was the First Fireman on the engine of 348 Down ex-Bhatinda on 4-10-55 more or less corroborated the statement of Driver Hari Ram. Regarding the visibility he said that the objects could be seen upto a distance of about 150 ft. According to him the speed of the train at the time of the accident was  $2\frac{1}{2}$  to 3 miles per hour.

19. SHRI PHAGAN RAM, stated that he was the Brakesman of 348 Down of 4-10-55 ex-Bhatinda. The train stopped at bridge No. 236 and then passed over it slowly. Near about Tapa Outer Signals the train was again stopped after exploding the fog signals. Some Gangmen came to Guard asking him to go to the engine which the Guard complied with. On return the Guard told him that the train was to be backed and that Phagan Ram should remain on the foot-board of the Brakevan while the Guard should go to the rear-most compartment of the train. The Guard also told him to apply vacuum brake in case the Guard showed red light. While backing he applied vacuum and stopped the train after he had seen the signal of the Guard at the gate lodge and then at bridge No. 236. At the place of the accident he heard some sound and then the Guard shouted to him to apply brakes which he did. He then got down but could not find the Guard who after 4 or 5 minutes came to the Brakevan via the roof. Regarding the weather he stated that the clouds had just broken then and he could see the farthest end of the rear bogie.

## DISCUSSION

20. *Time of the accident*—According to Guard Harbhajan Singh, the accident took place at 0-20 hours on 5th October, 1955. This has also been corroborated by Driver Hari Ram and therefore I accept that time as correct.

21. *Speed of the train*—The speed of the train before the accident has been given by Driver Hari Ram as 3 miles per hour, by the Guard Harbhajan Singh as 3 to 4 miles per hour, by the Assistant Permanent Way Inspector Ram Asra as 4 to 5 miles and by Fireman Om Parkash as  $2\frac{1}{2}$  to 3 miles per hour. Shri Tilak Ram, a wool merchant, described the speed of the train at the time of the accident as very slow while Head R.M.S. Sorter Shri Partap Singh said that the train was moving at a little more than the walking speed. I, therefore, consider that the speed of the train was about 5 miles per hour. So, high speed can be ruled out as a possible cause of the derailment.

22. *Defective engine & rolling stock* — Except for the last two vehicles none got derailed and therefore the question of any defect in the underailed vehicles does not arise. The engine and all the vehicles were, however, inspected in detail and none revealed any defect that could cause a derailment.

23. *Defect in permanent way*—(a) The permanent way consisted of 75 lbs. rails F.F., 30' long fastened by 18 inches long fishplates held by 4 fish bolts  $1\frac{1}{8}$  inches in diameter. Treated chir sleepers with W.I. bearing plates were laid with density N+1 in 1944. Ballast consisted of a mixture of brick and stone which penetrated upto 6 inches below the sleepers.

(b) Cross levels and gauge were checked and they were generally found to be correct within  $\frac{1}{16}$  inch except that in one or two places there were variations upto  $\frac{1}{8}$  inch. There was no sign of subsidence of the bank and the general standard of maintenance of the track was good. The Permanent Way Inspector had trollied over the section on 4-10-55 when he found nothing wrong with the track. The Assistant Permanent Way Inspector also had passed over the spot several times on 4-10-55 but noticed nothing abnormal at that mileage. I, therefore, consider that there was nothing wrong with the permanent way that could contribute to the derailment.

24. *Cause of the derailment*—(a) It will be seen from the above that the accident was not brought about by any defect in the engine, rolling stock or in the permanent way. The speed of the train was extremely low to cause the derailment. There was also no evidence of any obstruction nor was any suggestion of sabotage.

(b) It would appear clear from the evidence of the Guard, the Driver, the First Fireman, the Assistant Permanent Way Inspector and the Brakesman that while 348 Down was backing slowly at bridge No. 237, the last two vehicles suddenly derailed and fell into a breach. The Guard riding on the last vehicle, saw nothing unusual with the track.

(c) After the accident the pier of the bridge was found washed away by a distance of about 9 feet on the down stream side, along with the abutments which had sunk by about 13 feet. A subsequent survey revealed that there was about 5 feet depth of water under the bridge which had spread over a wide area. Broken parts of the derailed coaches were found about 400 feet away from the bridge on the down stream side, evidently carried away by the flow of water. The current was so strong that it eroded an appreciable portion of the sand dune situated on the down stream side. The site of bridge No. 237 (2 spans of 6 feet) developed into a breach of about 110 feet long indicating discharge of a large volume of water at high velocity.

(d) It therefore became evident that the foundations of the bridge had been scoured by the flood and the pier and the abutments remained probably in a partially supported state. When train No. 348 Down just backed over the bridge, the pier and the abutments gave way and got washed down by the heavy flood.

25. *Rainfall record*—(a) The rainfall record of Phul village,  $4\frac{1}{2}$  miles distant from the site, was obtained in connection with this accident. It was noticed that the total rainfall in the calendar years 1952, 1953 and 1954 was 11.59 inches, 16.13 inches and 6.7 inches respectively. The average annual rainfall therefore works out to 11.47 inches.

(b) The rainfall from January to September, 1955, totalled 11.64 inches. The daily rainfall from 1st to 6th October, 1955 was—

1st October	—	Nil.
2nd "	—	0.32 inches.
3rd "	—	1.50 "
4th "	—	4.80 "
5th "	—	8.10 "
6th "	—	0.50 "

The total rain in 1955 upto 6-10-55 works out to 26.86 inches.

(c) The above rainfall was recorded at 08.00 hours every morning and represented the rainfall during preceding 24 hours. Enquiry reveals that there was very little rain after 20.00 hours on the 4th October upto 08.00 hours on the 5th. It is therefore clear that the total rain of 12.9 inches ( $4.80 + 8.10$ ) as recorded on the 4th and 5th October fell within less than 36 hours and this is more than the average rainfall of one full year in this area. This disclosed that there was an unprecedentedly heavy rainfall shortly before the accident.

26. *Night patrolling*—(a) It may be seen from the statement of Permanent Way Inspector, Bhatinda, that on 3rd October, 1955 he ordered by telegram his Assistant Permanent Way Inspectors Rampura Phul, Bhatinda, and Mansa to patrol the line. During his trollying on 4-10-55 he saw nothing wrong with Bridge No. 237, but finding some scour at bridge No. 236 he posted two men to watch it. The Assistant Permanent Way Inspector, Shri Ram Asra, complied with the orders of patrolling the line and during his trollying in the morning of 4th October he directed the gangmen to patrol the section. He himself piloted the trains on his section apart from his trollying certain lengths. The statements of Mate Dukhai, Gangmen Bhola Singh and Cheddi describe how the actual patrolling was carried out. In fact patrolmen were found on the section by the Driver and the Firemen of the ill-fated train No. 348 Down and also by the Assistant Permanent Way Inspector who was on the engine. Even after the accident two patrolmen were noticed by the Assistant Permanent Way Inspector about 8 telegraph posts from the site of the accident. These patrolmen hurried to the site after hearing the sound of the derailment and protected the place and rendered other assistance. It is clear therefore that patrolling was in force during the night of the accident.

(b) Mate Dukhai had rendered over 28 years of service on the permanent way while Gangmen Bhola Singh and Cheddi had put in over 3 years and 5 years service respectively on the track work apart from any temporary service. So on the whole the patrol party had experienced men.

(c) The Railway Administration explained that Bhatinda-Rajpura line was not one of those sections where regular monsoon patrol is enforced annually, as rainfall is scanty in that area. On the above line, patrolling, if occasionally required, is done according to the instructions contained in para 1702 of the Indian Railways Way & Works Manual which does not require the issue of any diaries or patrol books to the patrollers. The patrolmen therefore did not exchange any diaries or such books. Their system of patrolling, as may be seen from their statements, was to divide each gang length into beats of 2 miles to be patrolled by a party of two men. Each party was to traverse several times from one end to the other of their allotted beats examining the track including the bridges for safety during the night. The assigned party had made four trips—two up and two down—over the length under reference before the accident occurred on the unfortunate night and the Mate accompanied it on the last two trips. As it was approaching bridge No. 237 on the fifth trip the mishap took place. The independent statements of each of the above three men corroborated with regard to the details of patrolling and the time and the mileage where they met and left during their duty. This also goes to confirm that they were out on patrolling work in the manner mentioned above.

27. *Did the Guard see the track sunk?*—In compliance with G. R. 91 and the relevant Subsidiary Rules of the late North Western Railway, which rules are applicable to the line, the Guard was riding on the last vehicle exhibiting signals to the Driver while backing the train slowly. The night was described by the Guard as dark and cloudy with drizzling and possibly a certain amount of moonlight was filtering through the clouds in places. Under these conditions the Guard, who was watching the line from the last vehicle, stated that he was unable to see anything wrong with the track. Evidence bears out that objects could be seen at the time from a distance of about 150 feet, but the question of visibility of discontinuity of or a sag in, the track, if there was any, in the straight length would be different. I consider its detection from any appreciable distance in such dim light would be very difficult. The bridge remaining in a semi-supported state, it is possible that there was no appreciable sag over it. Further, the deep R.C.C. slabs of the 2 spans abutting on the central pier will render certain arching effect and may to some extent support the ballast above even if the pier yields. The Guard performed his duties according to rules and did all for the safe piloting of his train. I am, therefore, inclined to accept his version that under the condition of visibility obtaining at the time he was able to see nothing abnormal with the track on the bridge.

28. *Could the Patrolmen avert the accident?*—It may be observed from para 26 that the patrolmen did go out on patrolling during the night of 4th and 5th October, 1955. When the ill-fated train, No. 348 Down, on its forward journey passed over bridge No. 237, the Driver, the First Fireman and the Assistant Permanent Way Inspector found very little water under bridge No. 237 and they stated that it did not call for any special attention. Gangmate Dukhai and Gangman Bhola Singh who patrolled the line and inspected bridge No. 237 from underneath at the time of passage of 348 Down stated that there was about 1 foot of water under the bridge. According to these witnesses there was no sign of any extra water rushing in at the time. Even on their return journey they did not find anything abnormal in the flow and therefore the routine patrolling from one end of the beat to the other was carried out. After Gangmate Dukhai had left Patrolmen Bhola Singh and Cheddi at mile 85 the latter two patrolmen then again

returned towards mile 83. It was when these two patrolmen were about 10 telegraph posts short of the bridge that the accident occurred. They were therefore unable to detect the flood and the scour at the bridge which must have occurred within a short time interval.

29. *Cause of sudden rush of water*—(a) In spite of imposition of night patrolling which functioned satisfactorily according to the rules an accident like this occurred. It is therefore necessary to scrutinise the extraneous circumstances that came into play. It may be seen from the statement of the Assistant Permanent Way Inspector, Gangmate and of the Gangmen that gang length of 4 miles was divided into half. Two patrolmen Bhola Singh and Cheddi were deputed to patrol the length from mile 83 to 85, the site of the accident being at mile 83/12-13. Gangmate Dukhai also patrolled his entire gang length from mile 87 to 83.

(b) Patrolmen (Mate Dukhai and Bhola Singh) were present when the ill-fated train passed over bridge No. 237 on its forward journey and its exact time is not known. But considering the fact that this train left Rampura Phul at 22.17 hours and the site of the accident is 4 miles away it is estimated that with cautious driving at 10 miles per hour it would have passed bridge No. 237 at about 22.45 hours. There was no abnormal flow of water at the time under the bridge. By the time the patrolmen reached mile 83 and again returned to the bridge the total distance traversed by them will be  $2 \times 8 = 16$  telegraph posts or  $\frac{3}{4}$  of a mile. This took them about 15 minutes. So they passed the bridge again at about 23.00 hours even when no extraordinary flow was noticed. The accident occurred at 00.20 hours. Therefore the sudden rush of water and its rise in level occurred during the period of 1 hour 20 minutes that intervened between 23.00 hours and 00.20 hours. It is now a matter for investigation as to what could bring about such a sudden flow within so short a period that escaped the notice of the patrollers.

(c) The general slope of the ground on the north of the bridge is from East to West with a certain cant towards south-west. The soil which is sandy got completely soaked with the rain which fell in September 1955. The unprecedentedly heavy rain that fell on 3rd and 4th October caused a heavy flow of water on the natural slope of the ground and flooded the area. The various courses which this flood water took is explained in a copy of the topographical survey map. It may be observed that Maharaj Branch Canal runs approximately North-east to South-west near the site of the accident. The embankment of this canal forms a bund across the natural slope of the area. It had breached in a number of places in the upper region by the flowing water but the slope of the ground between the canal and the railway track being favourable towards bridge No. 237, the flood water took that course through village Kararwala and the lower portion of the canal thus escaped the rigour of the flood. Earthen bunds several hundred feet long and 4 feet high were put up by the villagers for impounding water near village Kararwala. The flood water flowed partly into this reservoir and partly by-passed the bunds and went through bridge No. 237. Due to the slope of the ground coupled with the bunding action of the canal embankment, the water way was constricted and thus the velocity of flow increased which had harsh effect on the ground near village Kararwala. As long as water flows and rises gradually, it gives time to patrolmen to detect and watch the weak spots. But what happened in this case was probably that the bunded tank at Kararwala village got filled up and the violence of the on-rushing flood due to the above mentioned constriction was so great that it breached the bunds. The capacity of this tank has been calculated by the railway to be 5,64,583 cft. The torrential flow of water therefore ran towards bridge No. 237 situated at a lower level and produced violent eddy due to the extremely small waterway at the bridge for the volume of water to deal with. There being no floor under this bridge, scour started and the loose sandy soil brought about a situation that culminated in the disaster.

(d) The aforesaid bund of Kararwala village is less than three-quarter of a mile distant from the bridge and it took the flood water on the sloping ground to reach the bridge only a few minutes after the bunds had been breached. This explains how a large quantity of water flooded the site of the bridge within such a short period as 1 hour 20 minutes and scoured the bridge before it could be detected by the patrolmen. I am of the opinion that even if the above bunds had not breached, the water by out-flanking and over-topping the bunds would have come to the bridge, as there was no other outlet for this catchment area. The volume of the water being enormous and there being no flooring, the bridge foundation would have in all probability been scoured. But in that case the increase in flow and the rise in water level would have been gradual so that it could have been detected by the patrolmen and such a disaster averted.

30. *Bridge No. 237*—(a) Bridge No. 237 at mile 83/12-13 was originally built as 2 spans of 6 feet girders probably at the time of construction of Bhatinda-Patiala line in the year 1889. From 1930 onwards investigations were carried out at the instance of the Agent, late North Western Railway, Lahore with regard to the strength of piers and

abutments of bridges on the Bhatinda-Rajpura section. Lists of such bridges which were considered weak for their proposed heavier engines were prepared and sent by the Delhi Division after investigation at site. Bridge No. 236 as well as 237 figured in this list. Correspondence on the file reveals that in view of the bunds put up by the local cultivators and perhaps also due to scanty water flow, the Railway proposed to convert bridge No. 236 (2×6 ft. girder) as 3×4 feet diameter Hume pipe culverts. They also wanted to close down one of the two spans of bridge No. 237 but this was not acceded to by the erstwhile Patiala Government.

(b) Bridge No. 236 which was identical to bridge No. 237 was rebuilt and converted into 2×6 ft. R. C. C. Slab bridge with proper flooring and drop walls. Bridge No. 237 was thereafter converted into R. C. C. Slab span with the same opening in 1939 and at that time the masonry of the piers and abutments were also partly rebuilt probably from the top of the lime concrete foundation. This strengthened the bridge to H. M. B. G. standard of loading. The depth of its foundation was about 4 feet 3 inches in sandy soil and no flooring to this bridge was provided when remodelled in 1939. It is however significant to mention here that during the floods of last October very nearly the same volume of water passed through both these bridges which are only 16 telegraph posts apart. Bridge No. 236 with a flooring stood the flood while bridge No. 237 without any flooring had its foundation scoured and it failed. This bears testimony to the fact that provision of a floor might have saved the bridge and averted the disaster. The last H. F. L. was exceeded by about 2 feet during the recent floods but the new H. F. L. still remained about 9 inches below the R. C. C. Slab.

31. *Discharge through bridge*—(a) There is no well defined water course through bridge No. 237. The average annual rainfall being only 11 inches and the region being sandy, there is hardly any appreciable flow through this bridge. This is probably the main reason for the proposal of the Railway to close down one of the 2 spans of 6 feet of this bridge prior to 1939. But on this occasion the unprecedented rainfall and the consequential extensive floods in the Punjab State brought heavy flow through the bridge.

(b) The observations made after the flood by the officers of the railway indicated that the approximate depths of water during the flood on the up and down stream sides were 5·55 and 3·9 feet respectively. The afflux therefore was 1·65 feet. After carrying out a survey the Railway Administration determined the catchment area for this bridge as 65 square miles and the bed slope on the upstream side to be 1 in 1,000. Since the water headed up on the upstream side of the bridge due to the breaching of a tank and of other canals in addition to the flow off from the catchment area, the Railway Administration calculated the discharge through the bridge assuming it to function as a broad crested weir. Based on the above data the Railway furnished the following calculations for discharge and the scour depth:

(i) *Velocity of approach*

According to Bazin's formula

$$V = C \sqrt{rs}$$

V = Velocity in ft./Sec.

$$C = \text{Constant} = \frac{157.6}{1 + \frac{m}{\sqrt{r}}}$$

$m = 2.36$ , for very rough-ordinary earth channels (from P. 693 P.W.D. Handbook, Bombay Vol. II)

$$r = \text{Hydraulic mean depth} = \frac{\text{Area of channel}}{\text{Wetted Perimeter}}$$

$$= \frac{B \times d}{B + 2d} = \frac{B \times 3.9}{B + 2 \times 3.9}$$

In this case 'r' has been taken 3.9 as the depth compared to width is very small.

$$S = \text{Slope} \frac{1}{1000}$$

$$\therefore C = \frac{157.6}{1 + \frac{m}{\sqrt{r}}} = \frac{157.6}{1 + \frac{2.36}{\sqrt{3.9}}} = \frac{157.6}{1 + 1.18} = 72.3$$

$$\therefore V = 72.3 \sqrt{3.9 \times \frac{1}{1000}} = 4.57 \text{ ft./Sec.}$$

(ii) *Discharge*

Bed slope = 1 in 1000

Velocity according to Bazin's formula  $U = 4.57 \text{ ft./Sec.}$

$\therefore$  Head due to velocity of approach

$$= \frac{U^2}{2g} = 0.3263$$

Assuming the flow through the bridge as over a broad crested weir

$$Q = 3.08 C_w L \left( D_u + \frac{U^2}{2g} \right)^{3/2}$$

Where  $C_w$  is a coefficient = 0.94 for narrow bridge opening with or without floor  
 $L$  = length of bridge opening 12 ft. in this case.

$D_u$  = depth upstream 5.55 ft.

$U$  = Velocity of approach 4.57 ft./Sec.

$$\begin{aligned} \text{Therefore } Q &= 3.08 \times 0.94 \times 12 (5.55 + 0.3263)^{3/2} \\ &= 3.08 \times 0.94 \times 12 \times 5.8763^{3/2} \\ &= 494.80 \text{ cusecs} \end{aligned}$$

$$\text{Velocity through the bridge} = \sqrt{\frac{2g \left( D_u + \frac{U^2}{2g} \right)}{3}}$$

$$= \sqrt{\frac{2g \times 5.55 + 0.3263}{3}} = \sqrt{\frac{2g \times 5.8763}{3}}$$

$$= \sqrt{2g \times 1.9588}$$

= 11.23 ft. Sec. which is very high for a culvert without floor.

(iii) *Scour depth*

Regime width according to Lacey's formula for passing a discharge of 494.80 cusecs

$$W = \frac{8}{3} Q^{1/3}$$

$$= \frac{8}{3} \times \sqrt[3]{494.80}$$

$$= \frac{8}{3} \times 22.24$$

$$= 59.31 \text{ feet.}$$

Normal scour depth  $D$  according to Lacey for 494.80 cusecs discharge where  $Q$  is discharge and  $f$  is silt factor

$$= 0.473 \times \left( \frac{Q}{f} \right)^{1/3}$$

Silt factor  $f$  for medium sand = 1.25

$$\begin{aligned} \therefore \text{Normal scour depth } D &= 0.473 \times \left( \frac{494.80}{1.25} \right)^{1/3} \\ &= 0.473 \times (395.84)^{1/3} \\ &= 3.473 \text{ feet.} \end{aligned}$$

As the actual waterway is very much constricted and is only 12 feet against 57.92 feet for regime conditions, the scour hole will go on deepening till the velocity depth relationship is established according to Kennedy's formula when no further scour will occur. Assuming that the velocity through the deepened parts adjacent to pier does not decrease with increase in depth of scour, it can be shown that the maximum scour depth

$$D_m = D \left( \frac{W}{L} \right)^{1.56}$$

1.56

$$\text{Maximum scour depth } 3.473 \left( \frac{59.31}{12} \right)^{1.56}$$

$$= 3.473 \times 4.943^{1.56}$$

$$= 3.473 \times 12.10$$

$$= 42.01 \text{ feet.}$$

(c) On enquiry I learn that the Public Works Departments all over India use a formula evolved by the Central Board of Irrigation for the calculation of scour depth of their bridges as below.

$$D = 0.9 \left( \frac{q^2}{f} \right)^{1/3} \quad \text{where}$$

$D$  = depth of scour for unobstructed flow

$q$  = discharge (in cft per second) per foot run of the water way

$$= \frac{494.8}{12} = 41.2 \text{ cft per second in this case.}$$

$f$  = silt factor, assumed as 1.25 for medium sand.

Then in the case under reference

$$D = 0.9 \times \left( \frac{41.2^2}{1.25} \right)^{1/3} = 9.95 \text{ or } 10 \text{ ft. below highest flood level.}$$

For an obstruction with a pier or abutment with right angled bend the maximum probable depth of scour is taken as  $2 \times D = 2 \times 10 = 20$  ft. below the highest flood level.

The above figure of scour depth, it will be observed is much less than what has been derived by the Railway and yet it was more than the depth to which the bridge was founded.



(d) The soil at the site consisted of sand to a good depth of which 20 ft. was visible in the scour hole which formed after the accident. The depth of the foundation of the bridge, as stated earlier, was 4'—3" below the bed level or 8.15 ft. below the highest flood level. This was far too little in comparison with the scour depth calculated by the methods adopted either by Railway or by P. W. D. The foundation of the bridge was too shallow for the flood and was therefore scoured by the turbulent water and the bridge collapsed resulting in the disaster.

(e) In modern bridge design, drop walls and flooring are not provided, but piers are founded either on hard strata or the foundation is taken to a depth adequately below the maximum scour depth. For a given discharge the bridge can be designed on two broad principles. Either the linear waterway is increased thus reducing the velocity of water and consequently the scour depth, when comparatively shallow foundation suffices, or, the water-way is restricted as required, when the flow becomes stronger and so also the scouring effect. The foundation in the latter case has to be made deeper so as to be adequately below the maximum scour depth. It is therefore a matter of economical balance between wider water-way with shallow foundation and narrow water-way with deeper foundation. So far as the old bridges with shallow foundations are concerned, provision of flooring will resist scour to some extent, but its efficacy has limitations in that it cannot stand very heavy floods.

(f) As regards bridge No. 237 it appears from its record that it did not suffer from heavy floods in the past. The foundations were too shallow to take the huge discharge that passed on the fateful night. The several factors that contributed to the heavy flow, as far as this could be ascertained at site, have been discussed in para 29 above. The Punjab State suffered from the ravage of country-wide floods during the period and bridge No. 237 was only one of the several bridges that failed. The cause of such widespread flood may be due to some change in the drainage system of that area or some other factors yet to be determined. The Punjab Government have set up an Emergency Committee on flood to make an accurate and scientific analysis of the cause of floods in the various areas and also to devise remedies. In this connection they appointed as a first step, a Superintending Engineer under their letter No. 10485-512/N/ch of 28-12-55, giving directives and seeking co-operation of the various organisations. Their intention is to look into the question not only from the point of view of irrigation works but also from the point of view of the whole problem including the bridges, roads and railway works. The results of this investigation will be known in due course.

32. *Precautionary Circulars.*—(a) Shortly after the Railway disaster that had occurred on 27th September, 1954, between Jangaon and Raghunathpalli Stations (Central Railway), the Railway Board issued circular No. 54/W/10/31 of 2-12-54 outlining the precautions to be observed in the inspection and maintenance of railway bridges in order to ensure safety. In compliance with the above circular, extracts of annual inspection of all bridges, where trouble had been experienced in the past, were obtained by the Chief Engineer, Northern Railway, from the Divisions. The Deputy Chief Engineers then carefully examined these reports for the last 15 to 20 years of all such bridges and inspected in person those which appeared to need their personal attention. Bridge No. 237, the Railway Administration stated, in their letter No. T/113/13 dated the 23rd February, 1956, did not come under this category, as none of the incidents detailed in the Railway Board's above circular had occurred to bring it into the class of the bridges with a 'past history'.

(b) I personally scrutinised the bridge register relating to this bridge for the inspection notes since 1929. There was no indication of heavy flood, washouts, inadequate waterway or shallow foundation. On the other hand proposals were to reduce the waterway as already stated earlier. It was found that after the pier and the abutments were rebuilt and the bridge converted into R.C.C. slab span in 1939, the bridge had a good record and hardly needed any repair. The remarks were generally 'good' and did not reveal any weakness.

33. *Conclusions.*—After due investigation I come to the conclusion that the derailment of 348 Down on the night of 4th/5th October, 1955 between Rampura Phul and Tapa stations of the Northern Railway was caused by the collapse of bridge No. 237 and this was brought about by the scouring action of floods that emanated from unprecedentedly heavy rainfall in that area. I do not hold any one responsible for the accident or for not averting it. The relief measures under the circumstances were satisfactory.

Yours faithfully,

CALCUTTA :

Dated the 22nd November, 1955.

A. K. GUPTA

Government Inspector of Railways,  
Lucknow (at Calcutta).



GOVERNMENT OF INDIA  
**MINISTRY OF COMMUNICATIONS**  
(RAILWAY INSPECTORATE)

# RAILWAY ACCIDENTS

## REPORT

on

HEAD-ON COLLISION

of

**DOWN PASSENGER AND DOWN GOODS**

between

**KATIHAR WEST AND SEMAPUR**  
(NORTH EASTERN RAILWAY)

**ON**

**7th JANUARY 1956**



## SUMMARY

Date	..	..	7-1-1956.
Time	..	..	3-10 Hours.
Railway	..	..	North Eastern Railway.
Location	..	..	Mile 4/17-18 T.P. Lucknow-Katihar Main Line.
Kind of accident	..	..	Head-on collision.
Trains involved	..	..	(a) Passenger. (b) Goods.
Train Number	..	..	(a) No. 520 Down. (b) No. 808 Down.
Engine Number	..	..	(a) No. 813 P.C. (b) No. 1049 WD.
Consist	..	..	(a) 12 Bogie Coaches. (b) 64 vehicles (equivalent to 69 4-wheel units).
Estimated speed	..	..	(a) About 10 m.p.h. (b) About 6 m.p.h.
Operation	..	..	Absolute Block System (Neale's Ball Token Instruments).
Track	..	..	Single line (3'—3·3/8" Gauge), straight, level.
Weather	..	..	Foggy.
Casualties	..	..	Killed—11. Injured—7 Grievous. 11 Simple.
Cause	..	..	Non-compliance with the rules by the station staff.

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To

The Secretary to the Government of India,  
Ministry of Transport & Communications,  
(Department of Communications),  
New Delhi.

Through : The Chief Government Inspector of Railways, Simla-3.

Sir,

I submit herewith the result of my inquiry into the head-on collision between No. 808 Down Goods and No. 520 Down Haldibari-Manihari Passenger trains at mile 4/17-18 T.P. between Katihar West and Semapur stations on the Lucknow-Katihar Main Line of North Eastern Railway (M.G.) in terms of paragraph 9 of Railway Board's Notification No. 1926-T. dated 19-3-30.

The first intimation of the accident was received by me on 7-1-56 by a telegram at Moghalsarai, where I was on a tour of inspection. Cancelling further inspections, I proceeded to Katihar to hold my Inquiry into the above accident.

2. The site of the accident was inspected by me on the afternoon of 8th January 1956 and evidence of witnesses was recorded at Katihar and in the Civil Hospital, Purnea, on 9th and 10th January 1956.

Evidence of 24 witnesses was recorded besides the statements in writing received from the Railway Officers concerned. The pivotal witness in the accident was the Assistant Station Master, Katihar West, but he absconded and even the Police have not yet been able to trace him. In his absence I have obtained his statement which he made to the Assistant Traffic Superintendent soon after the accident.

The Police and Magistracy were informed and their representatives attended the Inquiry. The following officers were present:—

- (1) Shri R.D. Singh, I.P., Superintendent of Police, Purnea.
- (2) Shri V. Ram, Deputy Collector, Katihar.
- (3) Shri S. P. Sinha, Deputy Superintendent of Police, Govt. Rly. Police.

Note :—The above officers attended on the 9th January 1956. Representative of the Superintendent of Police was present on 10th January 1956 also.

- (4) Shri Ranjit Singh, Regional Superintendent, N.E. Rly., Mazaffarpur.
- (5) Shri A. K. Gupta, Regional Transportation Superintendent, N.E. Rly., Pandu.
- (6) Shri H. L. Khanna, Deputy Chief Mechanical Engineer, N.E. Rly., Gorakhpur (on 9th).
- (7) Shri R. N. Bose, District Engineer, N.E. Railway, Mansi.
- (8) Shri Sita Nath, District Mechanical Engineer, N.E. Rly., Katihar (on 10-1-56).!
- (9) Shri A. K. Chatterjee, District Mechanical Engineer, N.E. Rly., Sonapore (on 10-1-56).

3. *Description*—On 7-1-56, No. 808 Down Goods was given line clear at Semapur and left that station at 2.50 hrs. for Katihar West. No. 520 Down Haldibari-Manihari Ghat Passenger Train was given line clear at Katihar West at 2.55 hrs. to go to Mansahi. The latter train, instead of going to Mansahi, proceeded towards Semapur due to wrong setting of points. The two trains collided head-on at mileage 4/17-18 T.P.

The two engines were interlocked and the tender of the Passenger Train Engine got lifted up at the rear end and telescoped into the next coach completely demolishing the first compartment and the leading end of the 2nd compartment.

14 wagons behind the engine of the Goods Train were derailed and capsized. Besides these, wagons Nos. 29, 30 and 31 from the engine on the Goods Train were also derailed.

4. *Casualties*—I regret to have to state that as a result of this accident 10 persons were killed on the spot and one child succumbed to his injuries after he had been admitted in the hospital that day. 18 persons were injured, 7 grievously and 11 receiving simple injuries. All the persons except 1 have been discharged from the hospital. In addition to these one man complained of pain in chest but doctor could not find anything obviously wrong.

5. *Restoration of tracks*—The underailed portions of the train were taken back to Katihar West and Semapur respectively. The track was cleared of the derailed vehicles and restored to traffic by 13.30 hrs. on 8-1-56.

6. *Composition of trains*—The composition of No. 520 Down Passenger, its weight, length and calculated brake-power are as under :—

	Vehicle No.	Weight	Length	Brake-power in tons
Engine .. .. .	813 PC(4-6-0)	42-11-2	52'—8·5/16"	19
	2595 SNF	19-8-0	54'—10"	13
	21152 BXC	12-9-0	42'—1"	9
	21159 BXC	12-9-0	42'—1"	9
	21060 BXC	12-9-0	42'—1"	9
	2045 FSQ	24-6-2	54'—10"	13
	2093 TLR	19-0-0	48'—10½"	13
	2503 S	17-0-0	32'—4"	13
	4105 T	20-18-0	60'—0"	13
	3598 GST	23-2-0	58'—6½"	13
	4210 T	18-18-0	55'—0"	13
	4033 T	18-12-0	58'—8½"	13
	5268 TLR	23-7-2	61'—7"	13
		264-10-0	661'—8·1/16"	163

There were about 340 passengers in the train, the total seating capacity being 399. It was fully automatic vacuum braked.

No. 808 Down Goods was hauled by Engine No. 1049/WD and its load was 64 vehicles (equivalent to 69/4-wheel units). This train was not automatic vacuum braked.

The headlights of the engines of both the trains were lit up at the time of the accident.

7. *Damage—No. 520 Down Passenger*—The engine had its vacuum cylinders broken, drag box bent, stanchion rods bent, smoke box cover bashed in and damaged. It had other damages to cylinder cocks with rods, left leading brake hanger and cross bar, buffer beam, cow-catcher, etc. The tender drag-box was damaged, frame plates bent and tender buffer beam was damaged and buffer shank was broken.

Coach No. 2595 ZNF had its two leading compartments completely smashed and the leading half of the under-frame was badly twisted and broken. Under-gear was completely smashed, and the carriage was beyond economical repairs. This coach had steel under-frame and timber frame work in the superstructure.

No. 808 Down Goods—Engine No. 1049 WD had its frame slightly bent, smoke box and door completely smashed, both running boards slightly damaged and the tender tank pierced through. Tender buffer was damaged and engine rubbing block assembly was also damaged.

The damage to the first 12 wagons consisted mostly of buffers and axle guards broken, sole bars, body and head stock bent and bodies damaged badly. Similarly, buffers of the 31st and 32nd wagons were also broken, though the latter was not derailed. Damage to the 13th, 14th, 29th and 30th wagons was not great.

Track for about 8 rail-lengths was damaged.

The approximate total cost of damage to the engine and rolling stock was Rs. 44,460 and to Permanent-Way was Rs. 1,149.

8. *Local conditions*—Katihar is the busiest and the biggest junction station on the North Eastern Railway. The yard is divided into two block stations, Katihar West and Katihar Junction. The Station Superintendent, Katihar, is in general supervision of both Katihar Junction and Katihar West stations. The general direction of tracks in Katihar West station is from North to South, the station being situated on the west side of tracks. Line No. 1 (platform line) continues through a right-handed curve of 1432 ft. radius as the Main Line to Semapur and farther on to Sonapore. Line No. 2 continues through a left-handed curve of 600 ft. radius to Manshahi as the Manihari Ghat Branch. At the southern end of Katihar West yard, where they diverge, these two lines are connected by two cross-overs to provide cross traffic both in the trailing as well as facing directions. The farthest cross-over is rod-coupled and the turn-outs in this cross-over are numbered 22. Normally, all passenger trains to and from Manihari pass over line No. 2.

Both Katihar Junction and Katihar West are non-interlocked. Katihar West has a Home and an Outer signal for trains approaching from Semapur as well as Manshahi. Neales Ball Token Instruments are in use both for Katihar West-Semapur and Katihar West-Manshahi Sections.

Katihar West as well as the Branch Line to Manshahi lie in Katihar District of Pandu Region of the North Eastern Railway and District Officers of Engineering, Mechanical and Traffic Departments are posted there. There is a railway hospital at Katihar in charge of an Assistant Medical Officer. Brake-down Train and the Relief Van are located at the Loco Shed, Katihar.

The Main Line beyond the Outer signal of Katihar West station towards Semapur falls in the Muzaffarpur Region and is in the Jurisdiction of the District Transportation Superintendent and District Mechanical Engineer, Sonepore, District Engineer, Mansi and District Medical Officer, Samastipur.

The track at the site of the accident is level from Mile 3/3-4 T.P. (9744 ft. from the site of collision towards Katihar West) to mile 5/9-10 T.P. (3074 ft. towards Semapur). The track is straight from the site of accident to Semapur but towards Katihar there is a short curve 1800 ft. long (5000 ft. radius) commencing at a point about 690 ft. away from the site of collision and this curve is right-handed for a train coming from Katihar.

The important places mentioned in the report and their mileages are :—

<i>Main Line</i>	.. .. .	Katihar ..	0 mile.
		Katihar West ..	$\frac{1}{2}$ „
		Site of accident ..	4/17-18 T.P.
		Semapur ..	7 miles.
		Mansi ..	71 $\frac{1}{2}$ „
		Barauni ..	111 $\frac{1}{4}$ „
		Sonepore ..	169 $\frac{1}{2}$ „
<i>Branch Line</i>	.. .. .	Katihar Jn. ..	0 mile.
		Katihar West ..	$\frac{1}{2}$ „
		Manshahi ..	5 $\frac{1}{2}$ miles.
		Manihari ..	15 „

*Note :—*There are 17 to 19 Telegraph Posts to a mile between Katihar West and Semapur.

## II. EVIDENCE AND DISCUSSION

9. *Driver Kundu* of No. 520 Down said that the weather was foggy and at Katihar he could see the signals from about 50 yards. He stated that he picked up the line clear token opposite the station building at Katihar West. Thereafter he was busy attending to the injector of the engine. Due to the fog and having been busy with injector, he did not make out where he was going. When he passed the Chota Kosi bridge he thought he was passing the girder bridge approaching Manshahi on the Manihari branch. He said he asked the fireman to look out for the approach signal. Shortly thereafter, he saw a light in front which looked like the light of the point indicator but he became suspicious, shut the regulator and applied vacuum but immediately thereafter the collision took place. He came to know only after the collision that the train with which collision had taken place was No. 808 Down and that he had come on the wrong road. The maximum speed of his train was 20 m.p.h. but it had reduced to about 8 m.p.h. at the time of the accident. He did not hear the conversation that took place between the fireman and the 2nd fireman regarding a level-crossing after Chota Kosi bridge.

10. *Fireman Bhattacharji* of No. 520 Down said that it was very foggy but the Home signal light of Katihar West could be clearly seen from a distance of about 150 to 200 yards. After the driver picked up the token opposite Katihar West station, he started stoking. He then opened the injector on his side but as that was wasting water he asked driver to open the injector on driver's side. He noticed a level crossing after passing the Chota Kosi bridge. On asking the 2nd fireman, he was informed that that was a new level crossing. As far as he knew, there was nothing wrong with Engine No. 813/PC. The brake-power was good and after applying the brake the speed was reduced (within about 150 ft.) from 25 m.p.h. to about 6 m.p.h.

11. *2nd Fireman Ramcharitar Mahto* of No. 520 Down did not notice any defect with Engine No. 813/PC except that steam was leaking through injector overflow pipe. He could not say anything about the time the train left Katihar, the direction taken by the train, nor about the speed, nor even about vacuum. He said that about 15 to 20 minutes after leaving Katihar there was a talk between the driver and fireman about signals but the latter said that the light in front was probably the light of the station. The driver said that that appeared to be the light of an engine.

12. *Guard S. C. Gupta* of No. 520 Down stated that his train started from Katihar at 2.55 hrs. He had seen the approach signal of Katihar West in the lowered position from near the level crossing at Katihar Jn. (from over 800 ft.). When this train was passing over line No. 2 at Katihar West, Parcel Train was standing on line No. 1. He then started writing up his journal and did not notice that his train took the curve to the right instead of left. He also did not notice the absence of electrically lit mill area enroute. The windows of the brake-van were open. After the train had passed the big girder bridge, which he mistook to be the girder bridge approaching Manshahi, he looked out to see the approach signals but due to fog he could not see any signals nor could he make out the wrong road. He said that he was puzzled and started applying hand brakes to attract driver's attention but the accident took place. The speed of train was 15 to 20 m.p.h. and had reduced to 7 or 8 m.p.h. at the time of the accident. He said that the vacuum gauge needle in the brake van was showing zero but the valve functioned.

13. *Driver Ismail I* of No. 808 Down said, his train left Semapur at 2.50 hrs. At that time he could see the Guard's signal, and the backlights of the signals all right. After the train had moved about 2 miles, the fog became very dense and visibility in the headlight of his engine was only about 15 yards. The speed of his train was then about 10 m.p.h. He suddenly saw a light in front—about 20 ft. away. He sounded the whistle, shut regulator, dropped vacuum and applied the steam brake, pulled the lever in the reverse position but collision took place when the speed of his train was about 5 m.p.h. The ball token he was given at Semapur was No. 16 and handed it over to me at the time of giving evidence.

14. *Fireman Koko Singh* of No. 808 Down stated that his train started from Semapur at about 2.40 to 2.45 hrs. At that time the fog was not dense and Guard's hand signal lamp was clearly visible about 70 wagons away in the rear. When his train had travelled for about 20 to 22 minutes, he heard the driver blowing danger whistle while he was stoking. He stopped doing that work and stood catching hold of the stanchion and saw a dim light in front. Presently collision took place.

15. *Guard Khan* of No. 808 Down stated that his train started from Semapur at 2.50 hrs. The backlights of signals at Semapur were visible from the station building. He was keeping a look-out when he heard the danger whistle of his train engine (No. WD/1049). He started applying his hand brake but while doing so the accident took place, he fell down and the train came to a halt. The time then was 3.10 hrs. He got down and went towards the engine noting down the particulars of derailment. He met the Guard of the Passenger Train with which his train had collided and told him to send information to Semapur immediately. A memo. was written out and sent to Semapur at about 3.40 hrs. He had already sent a verbal message to Semapur through a village chowkidar. The speed of his train was about 10 m.p.h.

16. *Assistant Station Master Hans Gopal Basak* of Semapur stated that No. 808 Down Goods started from his station for Katihar West at 2.50 hrs. At about 3.05 hrs., he was informed by Assistant Station Master, Katihar West, on block phone, that No. 520 Down Passenger had also entered the same block section. He immediately informed Sonepur Control about it and on being instructed, he ran towards Katihar to try and stop the Goods Train. He could not see the tail lamp of that train. He came back to his office and heard 2 loud reports and with second loud report he heard the whistle of a Passenger Train. The time then, according to his guess, was about 3.08 hrs. The Pointsman went upto and beyond the Home signal but came back, the train having gone away far.

On being questioned why he did not give information of the 2 reports to the Control, he said he gave this information to the Control at 3.17 hrs. and also to Katihar West.

17. *Ramavatar Gaur* was the Pointsman on duty at Katihar West from 22.00 hrs. on 6th January 1956 to 6.00 hrs. on 7th January 1956. He had been posted to Katihar West on and from 24th December 1955, after having learnt work there for 2 days, on 22nd and 23rd December 1955. He said this period was not enough for him to learn work and he had informed the posting clerk at Katihar station. He did not complain to the Assistant Station Master that he did not know the duties to be performed at that station. He had not signed the assurance register at Katihar West. He said he did not know the number of ill-fated train nor its destination. He was given the key of points No. 22 by the Assistant Station Master to set these points from line No. 2 to Semapur and he did that. After the train went away the lampman and Jamadar came back with R. T. 12 authority to the driver to back the train into Katihar West station yard, to back that train into the yard. He went with them for about a mile from where he returned and others went ahead. On return, he made over the key of points No. 22 to the Assistant Traffic Superintendent 'T', Katihar. To a question about the actual instructions given to him by ASM, Katihar West, he said "After receiving the Parcel Train from Semapur, when I came back to the station office, the ASM handed over the key of the points No. 22 to me and asked me to go to the points and set points from line No. 2 for Semapur. He did not tell me which train was coming in but said that he would send the Jamadar. But he did not send the Jamadar."

He said he mistook that Passenger Train as some other train running late. He had experience of trains running very late at Katihar West.

18. *Hari Ram*, Jamadar of Katihar, stated that, on arrival of the Down Parcel Train on line No. 1 at Katihar West, the Assistant Station Master gave him the key of the points No. 5 for admission of No. 520 Down. He set and locked the points correctly. When the train had passed the points were locked in their normal position and he came back to the station. There the Assistant Station Master started shouting saying that No. 520 Down had gone to Semapur. He got a written memo. to push back the train into the Katihar West yard but as the train had gone far away, he could not catch it. He said that crossover points No. 22 were already set and locked in the normal position, viz., each of the legs set for the line in which it was placed and against the crossover; so there was no necessity for him to part with the key.

According to him, weather was foggy and visibility was over 50 yards in darkness and backlights of Outer signals were visible from the points at respective ends.

19. *Doctors R. K. Ghose and A. K. Das* of Semapur received the information of the accident at 4.00 hrs. and reached the Semapur station by 4.30 hrs. As no trolley was available, they reached the site of accident in the engine of No. 314 Down between 5.15 and 5.20 hrs.

They found that some injured persons had already been given First Aid. They considered that everything that was possible was done to give relief to the injured. Railway doctor from Katihar reached the site at about 6.00 hrs.

20. *Assistant Station Master Radha Nath Chakravarty* of Katihar West, who was the most concerned in the accident, has absconded and his evidence could not be recorded by me. The Asstt. Traffic Superintendent Katihar had, however, recorded his statement after the accident. In that statement *Shri Radha Nath Chakravarty* stated that on arrival of No. 2 B.K. Down Parcel Train from Semapur, line clear for No. 808 Down was given at 2.38 hrs. No. 520 Down was also on line clear from Katihar Junction and signal was lowered for it for line No. 2. Pointsman Ramavatar returned after admitting No. 2 B.K. Down at 2.45 hrs. and was sent back to admit No. 808 Down after passage of No. 520 Down. No. 808 Down left Semapur at 2.50 hrs. and No. 520 Down passed Katihar West at 2.55 hrs. When No. 520 Down had passed the trailing points it seemed to him that it was proceeding towards Semapur. He knew that the key of points No. 22 should have been in his possession while a train was going to Manihari from Line No. 2. He had, however, asked the Pointsman to operate those points after the passage of No. 520 Down to avoid detention at the Outer signal.

21. *Guard J. A. Frank* of No. 2 B.K. Down, which was standing on line No. 1 when No. 520 Down passed Katihar West, stated that, after the train stopped at Katihar West, he went to the Assistant Station Master to inform him that Manihari train was to pass from line No. 2. In his presence, the Assistant Station Master gave line clear token for Manihari train to porter. He did not see any key being handed over. He went back to his brake-van. When he saw that train going towards Semapur, he went back to the Assistant Station Master, who was standing outside his office shouting that the train had entered wrong section. He enquired whether there was any other train in the section and was informed that a Goods Train was coming from Semapur. He rang up Semapur and asked the Station Master there to stop the Goods Train. Between 3.00 hrs. and 3.05 hrs. he informed the Control about it. At 3.05 hrs., he heard the noise of the Passenger Train passing over the Chota Kosi Bridge. He asked the Assistant Station Master as to why he allowed the train to go into the wrong line and was told that, according to usual practice he had given the key to the porter with clear instructions to set the points for line from Semapur after No. 520 Down had passed. After sometime the porter came from the points and on being questioned about the setting of the points, he said that those were the instructions given by the Assistant Station Master. The Assistant Station Master wrote out a Memo. authorising the driver of No. 520 Down to return and pass the approach signals and be piloted on to line No. 2. Guard Frank found that the Assistant Station Master on duty had almost gone off his head; so he asked the Control to send some relief and the new Assistant Station Master came on duty at about 3.30 hrs. According to him, the weather was foggy but the fog was such at that time that the train going from the station could be seen taking the curve and backlights of the signals could be seen from the station. The fog became denser so that 15 minutes after passage of No. 520 Down the visibility in darkness was reduced to 10 ft. or so.

22. *Weather condition*—Fireman of No. 520 Down said, it was very foggy but the signal lights at Katihar West could be seen from 150 to 200 yards. 2nd Fireman Ramcharitar Mahto stated that he could see to a distance of about 30 ft. when he went to fetch tea for his driver at Katihar. Driver Kundu stated that at Katihar he could see the signal from a distance of about 50 yards and the fog was dense and he could not easily read the token number. Jamadar Hiraram Sah said that, at the time No. 520 Down passed the visibility in dark was clear for more than 50 yards. Back lights of approach signals for trains from Semapur were visible from points. Guard Frank of the Parcel Train waiting at Katihar West said that when 520 Down passed, the back lights of signals were visible from the station (Katihar West) but fog became denser so that about 15 minutes after passage of No. 520 Down, visibility in darkness was reduced to about 10 ft. or so.

Assistant Station Master Hansa Gopal Basak of Semapur said that it was lightly foggy but the back lights of the Home and Outer signals could be seen from the station. Guard Khan of 808 Down Goods said that he could see the Up and Down signal lights from the station building at Semapur. According to him, the weather at the site of accident was densely foggy. Koko Singh, Fireman of No. 808 Down Goods said that, starting from Semapur, the fog was not dense and Guard's signal from a distance of 70 wagon lengths could be clearly seen. The visibility became less and less till it reduced to about 45 ft. in the beam of the headlight. Driver of No. 808 Down also stated that, starting from Semapur the fog was light but about 2 miles therefrom the fog was very dense and visibility in the beam of the headlight was about 15 yards.

Shri Shanti Kumar Khan, a passenger in No. 520 Down, said that, when the train started from Katihar, the weather was foggy but that visibility was clear for 60 yards.

From all the above evidence it will be seen that, weather at Katihar West when No. 520 Down passed and at Semapur when No. 808 Down started, was lightly foggy. The fog progressively deepened so that about the time and at the site of the accident it was so dense that visibility was very limited to a few feet only. The headlight of one engine appeared like a point indicator light to the driver of the other engine and that too at very short distance.

23. *Rules regarding placing of fog signals*—It may be pointed out here that in the book of General and Subsidiary Rules of the Assam Railway, which are applicable to Katihar West station, General Rule No. 71-A(a) and (b) have been omitted. I do not know if this is deliberate or a mistake of omission but whatever may be the truth, it is a serious matter. Subsidiary Rule No. 71/2, however, lays down that when the Station Master cannot see the signals from 200 yards he must have the fog signals placed on line beyond the Outer signal opposite the fog signal post to warn the driver of an approaching train of the locality of a signal. It has been shown above that when No. 520 Down left Katihar West the fog was only light and back lights of signals could be seen from the station.

24. *Time of the accident*—The time of the collision has been given as about 3·08 hrs. by the Assistant Station Master, Semapur, as that was the time when he heard the report of the collision. He said that he heard it when he came back to the station after having gone out to see if No. 808 Down could be stopped. Having started on that errand after 3·05 hrs. it is not very easy to come back by 3·08 hrs. This timing given by him was approximate and was given after guessing. Driver Kundu of No. 520 Down gave the time as 3·08 hrs. or 3·10 hrs. The Guard Khan of No. 808 Down gave this time as 3·10 hrs. Guard S. C. Gupta gave the time of collision as 3·10 hrs. Therefore, I accept the time of accident as 3·10 hrs.

25. *Speed*—There is no evidence of the trains travelling at an excessive speed. From the time of the accident, viz., 3·10 hrs., also it would appear that the trains were travelling at reasonable speed (the Passenger Train having travelled about 4½ miles in 15 minutes and the Goods Train about 2 miles in the same time). The speeds of these trains had reduced to about 10 m.p.h. and 6 m.p.h. at the time of collision.

26. *Authority to enter block section with the drivers*—There was no mistake of block working because correct tokens were handed over to the drivers, Token No. 1 Katihar West-Manshahi to driver of No. 520 Down at Katihar West and Token No. 16 Semapur-Katihar West to the driver of No. 808 Down at Semapur.

27. *Responsibility of Assistant Station Master Radha Nath Chakravarty*—The cross-over points No. 22 at Katihar West were set leading from line No. 2 to Semapur. Run-through line clear was given to No. 520 Down Passenger which was picked up by the driver somewhere in front of station building. The result was that, instead of going to Manshahi the train was diverted towards Semapur over cross-over points No. 22.

Pointsman Ramavatar Gaur had gone to crossover points No. 22 with the key. He said he was instructed by the Assistant Station Master to set the points for Semapur line and this he did. Unfortunately, there is no witness who could either corroborate or contradict this man.

Jamadar Hiraram Sah, who was sent to set the Katihar-end facing points, was not present when the instructions were given to Pointsman Ramavatar. Porter Sudhangshu Kumar Ghosh was sitting in a room adjoining the station office, but he said that he could not hear what orders were given by the Assistant Station Master to Pointsman Ramavatar.

In the absence of Assistant Station Master Shri Radha Nath Chakravarty, I can only consider the statement he gave to Shri H. K. Chakraborty, ATS/Katihar which was to the effect that on arrival of No. 2 B. K. Down Parcel, Pointsman Ramavatar was sent to admit No. 808 Down after passage of No. 520 Down. The key of points No. 22 was given to the Pointsman to operate the points after passage of No. 520 Down to avoid detention at the Outer signal. Guard Frank corroborates this statement.

The Assistant Station Master ought to have followed the provisions of S.R. 48/1 for allowing No.

520 Down to run through Katihar West station. That rule reads as under:—

“S.R. 48/1.—When a train is required to run through a non-interlocked station, either on the single line or on the double line, the Station Master is responsible that all points over which the train will pass are properly set, and he shall personally lock all facing points over which the train will pass and shall retain the key or keys of such point locks in his personal possession until the train has passed. He is also personally responsible that the points of all crossover roads giving access to the running through line are set and locked against the crossover, so that no engine or vehicle can pass on to the running through line and that such points remain so set and locked until the train has passed.”

If the Assistant Station Master had carried out the provisions of S.R. 48/1, he should have retained the keys of the facing points in his personal possession. Jamadar Hiram Sah stated that crossover No. 22 was properly set against the line to Semapur. The key of that crossover should have been in possession of the Assistant Station Master and there was no necessity to hand over the key to any one for No. 520 Down to run through his station. The key was actually with Pointsman Ramavatar and was retrieved from him by the Assistant Traffic Superintendent, Shri H. K. Chakraborty.

The Assistant Station Master clearly breached S. R. 48/1; if he had followed that rule, the points No. 22 would have remained set correctly and No. 520 Down would have been directed on to its proper path.

28. *Record of Assistant Station Master Radha Nath Chakravarty*—Assistant Station Master Radha Nath Chakravarty was appointed as a Tally Clerk on 28th March 1951, and passed train passing theoretical and practical on 8th August 1952. He has only 1 punishment to his credit, that too for some irregularity in goods working on 20th May 1954.

29. *Responsibility of Pointsman Ramavatar Gaur*—It would appear strange how Pointsman Ramavatar diverted No. 520 Down towards Semapur instead of towards Manihari. He said he was asked by the Assistant Station Master to set line for Semapur. He stated that he was not told the number of train. Several questions were put to him and he had a plausible answer for each:—

- (a) He did not know the destination of No. 520 Down because he had come to work at Katihar West only from 24th December 1955, i.e., 14 days before the accident.
  - (b) He had not even signed the assurance register in token of having learnt the working of that station yard.
  - (c) Assistant Station Master ordered him to set the points for the line to Semapur and he did so.
- \* I examined the assurance register at Katihar West and found that the wording of the assurance had been hurriedly written in the book most probably by the absconding Assistant Station Master but that was not signed or thumb-impressed by Pointsman Ramavatar.

Even though the man had not signed the assurance register it is difficult to believe that he did not know the destination of No. 520 Down. This man had been working at Katihar West from 24th December and in this shift for 1 week prior to the accident and should have known at least the various trains and their destinations. As against these circumstances, the fact remains that the key of the crossover point was with this Pointsman. The Assistant Station Master had intended to act in the way explained in para 27 (supra), and it is possible that Ramavatar misunderstood him. The matter was made worse due to No. 520 Down being late by 1 hour and 20 minutes that day! From the consideration of all the circumstances and evidence, benefit of doubt has to be given to Pointsman Ramavatar. In the whole range of General Rules regarding the knowledge of rules of working by the staff, the onus is entirely placed on the Station Master to see that subordinates under him know the rules\*.

30. *General and Subsidiary Rules applicable to Katihar West*—According to G.R. No. 37, it is the responsibility of the Station Master on duty to see that—

- (i) all facing points over which the train will pass are correctly set and locked;
- (ii) all trailing points over which the train will pass are correctly set; and
- (iii) the line over which the train is to pass is clear and free from obstructions.

before he gives permission to take signals off to admit a train. There are several Subsidiary Rules and Station Working Rules made thereunder which make the correct observance of S. R. 37 difficult—

One of the Subsidiary Rules made under G. R. 37, reads as under:—

“S.R. 37/4—*Permanently Locked Points*—(i) Certain points at a station, particularly at non-interlocked stations, may be required to be kept permanently locked except where these are required to be reversed for allowing particular movements as provided for below. Such points are called “Permanently locked points” and are divided into two classes.

\*See General Rules & Subsidiary Rules 172, 175, 176, 192.



*Class A*—Points, the correct setting and locking of which rests with the Station Master personally. These are generally points which take off running lines.

*Class B*—Other permanently locked points.

- (ii) The Station Working Rules contain explicit instructions to the Station Master as to which of the points at his station are to be kept permanently locked, as to the normal position in which such points are to be locked, and as to which of these belong to Classes A and B.
- (iii) When it is required to change the position of permanently locked points belonging to Class A, the Station Master shall be personally responsible for ensuring that upon completion of movements over such points, these are correctly reset and relocked in the normal position, and shall take the keys of the locks of such points in his possession, before allowing any train to pass over them.
- (iv) When it is required to change the position of points belonging to Class B, the Yard Porter deputed by the Station Master shall be held responsible that such points are correctly reset and relocked in their normal position."

These rules lay down that the Station Master could delegate the duty of setting and locking 'B' Class points to a Yard Porter. It is also laid down that permanently locked Class A points will generally take off from Main Lines, but it has not been laid down that the Class B points will take off from non-running lines only. Actually, at Katihar West the facing point for trains from Manihari (point No. 20) is a Class B—permanently locked point. When the working of that point is the responsibility of the Yard Porter the Station Master's assurance loses much of its force. In case of point No. 20, the Station Master cannot see the Pointsman standing there due to the location of the point and several lines intervening which may be occupied.

It has not even been made clear whether the rule applies only to shunting movements of Goods Trains or for all train movements. In this manner this Subsidiary Rule is repugnant to S. R. 48/1 also quoted in para 27 (*supra*) regarding responsibility of the Station Master assuring himself that all the facing points are properly set and locked for run-through trains. Even the Station Working Rules do not clarify that setting of 'B' Class points would be restricted to Goods Train shunting movements only. As a matter of fact, when I questioned the Transportation Officers, they all replied that a 'B' Class point was to be operated by a Pointsman.

31. The other set of Subsidiary Rules which lay down contrary procedure are detailed below:—

"S.R. 37/6.—*Line Labels*—At non-interlocked non-keylocked stations metal labels indicating the different lines are provided and when giving orders as to the line on which a train is to be admitted, the Station Master on duty shall, at the same time, give the Yard Porter going to the facing points the label indicating the desired line.

The Yard Porter at such station is also provided with a set of miniature labels corresponding to those in the possession of the Station Master on duty. At these stations when the Yard Porter receives a line label from the Station Master on duty, he shall give his own corresponding label in exchange by way of acknowledgement and shall take it back when he returns the Station Master's line label. This exchange of labels in no way relieves the Station Master from his responsibility in regard to giving clear and definite instructions vide S.R. 37/8.

"S.R. 37/8.—*Locking of Points for Reception and Dispatch of Trains at non-interlocked Stations*—Non-interlocked stations are of two types, viz., key-locked stations and non-keylocked stations. Rules for working of points for reception and dispatch of trains at either of these types of stations are given below—

- (a) *Non-Interlocked non-keylocked stations*—(i) *Instructions to Yard Porter*—As soon as the "Out-report" of the train has been received or in the case of a station not more than 5 miles distant, as soon as line clear has been given, the Station Master shall call the Yard Porter at the approaching end of the yard and give him definite information as to the description of an approaching train, the line on which it is to be received, whether it will stop at the station or run through and whether any shunting is to be done with the train. At the same time he shall give him keys of all facing points other than permanently locked points over which it is intended to receive the train the metal line label indicating the line on which the train is to be received. The Yard Porter receiving such line label shall also give his own in exchange to the Station Master on duty.
- (ii) *Setting and locking points*—The Yard Porter shall then proceed to the outermost facing points, and personally examine on his way there all points over which the incoming train has to run, see that all facing points are correctly set and locked and that the trailing points are correctly set. He shall then station himself at the advance facing points, and by waving a green signal towards the station, signify to the Station Master on duty that all is right, and that the points have been correctly set and locked in accordance with the Station Master's instructions, as indicated by the metal label in his possession.

- (iii) Should the Yard Porter on his way to the outermost facing points find any obstruction on the line on which the train is to be admitted, he shall warn the Station Master personally and see that the obstruction is removed from the line before giving the green signal towards the station referred to in Subsidiary Rule 37/8(a)(ii). It should be clearly understood that this does not in any way absolve the Station Master on duty of his responsibility under General Rule 37(a)(iii).
- (iv) *Operation of reception signals*—When the Station Master on duty gets this signal from the Yard Porter and at stations where disc or other point indicators are provided, has personally satisfied himself by observing such indicators that points are correctly set in accordance with his instructions, he shall acknowledge the signal by waving a green signal towards the facing points. The Yard Porter shall then show a red signal towards the station until signals are lowered under the orders of the Station Master on duty.
- (b) *Non-interlocked but key-locked stations (Double H.P.K. locks and Double Points locks)*—Similar as for (a) above non-interlocked non-keylocked stations with the exception that (a) no Line Label shall be exchanged, (b) the Yard Porter after having set the points in accordance with the instructions of the Station Master on duty shall at once return to the station to deliver the key extracted from the points. The Station Master on duty on receipt of the same shall check the key and satisfy himself that the points have been set according to his instructions and order the Yard Porter to immediately proceed to the outermost facing points examining all points on his way there over which the incoming train has to run and if all is right he shall station himself at the outermost facing points and wave a green signal towards the station. The Station Master on duty on receipt of this signal shall order for lowering of signals.
- NOTE—(i) Where Hopper's Key Transmitter is provided, the Yard Porter shall, however, transmit electrically the key extracted from the points back to the Station Master on duty and after having done so wave a green signal towards the Station as laid down in S.R. 37/8(a)(i).
- (ii) Where key locks including one-way locks are in use, it will not be necessary to send out the keys of relevant points when such points are to remain in their normal position."

From a reading of Subsidiary Rule No. 37/8(a)(i), it would appear that this rule applies to run through trains also. In this respect this rule is contradictory to S.R. 48/1.

32. *Anomalies in the Subsidiary Rules*—In case of key-locked points a Yard Porter is required to go to the facing points, set them properly, come back to the Station Master to deliver the key to him, go back to the points and then wave green signal to the Station Master for lowering the signals. Compare it with the case of the non-keylocked points: In their case the labels are to be exchanged even before the Pointsman has gone to correctly set the points; he goes to the points and waves the flag for lowering the signals. It need not be said that in case of a keylocked point, the key is Station Master's assurance regarding correct setting and locking of points. When the points are only pad-locked, the Pointsman's label should be the Station Master's assurance instead of the key and it should be handed over to the Station Master only after the points have been correctly set and locked. Specific rules to this effect exist on the O.T. Railway. The Line Label and Badge system is given in detail in the Traffic Manual of that Railway. Similar stipulation should have been made in Subsidiary Rules instead of S.R. 37/6 of the Assam Railway quoted above.

33. *Shortcomings of the Station Working Rules of Katihar West*—It has already been shown that points in running lines have been classified as permanently locked points of Class 'B' which is not correct.

According to S.R. 37/8, the stations are either non-interlocked, non-keylocked or non-interlocked-keylocked. Exchange of Line Labels is necessary in case of the former but not so in case of the latter.

Katihar West station has a number of points which are keylocked, and others which are non-keylocked. First facing point for approach trains from Semapur and Manshahi is keylocked and the facing point for trains from Katihar Jn. is non-keylocked. In the Station Working Rules nothing is said about the Line Labels. It would be better to have the corrected\* Line Label System enforced at this station until all the points in running lines have been keylocked.

34. *Responsibility of Driver of No. 520 Down*—Driver R. Kundu of No. 520 Down Passenger Train had to go to Manihari. Leaving Katihar West station yard he should have to negotiate a very sharp (600' radius) left-handed curve. While going along the line to Semapur, he had to take a sharp right-handed curve (1432' radius). Besides this, the line to Manihari passes by the side of oil mills which are electrified; while the line to Semapur passes through plain country adjoining Katihar West. While going to Manihari he should not have passed any bigish girder bridge until mile 4 to 5 from Katihar where he had to cross 2 small girder bridges (3 × 40' girders each), whereas going to Semapur he had to

\*N.B.—Line Label System given in S.R. 37/6 of the late Assam Railway requires correction and needs being brought in line with Rule 2(iv) and (v) of the ex: B&NW Railway Traffic Manual.

cross a major bridge (Chota-Kosi deck span girders)  $7 \times 80'$  girders. There is obvious difference in the number and location of manned level crossings. On being questioned, driver Kundu stated that he had no suspicion that he was going on the wrong road and as he was attending to injector and due to fog he did not notice the level crossings due to dense fog. It has been established already that in Katihar West yard the fog was only light when No. 520 Down passed and the back lights of signals were visible. One of the main duties of a driver is to be watchful regarding the course taken by his train. None of the explanations given by him for not noticing that he was going on the wrong road is convincing. Driver Kundu had never worked on the Semapur line and this circumstance should have brought out to him the difference of the surroundings more prominently. As a matter of fact Fireman S. N. Bhattacharjee did notice the manned level crossing after passing the Chota-Kosi bridge and inquired from the other Fireman about it. When driver Kundu was questioned about it, he could only say "I might have been engaged in something that I missed the conversation". As for the alleged defect of the injector, I looked into the repair book of engine No. 813/PC but did not find that there was anything wrong which could reasonably engage driver Kundu's attention so completely as to make him oblivious of his surroundings. The evidence of the Fireman also gives the same indication.

All this shows that driver Kundu was grossly careless. Had he been careful he could have made out as he negotiated the curve to the right that he was going on the wrong road. Besides this, there were several other land-marks which should have drawn his attention. There is evidence to show that the fog was dense at and near the site of the accident and visibility was very poor. It is common experience of all that, when visibility is poor, sense of hearing becomes the more alert. It is not at all understood how driver Kundu missed Kosi bridge. He was evidently grossly careless in performance of his duties and breached G. R. 122. He has thus been accessory to the occurrence of this accident.

Shri Birendra Kumar Singh, a passenger in No. 520 Down, stated that, after the accident he heard the Fireman say that he had pointed out the wrong route to driver Kundu but the latter replied that he would stop his train only at Semapur. I tried to find out if there was any further evidence on this point but I could not get any. However, it appears a plausible theory.

35. *Record of Driver Kundu*—Record of driver Kundu includes the following:—

- "(1) Reverted to class I fireman on Rs. 18 p.m. for six months (NC) with effect from 1st January 1947 for unauthorised movement of engine No. 407 YB in KIR Loco. Shed without being qualified as shunter *vide* DME/LMH's No. 177M/46 of 27th November 1946.
- (2) Warned for obstructive working *vide* letter No. 3 TM of 6th April 1951, while working PK3 with 51 WD started the train without Guard's signal at 23/15 hrs. and stopped the train at the advanced starter blocking the lines at PBT which had ultimately to be backed to station for detaching a wagon.
- (3) Increment withheld for 3 months (NC) for gross negligence *vide* letter No. TAD4/18/50 of 9th/10th January 1951 while working S/65 on 17th November 1950 ran through station DLK-KKA without exchanging 'all right' signals with the Guard.
- (4) Increment withheld for 8 months (NC) for neglect of duty having left SBSI without line clear *vide* letter No. TAD2/98/5/54 of 12th August 1954."

This record is not creditable by any means.

36. *Responsibility of the Guard of No. 520 Down*—Guard S. C. Gupta of No. 520 Down should also have noticed all the various points of difference as the driver should have noticed. The only answer he had was that there was dense fog and that he was busy doing the clerical work regarding his train. Firstly, soon after starting from the starting station, the clerical work should not be much. Moreover, Guard Gupta did not have any extra quantum of clerical work thrown on him. He ought to have been vigilant and cautious. Had he been so, he could have made out that he was going on the wrong road. He also said that he mistook the big Chota-Kosi bridge for the two small girder bridges approaching Manshahi. This was not possible because of their different size and distances from Katihar ( $3 \times 40'$  Girders @ about 4 miles and  $3 \times 40'$  Girders at about 5 miles from Katihar). He breached G.R. 121.

Guard Gupta admitted that the vacuum gauge of his brake-van was not working though the valve worked. By starting his train without a working vacuum gauge he violated G.R. 113(a) and S.R. 113/2.

Guard Gupta's record contains seven punishments for irregular attendance, overstaying of leave and indifferent work.

37. Near the site of the accident, when No. 520 Down and No. 808 Down were approaching each other, there was a curve intervening and the headlight of one was not directed at the other. The point of collision was only about 690 ft. from the tangent point of the curve. This distance can be covered by a train travelling about 20 m.p.h. in about 23 seconds. Added to that there was dense fog when visibility was limited to a few yards, so much so that when the driver of one train did see the light of the engine in front the lights were dim and the two engines were very near each other. Even then they had time to reduce speeds to 10 m.p.h. and below before the collision but the accident could not be averted. The evidence regarding which driver blew the whistle is conflicting. The two drivers, however, have stated that each one blew whistle and presently the collision took place. Even if the whistles were sounded, they would have been of no avail.

38. *Delay in dispatch of Relief Train from Katihar*—After it was known to Assistant Station Master Basak of Semapur that, the two trains had entered the same section and he had sent the Pointsman running towards the Outer signal to try and stop the train, he heard two loud reports at about 3·08 hrs. He gave this information to Sonapore Control at 3·17 hrs. and said that this information was conveyed to Katihar Control at that time. Deputy Controller K. B. Chakravarty of Katihar disputed this figure and said he received this information only at 3·24 hrs. The Katihar relief train, which was ordered to be ready, was ordered out at 3·47 hrs. This came out into the traffic yard at 4·00 hrs. This train was not moved out from Katihar Jn. until 4·50 hrs. Deputy Controller, Katihar, said that he waited for some definite information about the accident which was intimated to him by Assistant Traffic Superintendent 'T' from Katihar West at 4·50 hrs. He was, however, informed of the loud reports of the collision as early as 3·24 hrs. according to his own version. Deputy Controller Sonapore (confronted with Deputy Controller Katihar) said that the latter was on the phone when Semapur gave the information of the loud reports and the presumption that they were the reports of collision. His statement that he did not consider it a definite information of actual collision could be taken as the behaviour of too cautious a person but when it is considered that he did not order out the relief train (which was ready at 4·00 hrs.) until 4·50 hrs. his behaviour must be considered unfortunate to say the least.

### III. CONCLUSIONS

39. From the evidence collected, I come to the conclusion that, the collision between No. 520 Down Passenger and No. 808 Down Goods was caused due to the diversion of the former over the cross-over points No. 22 towards Semapur instead of its being despatched to Manihari. The cause of its incorrect diversion is the handing over of the key of points No. 22 by the Assistant Station Master Radha Nath Chakravarty to the Pointsman when there was no necessity of doing so. He also breached S.R. No. 48/1 in not personally locking facing points over which No. 520 Down was to run through.

40. Driver Kundu should have noticed that he was going on the wrong line to Semapur instead of going to Manihari. He was not at all vigilant and cautious. Had he been so, he could have stopped his train long before the collision and his train could have been piloted back into Katihar West station yard and thus the accident could have been avoided. Driver Kundu, by this neglect, has been an accessory to the accident. He has breached G. R. 122.

41. (a) Pointsman Ramavatar Gaur had not signed the Assurance Register and he had received the key of points No. 22 which was not necessary for allowing No. 520 Down to run through towards Manihari. No. 520 Down also was running late which could have caused confusion in the mind of Pointsman Ramavatar. He has, therefore, to be given benefit of doubt.

(b) As explained in para 36 above, Guard S. C. Gupta was not vigilant and cautious and did not have the fittings of the communication apparatus in working order. He has breached G. R. 113(e) and S.R. 113(2).

42. There was unnecessary delay of at least  $\frac{3}{4}$  hour in starting the relief train from Katihar Junction station and the responsibility for this delay must be accepted by the Deputy Controller of Katihar Jn. as he was in direct charge of operations in the Control Office in connection with this accident.

Prompt arrangements had been made by the Station Master, Semapur, to send medical men to the site of the accident. The Assistant Medical Officer, Katihar, who went by the relief train, also gave all possible attention to the injured persons at the site and they were conveyed to the various hospitals at Katihar and Purnea expeditiously, where they were taken good care of.

Yours faithfully,

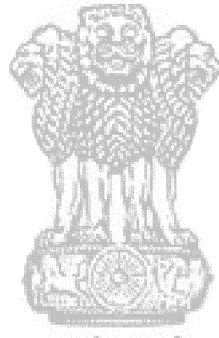
CALCUTTA,

The 5th May, 1956.

K. C. PATHAK

Government Inspector of Railways, Calcutta

NOTE—The driver, Shri R. Kundu and Guard, Shri S. C. Gupta, of No. 520 Down Passenger Train, were prosecuted by the police and tried in a Court of Law. The Court acquitted both the accused.



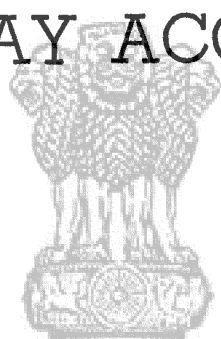
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GOVERNMENT OF INDIA  
MINISTRY OF TRANSPORT AND  
COMMUNICATIONS  
(RAILWAY INSPECTORATE)

# RAILWAY ACCIDENTS



## REPORT

on

DERAILMENT

of

**41 DOWN BOMBAY-CALCUTTA MAIL**

between

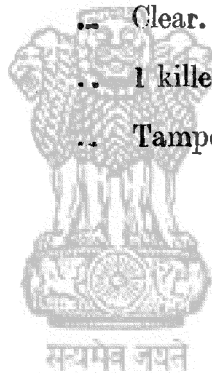
MALKAPUR AND BISWA BRIDGE STATIONS  
(CENTRAL RAILWAY)

on

24TH JANUARY 1956

## SUMMARY

Date	..	..	..	24th January 1956.
Time	..	..	..	03.50 hours.
Railway	..	..	..	Central.
Location	..	--	--	Mile 314/6-7 between Malkapur and Biswa Bridge stations.
Kind of accident	..	..	..	Derailment.
Train involved	..	..	..	No. 41 Down Bombay—Calcutta Mail.
Engine Number	..	..	..	7383 WP (4-6-2).
Consist	..	..	..	12 Bogie coaches.
Estimated speed	..	..	---	50 to 55 miles per hour.
Operation	..	---	---	Absolute Block System.
Track	---	---	---	5'—6" Gauge; Double Line; Straight; Up gradient of 1 in 264.
Weather	---	---	---	Clear.
Casualties	..	..	..	1 killed, 18 injured.
Cause	..	..	..	Tampering with the track.



To

The Secretary,  
Government of India (Ministry of Communications),  
NEW DELHI.

Through the Chief Government Inspector of Railways,  
Ministry of Communications, Simla.

Sir,

*Reference to Orders*—In accordance with Rule 9 of Railway Board's Notification No. 1926-T dated 19th March 1930, I submit herewith the result of my Inquiry into the circumstances of the accident to No. 41 Down Bombay-Calcutta Mail, which occurred between Malkapur and Biswa Bridge stations on the Bhusawal-Nagpur Main Line Section of the Central Railway, at about 03.50 hours on 24th January, 1956.

2. *Inquiry held*—The Inquiry into the accident was held by me at Malkapur on 27th and at Bhusawal on 28th January. The site of the accident and the damaged engine and rolling stock were also inspected.

The following officers were present during the Inquiry :—

1. Shri D. L. Malvankar, Deputy Chief Engineer, Central Railway, Bombay.
2. Shri L.D. Panke, Divisional Transportation Superintendent, Central Railway, Bhusawal.
3. Shri A. C. Chatterjee, Divisional Mechanical Engineer, Central Railway, Bhusawal.

The Civil and Police authorities had been advised about the Inquiry, but their representatives were not present. It was, however, learnt that Police investigations were already in progress.

Evidence of 15 witnesses was recorded.

3. *Brief description of the accident*—While No. 41 Down Bombay-Calcutta Mail was running between Malkapur and Biswa Bridge, the engine and the first ten coaches of the train derailed. The first six coaches had rolled down the bank and were about 92 to 17 feet away from the track, towards its left. The next four coaches had derailed on the cess and the slope of the bank. The last two coaches remained on rails. The engine had come to a stop after travelling a distance of about 600 feet from the point of derailment.

4. *Casualties*—I regret to state that Mail Sorter M. P. Sinha who was travelling in the first coach of the train which had capsized, was instantaneously killed. Mail Peon Dudhnath Singh who was also in this coach luckily escaped with multiple minor injuries.

An elderly lady, Shrimati Jawahar Tejumal, who was travelling in the third coach, fractured her wrist. In addition to the above, 16 others received trivial injuries like superficial abrasions and contusions.

The injured persons were attended to by one Dr. Deshmukh who was travelling by No. 41 Down and later on by the Railway District Medical Officer and his Assistant Surgeons when they arrived at the site of accident at about 06.55 hours. Shrimati Tejumal was advised to get herself admitted to the Railway Hospital, Bhusawal for further treatment, but she declined the offer and preferred to continue her journey to Calcutta. A Railway Doctor accompanied her upto Badnera and the District Medical Officers, Nagpur, Bilaspur and Howrah were advised to meet her in the train at their respective stations for any further necessary attention.

Mail Peon Dudhnath Singh was taken to Malkapur in the Up Relief Train and was admitted to the local Civil Hospital at about 09.00 hours. Later on, in the evening, he was taken to Bhusawal and admitted to the Railway Hospital at about 20.10 hours. He was discharged from the Hospital on 13th February, 1956.

It was miraculous that apart from the first coach, all other coaches kept upright and in proper alignment and through the mercy of Providence, the casualties were light.



5. *Composition of the train*—The train was hauled by Engine No. 7383 WP (4-6-2) and its composition was as under :—

1. Postal Van No. 1777 E.R.
2. Composite Luggage-Brakevan Coach No. 2804 S.E.
3. Third Class Coach No. 1729 S.E.
4. Third Class Coach No. 1840 S.E.
5. First Class Coach No. 340 S.E.
6. Composite First and Third Class Coach No. 810 S.E.
7. Second Class Coach No. 974 S.E.
8. Air Conditioned Coach No. 663 S.E.
9. Restaurant Car No. 2542 C.R.
10. Composite First & Second Class Coach No. 2843 C.R.
11. Third Class Coach No. 4552 C.R.
12. Composite Third Class-Postal-Luggage-Brakevan Coach No. 2887 S.E.

All the vehicles were bogie coaches and had steel underframes and wooden bodies with outside steel panelling, with the exception of the first coach which was without any steel panelling. The coaches were fitted with standard side buffers and central screw couplings.

The total length of the train was 941 feet and its weight 708 tons. The train was fully automatic-vacuum-braked and its brake power was 529 tons. The engine was fitted with a speedometer and an electric headlight which were in good working order.

6. *Damage*—(a) The damage to the engine was light and was caused mostly by its having travelled on sleepers and ballast for a length of about 600 feet. Its cow catcher had broken and right trailing side rod, left brake shaft arm, left steam brake cylinder push rod and several brake cross beams and brake block hangers had bent.

The cost of damage to the engine was estimated at Rs. 447 only.

(b) The first coach No. 1777 had overturned and its body had been reduced to splinters. Its underframe was lying upside down with its bogies on top and had been damaged beyond repairs. Its front end remained coupled with the tender, but having been thrown towards the left, its rear end was about 60 feet away from the track.

The coupling between the first and the second coaches had broken and the second and the third coaches had travelled beyond the first coach.

In the second coach No. 2804, the front end panel and the bodysides for a length of about 10 feet had been destroyed; and the front head-stock and the two sole bars had bent. The front buffers and the coupling rod had broken.

The damage to the next seven coaches was comparatively light and was restricted to the bending and breakage of underframe fittings, brake gear, battery boxes, spring hangers, truss bars, foot-boards, foot-board brackets and hose pipes.

All the above coaches were slightly tilted on account of their standing on uneven ground.

The last three coaches of the train were undamaged.

The total cost of damage to the rolling stock was estimated at Rs. 30,285.

(c) About 600 feet of track had been damaged and about 12 rails, 275 sleeper plates, 250 tie bars, 500 keys, 1,260 cotters and some other fittings had to be renewed.

The total cost of damage to the Permanent Way was estimated at Rs. 7,454 only.

7. *Relief Measures*—(a) The accident took place at about 03.50 hours and the Guard, the Driver and the Travelling Ticket Examiners got down and walked along the train and made enquiries from each compartment to find out if any persons had been injured. It was soon learnt that one Mail Sorter had been killed and one Mail Peon and a lady passenger had been injured. One medical practitioner Dr. Deshmukh was travelling by the train and he attended to the injuries of the two persons with the equipment from the Guard's First Aid Box. He also attended to the trivial injuries of a few other passengers. The injured Mail Peon was taken to the last coach of the train and was made to lie down in the postal compartment of that coach.

(b) At about 04.10 hours, Guard Dubey took out his portable field telephone and tried to contact Control on the Control wires but failed to establish contact. He then called spare Guard Kale and Crewman Mahabal and asked them to go to Biswa Bridge and to inform Control about the accident. Kale and Mahabal left the site at about 04.15 hours and reaching Biswa Bridge at about 04.35 hours, informed Control about the accident.

At about 04.55 hours, Guard Dubey was able to get Control on his portable field telephone at the site and gave further information about the accident.

(c) On getting information about the accident at 04.35 hours, Control Bhusawal ordered the turning out of the Medical Van and the Breakdown Train at 04.37 hours and 04.38 hours respectively. The Divisional Transportation Superintendent, the District Medical Officer and other District Officers and Inspectors concerned were also advised by 04.50 hours.

(d) The Bhusawal Breakdown Train with the Medical Van left Shed at 05.15 hours, arrived at the station at 05.30 hours and left Bhusawal at 05.40 hours with the Divisional Transportation Superintendent, the Divisional Mechanical Engineer and the District Medical Officer together with 2 Assistant Surgeons, 2 Dispensers and a few Ward Attendants. The Deputy Commissioner and the District Superintendent of Police, Buldhana, who happened to be camping at Malkapur, joined this train at Malkapur. This train reached the site of accident at about 06.55 hours and the Civil Police and the Railway Officers started their investigations.

(e) The District Medical Officer and the two Railway Assistant Surgeons re-examined all the injured persons and carefully attended to their injuries. Shrimati Tejumal who had a fracture of her right wrist, was given a padded splint in order to immobilise her wrist. The injured persons were served with tea from the Restaurant Car.

(f) The two rear undamaged coaches of the train were attached to the Breakdown Train and were taken to Malkapur. This Up train left the site at about 07.45 hours and reached Malkapur at 08.18 hours. Mail Peon Dudhnath Singh travelled by this train, attended by an Assistant Surgeon and was taken on a stretcher to the local Civil Hospital where he was admitted at about 09.00 hours. The District Medical Officer visited him at about 11.00 hours.

(g) The derailment had not affected the Up track and single line working was introduced. No. 313 Down Bombay-Nagpur Express had been held up at Bhusawal and the Divisional Transportation Superintendent made arrangements for that train to run through to Howrah with the passengers of No. 41 Down. An emergency Special with labour for transshipment and some materials left Bhusawal at 07.00 hours and reached Malkapur at 07.55 hours. No. 313 Down left Bhusawal at 07.32 hours and reached Malkapur at 08.40 hours. The two rear undamaged coaches of No. 41 Down were attached to this train and it reached the site of the accident at about 09.42 hours when the transshipment of passengers, their luggage and the Mail bags was started. This train left the site at 10.20 hours, carrying all the passengers of No. 41 Down, 6½ hours after the derailment.

(h) The Divisional Engineer, Akola, received information about the accident at about 06.00 hours and he along with the Assistant Engineer, Permanent Way Inspectors Shegaon and Akola and the Government Railway Police Sub-Inspector, left Akola by a Special Train at about 06.45 hours and reached Biswa Bridge at 08.35 hours and came to the site at about 08.55 hours on a motor trolley. Arrangements were made to prepare a sketch showing the particulars about the derailed coaches and the damaged track and the same was got checked and signed by the Police Officers present at the site. After this had been done, the work of restoration of track was taken in hand at about 10.30 hours.

(i) On hearing about the accident, the General Manager of the Railway accompanied by the Chief Medical Officer, the Security Officer, the Chief Commercial Superintendent and the Deputy Chief Engineer, left Bombay at 06.40 hours and reached the site of the accident at about 16.00 hours and made their investigations about the accident. The General Manager and the Chief Medical Officer also visited Mail Peon Dudhnath Singh in Malkapur Civil Hospital and arranged for his transfer to Railway Hospital, Bhusawal.

8. *Restoration of Communication*—The rerailing of the derailed coaches was started by the Bhusawal Breakdown Train with a 65-ton crane at 11.15 hours and had to be done during periods of block, without interfering with the traffic on the Up line and the process was necessarily slow.

The tenth coach No. 2843 was rerailed at 11.45 hours and the ninth coach No. 2542 at 13.15 hours. At about 14.15 hours, the Ajni Breakdown Train with a 55-ton crane also arrived at the site and the eighth coach No. 663 was placed on the rails at about 16.50 hours. The engine and the tender were rerailed at 19.45 hours and 20.45 hours respectively. One buffer of the first coach which was fouling the track was cut at 21.00 hours and the Down track was repaired and handed over to traffic at 23.30 hours, leaving the first seven coaches at the site, clear of the track. Three of these coaches were cleared on the 25th and three on the 26th and only the underframe of the first coach was lying on the ground when I visited the site of the accident on 27th January.

9. *Interruption to traffic*—As a result of the accident, No. 381 Down was cancelled between Bhusawal and Jalamb, No. 383 Down between Bhusawal and Nagpur and No. 384 Up between Jalamb and Bhusawal. Four passenger trains suffered detention ranging from 8 hours to 40 minutes. In addition, 10 Up and 4 Down Goods trains were cancelled and four Goods trains were stabled.

10. *Number of passengers*—The normal carrying capacity of the train was 14 Air Conditioned, 48 First Class, 80 Second Class and 319 Third Class passengers. It was estimated that at the time of the accident, 12 Air Conditioned, 28 First Class, 12 Second Class and 250 Third Class passengers were travelling by the train.

11. *Weather conditions*—The weather was clear. It was the 12th night of the bright fortnight of the moon which was about to set.

## II. DESCRIPTION OF LOCAL CONDITIONS

12. *Description of the locality*—(a) The derailment occurred on the Down Line at mile 314/6-7 T. P. between Malkapur and Biswa Bridge on the Bhusawal-Nagpur Double Line Section of the Central Railway. (There were 24 telegraph posts in a mile.)

The Divisional Headquarters and the Control Office were located at Bhusawal. The Divisional Engineer was, however, stationed at Akola.

(b) The mileages, reckoned from Bombay, of the various stations referred to in this Report were as under:—

	Mileage.
Bhusawal .. .. .	276
Varangaon .. .. .	284
Bodwad .. .. .	295
Malkapur .. .. .	307
Biswa Bridge .. .. .	316
Akola .. .. .	363
Nagpur .. .. .	520

(c) The general direction of the line was West to East and the country near the site of accident was open with cultivated fields outside the Railway boundary. There were a few trees both inside and outside the Railway land, but there was no village or road nearby.

(d) The height of the bank varied from 4 to 5½ feet. The bank had black cotton soil but was well consolidated.

(e) The track was straight from mile 309 T.P. 12 to mile 314 T.P. 13 and this was followed by a left-handed curve of 4620 feet radius upto mile 314 T.P. 17.

(f) For a Down train, there was a falling gradient of 1 in 400 from mile 313/5 to 313/19-20, followed by a 1650 feet long level upto mile 314/4-5 and this was succeeded by an Up gradient of 1 in 264 upto mile 314/21.

13. *Description of Permanent Way*—(a) The track consisted of 90 lbs. R.B.S. rails 42½ feet long on CST 9 cast iron plate sleepers laid to N +4 standard. The track was relaid in 1942 with new rails and sleepers. The fishplates were 18" long and weighed 21.37 lbs.

each and were 4-holed. Fishbolts were 5" long and 1" in diameter. The rails were held on to the sleeper seats by 2-way steel keys, one key being used per rail seat. The track centres were 14'-4½".

(b) The rail joints were staggered to a pitch of 3'-6". The sleepers were packed with 1½" gauge stone ballast and there was about 4 to 6 inches of ballast under the sleepers.

14. *Booked & permissible speeds*—The maximum permissible speed for the Section was 60 miles per hour. The booked speeds of trains were not indicated in the Working Time Tables of the Railway, but on enquiry from the Chief Operating Superintendent, it was learnt that the Mail, Express and Passenger trains were booked to run at 54 miles per hour. There was no permanent or temporary speed restriction on the Section where the derailment took place.

### III. SUMMARY OF EVIDENCE AND DISCUSSION

15. *Statement of the Driver*—Driver Merwanji of No. 41 Down stated that he came on duty at 01.00 hours on 24th January after having had a rest of 12 hours. He left Bhusawal at 02.45 hours, 11 minutes late, and ran through Varangaon, Bodwad and Malkapur at 0.03, 03.22 and 03.38 hours respectively. At about 03.50 hours, while he was passing mile 314/7, he received a severe lurch and felt that his engine had derailed and was travelling on ballast and sleepers. He also felt as if the rear of his tender was being pulled towards the left. He immediately made an emergent application of the brakes, and within a few seconds his engine came to a stop, when he noticed that the coaches of his train were standing away from the embankment, at a distance of about 40 yards or so, towards the left of the track. After arranging for the protection of the Up track, he assisted in the rescue of the injured persons and later on, walked to Biswa Bridge to report about the accident.

In reply to questions, he stated that he had been regularly driving that engine and that it was a good running engine and he had no trouble with it so far. At the time of the accident, he was travelling at a speed of about 50 miles per hour. He had shut his regulator and the lever was in full fore-gear, as he had been travelling on a Down gradient and was looking out for Biswa Bridge Outer signal. He had a vacuum of 21 inches on the engine and had experienced no difficulty in controlling his train during the journey. He did not notice any lurching, side oscillations, nosing or diving movements of the engine before the accident. He examined the wheels, axles, axle boxes and the undergear of his engine after the accident and did not find any defects or any missing fittings. He did not feel any 'drag' on his engine before it derailed.

At the time of the accident, he was looking ahead for the Outer signal and he did not notice any obstruction on the track which could have caused the derailment.

He had been running over this Section for the last ten years, and in his opinion, it was a good running Section, and he had no occasion to make any adverse reports about the running of the track. He examined the formation and the track after the accident, but did not find any defect.

At about 06.20 hours or so, after returning from Biswa Bridge, he went round the site of the accident and noticed that fishplates had been removed from one rail joint on the left rail and one rail joint on the right rail. He also noticed some loose fishplates lying nearby and these were undamaged. The rails from which the fishplates had been removed were also undamaged while the cast iron sleepers under the rails had broken. It appeared to him that on account of the removal of fishplates from the rail joints, the train had derailed and taken a course towards the left.

16. *Statement of the Firemen*—First Fireman Almeida and the Second Fireman Chindhu Laxman stated that they were standing on the left side of the footplate of the engine and were looking out for Biswa Bridge signals when they felt a violent lurch and the engine derailed. They estimated the speed of the train at about 45 to 50 miles per hour. The track was running smoothly and they did not notice any defects in it. They did not notice any obstruction on the track before the derailment. The engine had been running smoothly and they did not experience any lurches or side oscillations during the journey. After the accident, Almeida remained on the engine and Chindhu Laxman was deputed to display hand signals for the Up track. They did not make any observations about the cause of the accident.

17. *Statement of the Guard*—Guard Dubey of No. 41 Down stated that while passing mileage 314/6, he experienced a heavy jolt and fell down from his seat and momentarily lost consciousness. On regaining consciousness he got two or three further jolts and the train came to a stop and he realised that his train had met with some accident.

After making arrangements for the protection of the line and attending to the injured persons, he went round the site and noticed that a few rail joints on the left rail and one rail joint on the right rail were without any fishplates and some fishplates were lying nearby. He did not notice any damaged fishbolts and therefore considered that these fishplates had been removed prior to the accident and that their lying at the site was not the result of the accident. He did not notice any defect in the formation or the track in rear of the first open joint, which might have caused the derailment. He estimated the speed of the train at about 45 to 50 miles per hour.

18. *Statement of the Divisional Mechanical Engineer*—Divisional Mechanical Engineer Shri A. C. Chatterjee who reached the site with the Breakdown Train at about 06.55 hours, stated that on arrival at the site, he examined the wheels, axle boxes, spring gear, bogie control springs, hind truck and the tender bogies of the engine, but could not detect any defects which could have contributed to the derailment of the engine. He also examined the derailed coaches but did not notice any condition which could have led to the derailment. He did not notice any defect in the track immediately in rear of the point of derailment. He, however, noticed that fishplates had been removed from two rail joints under the third coach (from the rear) and that there were no marks of damage on these fishplates. He noticed that the first sleeper after the point of derailment was undamaged while the second and third sleepers had wheel marks on the left rail seats. In his opinion, the accident was clearly due to sabotage.

19. *Statement of the Divisional Transportation Superintendent*—Divisional Transportation Superintendent Shri L.D. Panke who also reached the site at about 06.55 hours, noticed that three pairs of fishplates on two consecutive left rails under coaches Nos. 2542 and 2843 and one pair of fishplates on the right rail under coach No. 2542 had been removed and he immediately arranged for the posting of Police Constables to guard these joints. This was also brought to the notice of the Deputy Commissioner and the Superintendent of Police Buldhana, who had also arrived by the Breakdown Train. Shri Panke also noticed the following particulars:—

(In this description, the left hand rails commencing from the rear rail at the first open joint were called Lo, L1, L2, L3, etc., while their companion right hand rails, opposite to them, were called Ro, R1, R2, R3, etc.)

Rail Lo—There was one bright 'batter' mark at the front rail head, and all keys on the rail were intact.

Joint Lo-L1—Fishplates had been removed but one was found near the joint. One bent fishbolt was found inserted vertically in the rail seat and two fishbolts and two nuts were found nearby and there were no marks of damage on the threads of these bolts and nuts. Three steel keys were found near the joint.

Rail L1—All steel keys had been removed and the rail was found shifted inwards by about one foot. First three sleepers showed marks of derailed wheels passing over them. Two fishplates were found alongside the rail about 25 feet from the joint.

Joint L1-L2—Fishplates had been removed and no fishbolts were found.

Rail L2—Rail head at rear end of the rail had 'hammering' marks and a corner of the rail foot had been knocked off. One fishplate was found about 5 feet from the second joint.

Joint L2-L3—Fishplates had been removed.

Rail L3—Rear rail head had been damaged. All keys had been removed.

There were no keys on rails R1, R2 and R3 and fishplates from joint R2-R3 had been removed. Beyond the third joint, the track had been badly damaged and distorted.

20. *Statements of the Divisional Engineer and the Assistant Engineer*—Divisional Engineer Shri N. Sivaramakrishnan and Assistant Engineer Shri Amarsingh Rihal reached the site at about 08.55 hours and inspected the condition of the track and a sketch was prepared showing the position of the various permanent way fittings, as

noticed after the accident. Their statements indicated that all steel keys fastening rails L1, L2, L3, R1, R2 and R3 to the sleepers had been removed and out of a total of 108 keys, only 13 were recovered from the site. Fishplates from four rail joints L0-L1, L1-L2, L2-L3 and R2-R3 had been removed, out of which, four were found undamaged near the site and the remaining four, of which three were undamaged, were recovered later on from the debris. Only one of these fishplates was bent due to several wheels having passed over it. Out of 16 fishbolts and nuts from the four open joints, only 3 fishbolts and 4 nuts were recovered and all of these, excepting the one fishbolt which had been found inserted in the hole in the rail seat of the first sleeper, were undamaged with even the screw threads intact. No marks of violence were noticed on these bolts and nuts and these appeared to have been removed by means of spanners.

Rail L0 was undamaged but there was a bright 'burnished' mark at the front end of the rail head indicating that some wheels had gone over the end of this rail, while the next rail ahead was not in position. Rail L1 was entirely undamaged and its rear end was found shifted towards the right by  $12\frac{1}{2}$  inches while the front end was more or less in its correct position.

The first sleeper after the first open joint was undamaged but the second and third sleepers had their left plates damaged at the rail seats by the wheel flanges striking them. Further on, all the left hand plates under several rails had broken into pieces. Right hand plates under rail R1 were generally undamaged though the tie bars from the third sleeper onwards had been damaged by the derailed wheels.

The rear ends of rails L2 and L3 had been battered and a corner of the foot of rail L2 had chipped off. Fishplates of joints L3-L4 and L4-L5 were found in position and undamaged. Rail L5 had been very badly bent and twisted and was found buried in the formation.

In reply to questions, the Divisional Engineer stated that shortly after his arrival at the site, he checked and recorded the gauge and cross levels of the track for a distance of 150 feet in the rear of the point of derailment and found that the cross levels were correct and the gauge varied from correct to  $1/8$ " tight. No repairs had been carried out to the track before his inspection. The Assistant Engineer stated that the tools of his gang were not checked after the accident but no loss of any tools from the tool box had been reported to him.

21. *Statement of the District Superintendent of Police*—Shri N. C. Dhawad, District Superintendent of Police, Buldhana, stated that he and the District Magistrate were camping at Malkapur when they heard about the accident at about 05.00 hours. They reached the site at about 07.00 hours by the Bhusawal Breakdown Train. Shri Dhawad noticed that two rail joints on the left rails were open and some fishplates and three bolts were lying near the site. He examined the fishplates and fishbolts and noticed that the threads on fishbolts were undamaged; and in his opinion, these appeared to have been removed prior to the accident; because if these had come out of the track as a result of the accident, the threads would have been damaged. He put one nut on one bolt and noticed that it fitted smoothly and that the threads were entirely undamaged. Both the fishplates which he examined were straight and undamaged. On the basis of his observations, he suspected that the train had derailed as a result of the removal of some fishplates and fishbolts.

— In reply to questions, he stated that he noticed that some keys had also been removed from some rails and were lying scattered on the track. He did not notice any defect in the track or in the formation just behind the point of derailment which could have caused the accident. He did not notice any broken or cracked wheels or axles of the engine; and no obvious defect in the engine or the coaches was brought to his notice by any one of his staff during the course of their investigations. He did not notice any evidence of the engine having mounted over any obstruction on the track which might have caused the derailment. He did not receive any complaints from the passengers about excessive speed of the train.

22. *Statement of Sub Inspector, Government Railway Police, Jalamb*—Sub inspector P. W. Pathak of Government Railway Police, Jalamb, stated that he reached the site of the accident at about 07.40 hours and he was there for a short time when he was called by the District Superintendent of Police and was given certain instructions, on receipt of which, he left the place to carry out some other work.

In reply to questions, he stated that while at the site, he noticed two or three fishplates lying loose and at one joint, one rail had been shifted a few inches inwards but he did not notice any damage to this rail. He did not notice any broken fishbolts or nuts at the site. From the absence of any broken fishbolts and nuts at the scene of accident, he considered that the fishplates had been removed prior to the derailment. He did not notice any obvious defect in the formation or in the track behind the point of derailment which might have caused the accident.

23. *Discussion regarding the cause of the accident* - From the above evidence, it was clear that at the site of the accident, steel keys fastening the rails to the sleepers had been removed from three consecutive left hand rails and also from three corresponding companion rails on the right hand side. Fishplates had also been removed from three joints (L0-L1, L1-L2, L2-L3) on the left rails and one joint (R2-R3) on the right rails. Four fishplates had been found near the site shortly after the derailment and all of these were undamaged. Four more fishplates were recovered later on from under the derailed coaches and only one of these was bent and the nature of damage indicated that it was due to some wheels having passed over it. Three fishbolts and four nuts were recovered and all of these, except one fishbolt, were noticed to be undamaged with threads intact. This showed that these had been removed prior to the accident and had not come out of the track, as a result of the accident. The one fishbolt which was bent was found inserted in the hole at the rail seat of the first left sleeper plate after the open joint. This had obviously been inserted there with the intention of preventing the shifted rail from springing back to the sleeper seats. The rear end of the rail L1 was found shifted  $12\frac{1}{2}$  inches towards the right of its normal alignment and this rail was entirely undamaged. The rail seats on the second and third left side sleeper plates had been cut into by the wheel flanges which clearly indicated that when the derailment started, the rail L1 had been shifted and the rail seats on the sleepers were exposed. The exact amount by which the rail L1 had been originally shifted to the right cannot be definitely stated but from the absence of any damage to this rail, it was clear that this had been shifted at least by  $5\frac{1}{2}$  inches, which was equivalent to the width of the rail head plus thickness of the wheel flange plus half the difference between the width of the foot and the head of the rail.

The evidence brought out that the front rail head of rail L0 was 'burnished'. I inspected this rail and noticed that the head at the front end had been slightly rounded off for a width of about one inch which indicated that the wheels had started dropping off from this point and that the next adjacent rail was not in its position when the derailment started.

The first left hand sleeper plate next to the open joint was undamaged, as was normally to be expected, as it was natural for the derailing bogies coming with some speed to skip the first sleeper, and the damage commenced from the second sleeper.

The battered rear ends of rails L2 and L3 indicated that these were more or less in their proper alignment and were hit by the derailed wheels after these had travelled on the sleepers under the rail which had been shifted.

24. From the above analysis, it was clear that the derailment of No. 41 Down at mile 314/6-7 was due to the shifting of one left rail of the Down track towards the gauge face, by at least  $5\frac{1}{8}$ ", after the removal of all steel keys fastening the rail to the sleepers and the removal of fishplates connecting the rail to the adjacent rails at both ends.

25. It appeared that the engine derailed towards the left at the first open joint but continued travelling straight and breaking C. I. sleepers and tie bars. On account of the sudden retardation in speed of the engine due to its derailment and the momentum of the rear portion of the train, the first coach after the engine was swung towards the left and it capsized resulting in the breakage of the coupling between the first and the second coach. The rear portion of the train which had taken a North-Easterly course, left the bank and continued travelling on the uneven ground beyond the toe of the bank till its momentum had spent itself out.

The badly bent and twisted fifth rail which was found buried in the formation indicated that the right wheels of the coaches had passed over this rail before rolling down the bank.

26. It was noticed that no reversed jaw sleepers had been provided in the track with CST 9 sleepers. Reversed jaw sleepers have their keys fitted on the outer edge of the



sleeper seats and if three reversed jaw sleepers had been provided on each rail as was the practice on some Railways, it would have been difficult to displace the rail even if the keys from all the sleepers had been removed.

27. *Time available for the removal of fishplates*—The last train that passed over this Section before the accident was No. N. 283 Down Goods which ran through Malkapur and Biswa Bridge at 01·55 and 02·10 hours respectively. It must have passed the site of the accident at about 02·07 hours. The Driver of this train stated that his train travelled over this mileage at a speed of about 35 to 40 miles per hour and he noticed nothing unusual and that the running of the track was good. There was no Up train on this Section after the passage of No. N. 283 Down till the time of the accident which meant that there was an interval of 1 hour and 43 minutes during which the tampering of the track could be done.

An experiment was conducted and it was noticed that with a spanner, a hammer and a tommy bar, one person could remove 4 pairs of fishplates in 10 minutes; and the 18 keys from one rail could be removed in about 15 minutes. There was therefore plenty of time after the passage of No. N. 283 Down, during which the tampering with the track could easily be done.

28. *A previous case of tampering with the track*—It was learnt that on 28th November 1955 about two months prior to this accident, the Down track had been tampered with at mile 314/1-2. In that case, all keys had been removed from one left hand rail as also the fishplates at both ends of the rail. The free rail was then slightly tilted inwards with its foot resting on the outer lugs of the sleepers and 8 keys had been inserted under the rail foot to prevent its properly sitting on the sleepers. This tampering with the track was luckily detected before any mishap could result and the incident was reported to the Police and was still under investigation.

As a precautionary step, patrolling was introduced the same evening on Bhusawal-Biswa Bridge Section, which continued up to 18th December when it was discontinued.

29. *Speed of the train*—In their evidence, the Guard and the Driver gave certain timings about the passage of No. 41 Down at various stations but when their Journal Books and Memo Books were examined, it was noticed that new books had been started from the date of accident. When their old books were obtained and inspected the next day, it was noticed that records had not been kept by them about the timings at which their train passed various stations and that the new books had been made out, subsequent to the accident, and were therefore not authentic.

On obtaining the timings from the station records, it was noticed that No. 41 Down had left Bhusawal at 02·43 hours and had run through Varangaon, Bodwad and Malkapur at 03·02, 03·25 and 03·40 hours respectively and the running time taken by the train between these stations was more or less the same as shown in the Working Time Table. The booked speed of the trains was not shown in the Working Time Table on the Central Railway, but on enquiry from the Chief Operating Superintendent, it was learnt that the running timings had been worked out on the basis of a booked speed of 54 miles per hour. Shortly before the accident, the train had passed over a Down gradient of 1 in 400 and a Level, and I consider that at the time of the accident, it was running at its normal booked speed of about 50 to 55 miles per hour.

30. *Examination of the track*—The evidence did not bring out any defect in the track which could have contributed to the accident. The Divisional Engineer inspected the track at about 10·00 hours and the Deputy Chief Engineer also inspected it at about 16·00 hours, and they found the track in rear of the point of derailment in good condition. When I inspected the track 3 days after the accident, I found it maintained to a fairly good standard.

From an inspection of the Gang Chart, it was noticed that the track had been through packed on 15th November 1955 and 'slacks' had been picked on 31st December. The Divisional Engineer and the Assistant Engineer had motor trollied over this portion on 12th January and the Sub Permanent Way Inspector had trollied over it on 20th January but no defects had been noticed in the mileage where the accident took place.

31. *The Engine and the Rolling Stock*—The Engine No. 7383 WP which hauled No. 41 Down was called 'The Pride of Bhusawal' and was reported to be one of the best engines in the Shed. It had come back after its last Periodical Overhaul on 9th September 1954 and had since done a mileage of 1,24,141 against the normal mileage of 1,75,000 for



Periodical Overhaul. The wheel gauge, wheel flange profiles, axle guards, axle boxes, bearing springs, bogie control springs and various clearances were examined to detect any condition which could have caused the derailment, but none could be discovered.

The Repair Book of the engine was examined and the entries for the last fortnight were scrutinised. The repairs booked were of a routine nature and there were no bookings which reflected on the riding qualities of the engine.

The first three coaches were thoroughly examined and the remaining derailed coaches were generally examined for any defects which could have contributed to the derailment but no such defects were noticed.

32. *Ability of Engine crew to avert the derailment*—The headlight of the engine was burning at the time of the accident but the Driver did not notice any displacement of the rail. It was very doubtful if under normal running conditions and while travelling at a speed of about 50 to 55 miles per hour at night time, it was practicable for any Driver to notice a displacement of a rail by a few inches. Moreover, in the present case, the engine crew were looking for the Outer signal of Biswa Bridge and their attention was not wholly directed towards watching the track. I, therefore, consider that the Driver cannot in any way be held responsible for any failure to avert the accident.

#### IV. CONCLUSIONS

33. *Cause of the accident*—I consider that the derailment of No. 41 Down Bombay—Calcutta Mail on 24th January 1956 at mile 314/6-7 between Malkapur and Biswa Bridge was due to the removal, by some person or persons unknown, of four pairs of fishplates and all steel keys from three consecutive pairs of rails opposite to each other and the shifting of one left rail by at least 5-1/8 inches inwards towards the gauge face.

34. *Engine crew's responsibility*—I consider that the Driver can, in no way, be held responsible for not averting the accident, as under normal running conditions, it was not practicable for him to detect the shifting of the rail in time to be able to stop the train short of the open joint.

35. *Relief Arrangements*—The Relief arrangements were generally satisfactory. Suitable arrangements were also made to enable the passengers to continue their journey after the accident.

There was, however, some delay on the part of the Guard, in establishing contact with Control on his portable field telephone.

Yours faithfully,

R. C. SOOD

Government Inspector of Railways, Bombay

BOMBAY

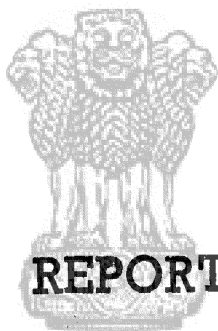
Dated the 14th February, 1956.



सत्यमेव जयते

GOVERNMENT OF INDIA  
MINISTRY OF TRANSPORT & COMMUNICATIONS  
(RAILWAY INSPECTORATE)

## RAILWAY ACCIDENTS



REPORT

on  
सत्यमेव जयते

DERAILMENT OF RAJKOT-OKHA MAIL

between

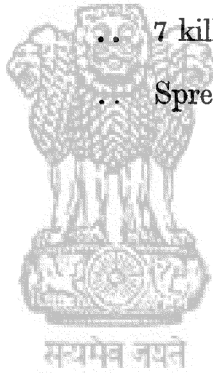
HADMATIA AND JAMWANTHALI  
(WESTERN RAILWAY)

on

19th May 1956

## SUMMARY

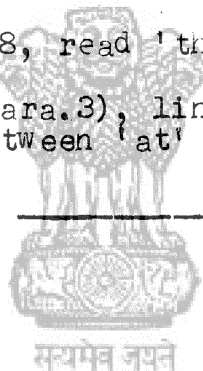
Date	..	..	..	..	May 19, 1956.
Time	..	..	..	..	16.00 hours.
Railway	..	..	..	..	Western.
Location	..	..	..	..	Mile 182/17-19 between Hadmatia and Jamwanthali stations.
Kind of accident	..	..	..	..	Derailment.
Train involved	..	..	..	..	No. 340 Down Rajkot-Okha Mail.
Engine Number	..	..	..	..	1964 YP (4-6-2)
Consist	..	..	..	..	9 bogie coaches.
Estimated speed	..	..	..	..	30 to 35 miles per hour.
Operation	..	..	..	..	Absolute Block System.
Track	..	..	..	..	Metre Gauge; Single Line; Straight; Level.
Weather	..	..	..	..	Clear.
Casualties	..	..	..	..	7 killed, 28 injured.
Cause	..	..	..	..	Spreading of gauge of the track.



REPORT ON DERAILMENT OF RAJKOT-OKHA MAIL BETWEEN  
HADMATIA AND JAMWANTHALI (WESTERN RAILWAY) ON 19TH  
MAY 1956.

E R R A T A

- On page 1, para 1, line 1, read 'Orders' for 'Oders'
- " " " " " " 4, read 'Gondal' for 'Gondel'
- " " " " 2, against items 5 to 7 of the sub-para, read 'on  
22nd May only' for 'on 22nd Mony.'
- " " 8 " 7 (sub-para.1), line 1, read 'first' for 'firtt'
- " " " " " (sub-para.6), " ", read 'three' for 'tree'
- " " 5, " 16, line 5, read 'but' for 'bud'
- " " 6, " 21, " 4, read 'rails' for 'rail'
- " " " " " " " read 'sleepers' for 'sleeepers'
- " " 7, " 23, " 12, read 'corresponding' for 'correponding'
- " " 9, " 25, " 8, read 'these' for 'those'
- " " 15, " 41 (sub-para.3), line 2, insert the word 'a'  
between 'at' and 'speed'



To

The Secretary,

Government of India (Ministry of Communications),  
New Delhi.

Through the Chief Government Inspector of Railways,  
Ministry of Communications, Simla.

SIR,

*Reference to Orders*—In accordance with Rule 9 of Railway Board's Notification No. 1926-T dated 19th March 1930. I submit herewith the result of my Inquiry into the accident to No. 340 Down Rajkot-Okha Mail which took place between Hadmatia and Jamwanthali stations on the Gondel Region of the Western Railway at about 16.00 hours on 19th May 1956.

2. *Inquiry held*—The Inquiry into the accident was held by me on 22nd and 23rd May at Jamnagar and on the 25th May at Bombay. The site of the accident and the damaged rolling stock were inspected on the 21st and again on 24th May. The following Officers were present at the Inquiry at Jamnagar :—

1. Shri B.N. Wahal, Regional Traffic Superintendent, Western Railway, Gondal.
2. Shri C.H. Sadarangani, Regional Mechanical Engineer, Western Railway, Gondal.
3. Shri H. K. D. Capoor, Regional Engineer, Western Railway, Gondal.
4. Shri Khuman Singh A. Zala, District Superintendent of Police (Railways), Rajkot.
5. Shri J. L. Jobenputhra, Collector and District Magistrate, Halar. }
6. Shri S. Ramaya, District Superintendent of Police, Halar } on 22nd
7. Shri P.K. Shah, First Class Magistrate, Dhrol. } Mony.

Evidence of 22 witnesses was recorded at Jamnagar and of 3 witnesses at Bombay.

3. *Brief description of the accident*—At about 16.00 hours on 19th May 1956, while No. 340 Down Mail was travelling between Hadmatia and Jamwanthali at a speed of about 30 to 35 miles per hour, the tender of the engine and all the coaches of the train were derailed at mile 182/17-19. Only the engine and the rear bogies of the tender and of the 8th and 9th coaches remained on rails. The 3rd and the 4th coaches were thrown towards the left, about 45 to 55 feet away from the track, and the 3rd coach had turned turtle with its body completely smashed.

4. *Casualties*—I regret to state that as a result of the accident, seven passengers were killed on the spot and 28 were injured ; of these, the injuries to 11 were grievous. 25 persons were taken to the Hospital; and all of these were discharged by 28th June 1956.

5. *Composition of the train*—(a) The train was hauled by Engine No. 1964-YP (4-6-2) and its composition was as follows :—

Coach No.	Description	Date of P.O.H.
804	Luggage and Brakevan .. .. .	29-2-56
2082	Composite Second and Third Class .. .. .	31-10-54
2784	Third Class .. .. .	20-10-54
293	Second Class .. .. .	28-10-54
432	Third Class .. .. .	29-2-56
2680	Third Class .. .. .	31-1-55
1235	Third Class .. .. .	31-5-55
370	Third Class .. .. .	30-4-55
1860	Composite Third-Luggage-Brakevan .. .. .	13-1-55

(b) The total length of the train was 569 feet and its weight 265 tons. The train was fully automatic-vacuum-braked and the brake power was 210 tons.

(c) All the coaches were bogie coaches and had steel underframes and wooden bodies with outside steel panelling. These were fitted with standard central buffer couplers.

6. *Number of passengers*—The carrying capacity of the train was 76 Second Class and 399 Third Class passengers. It was estimated that at the time of the accident, about 250 to 300 passengers were travelling in the train.

7. *Disposition of the coaches and damage*—The engine was undamaged except for the breakage of the tender buffer draw bar pin which had snapped. The engine had parted from the train and was standing at a distance of 326 feet from the first coach and the tender buffer coupler was found lying opposite T.P. 182/19.

The first coach No. 804 had derailed to the left and was lying at a distance of about 5 feet away from its original position and was tilted at an angle of about 45 degrees. The left hand wheels were embedded in the ground upto the underframe level. The damage was very light.

The second coach No. 2082 had derailed to the left and was tilted to the left at an angle of about 60 degrees and was about 7 feet away from its original position with its left wheels embedded in the ground. The left leading spring hanger of the leading bogie and the right leading spring hanger of the trailing bogie had broken and the front swan neck had fractured. The brake gear had also been bent and damaged. The damage to the coach was light.

The third coach No. 2784 had been thrown upside down with its superstructure totally demolished.

The front end of the fourth coach No. 293 had swung through a right angle and was standing upright at a distance of about 55 feet from the track. Its rear end panel and the rear side panels had been smashed for a length of about 10 feet. Both the bogies had been detached from the underframe and had been heavily damaged.

The fifth and sixth coaches Nos. 432 and 2680 were also derailed on the cess and were tilted to the left at an angle of about 20 degrees but were not much damaged.

The last three coaches Nos. 1235, 370 and 1860 had also derailed to the left but were not much laterally displaced. The damage to these coaches was negligible.

The total cost of damage to the Engine and the Rolling Stock was estimated at Rs. 1,23,000.

About 10 rail lengths of Permanent Way were badly damaged, but the damage was mostly restricted to sleepers only. Only three left hand rails which had been dragged under the derailed coaches had to be changed. None of the fishplates had sheared but eight fishplates had been damaged. A large number of fishbolts had sheared as a result of the accident.

The total cost of damage to the Permanent Way was estimated at Rs. 5,000 only.

8. *Weather conditions*—The accident took place on a clear sunny afternoon.

9. *Relief measures*—(a) The accident took place at about 16.00 hours and the Guard and the Driver of the train assisted by some passengers, helped others in detraining from the tilted coaches. They also helped in rescuing the injured persons from the capsized coach. Some military personnel travelling by the train rendered very useful service in this connection and with the help of iron bars from the engine, several persons entrapped in the third coach were extricated.

(b) At about 16.12 hours, the Guard wrote a Memo about the accident and sent it to Station Master, Jamwanthali through the Second Fireman. The Guard then took out his First Aid Box and with the aid of other passengers, started rendering First Aid to the injured. Information about the accident soon reached nearby villages and a large number of villagers came to the site and arranged for the supply of drinking water from the nearby wells and also assisted in the rescue operations.

(c) The Guard's Memo was received at Jamwanthali at about 16.45 hours and its contents were immediately communicated to Jamnagar Control. A few minutes earlier, the District Traffic Superintendent, learning that the train was overdue at Jamwanthali,

had alerted the Jamnagar Breakdown Train. At about 16.50 hours, instructions were issued for the turning out of Jamnagar and Rajkot Relief Trains. Station Masters, Alibada, Jamwanthali, Hadmatia and Paddhari were instructed to arrange for the attendance of any local doctors if available. The District Railway and Civil Officers were also informed of the accident without any delay. Jamnagar Irwin Hospital Authorities were contacted and were requested to rush their ambulances to the site and to reserve a ward for the admission of the casualties.

(d) Dr. Bhargawa, Medical Officer, Civil Dispensary, Paddhari, received information through Station Master, Paddhari at about 17.20 hours and reached the station soon after. A light engine was on its way from Rajkot to Jamnagar and instructions were issued to utilise it for conveying Dr. Bhargawa to the site of the accident. The medical equipment in the Medical Dump at Hadmatia was loaded on this engine and Dr. Bhargawa reached the site of accident at about 18.45 hours and started giving First Aid to the injured. By this time, all the injured persons had been taken out of the coaches and three dead bodies had also been recovered.

At about 19.20 hours, an Ambulance from Irwin Hospital, Jamnagar, arrived at the site with a Doctor and a Nurse, who also started attending to the casualties. Six seriously injured persons were conveyed to the Ambulance which left for the Hospital at about 19.45 hours, and they were admitted to the Hospital at about 21.30 hours.

(e) Jamnagar Relief Train consisting of three bogie coaches and three four-wheeler Inspection Carriages left Jamnagar at 17.40 hours. The Railway District Officers, two Railway Doctors with medical equipment, some Police Constables and about 20 to 25 Hamals travelled by this train which reached the site of the accident at about 18.50 hours. After all the injured persons had been attended to by the Doctors, arrangements were made to convey them to the bogie inspection Carriage on the Relief Train and the other passengers of No. 340 Down were also transhipped into this train. The Relief Train left the site of accident at 20.05 hours and reached Jamnagar at 21.40 hours. Arrangements were made to take this train on the Bedi Bunder line just opposite to the Hospital. The 19 injured persons on this train were admitted to the Hospital at about 22.00 hours. On arrival at the Hospital, a child who had sustained head injury and was showing signs of cerebral compression, was immediately attended to by a Surgeon in the Operation Theatre.

(f) Arrangements were made to collect a few coaches and to form a scratch rake and to run it to Okha as No. 340 Down. This train left Jamnagar at 00.55 hours on the 20th, with the stranded passengers, 7 hours 50 minutes late according to No. 340 Down timings. A few passengers did not want to continue their journey and expressed a desire to be sent back to Rajkot. They were sent to Rajkot by the return Rajkot Relief train.

(g) The Regional Officers from Gondal reached the site by a R.M.C. at about 20.20 hours.

The District Superintendent of Police accompanied by Deputy Collector, Jamnagar, arrived by road at about 20.05 hours with a party of about 18 Officers and men, and posted sentries all around the train and supervised the police operations for the recovery of dead bodies from underneath the wreckage of the third coach. Four dead bodies were recovered in addition to the three previously taken out. Earlier, a police Sub-Inspector from Rajkot had arrived at the site by the Rajkot Relief Train at about 19.00 hours and had searched the entire rake for any abandoned property.

(h) The Chief Minister and the Home Secretary, Saurashtra State, visited the site between 21.30 hours and 22.15 hours. The District Magistrate, Halar, who was away at Rajkot, on hearing about the accident, arranged for the despatch of two buses, a municipal water lorry, petromax lamps and about six maunds of eatables to the site and himself arrived there at about 23.15 hours. He, later on, visited the Hospital and assured the authorities about the sanction of any additional grant of money required for the proper treatment of the injured.

(i) The General Manager of the Railway accompanied by the Chief Engineer, the Chief Mechanical Engineer and the Chief Operating Superintendent, reached the site at about 14.00 hours on 20th May and made personal investigations about the accident, and later on visited the injured persons in the Hospital.

10. *Restoration of Communications*—(a) The Jamnagar Breakdown Train with a 10-ton crane left Jamnagar at 18·05 hours. The Rajkot Relief Train left Rajkot at about 18·10 hours and reached the site at 19·12 hours. Wankaner Breakdown Train with a 35-ton crane had left Wankaner at 17·45 hours.

(b) Attempts were made to rerail the engine tender by rerailing ramps but these failed. The tender was then uncoupled and was rerailed by jacks at about 06·20 hours on 20th May and was taken to Jamwanthali by the Jamnagar Breakdown Train. The last three derailed coaches were rerailed at 00·00 hours, 03·50 hours and 09·00 hours respectively and were taken to Hadmatia by the Rajkot Relief Train. Of the remaining six derailed coaches, the first and the sixth coaches and the front bogie of the second coach were fouling the moving dimensions. These vehicles were shifted clear of the track as far as possible and the track was slewed in order to remove the remaining infringements. Through communication was restored at 16·00 hours, after repairs to the track had been completed.

11. *Detention to trains*—As a result of the accident, in addition to the derailed train, three other Down and three Up passenger trains were transhipped at site and suffered detentions ranging from 3 hours 10 minutes to 10 hours 52 minutes. Two passenger trains (No. 678 Down and No. 677 Up) were cancelled between Rajkot and Jamnagar. Two Goods Trains were stabled and four were cancelled.

## II. DESCRIPTION OF LOCAL CONDITIONS

12. *Description of the locality*—(a) The accident took place at Mile 182/17-19 between Hadmatia and Jamwanthali stations on the Viramgam-Okha Main Line Metre Gauge Section of the Gondal Region of the Western Railway. This was a Single Line Section

(b) The mileages from Mehsana of some of the stations referred to in this Report were as under :—

							Mileage
Rajkot	..	..	..	..	..	..	152 $\frac{1}{4}$
Khandheri	..	..	..	..	..	..	159
Paddhari	..	..	..	..	..	..	167 $\frac{3}{4}$
Hadmatia	..	..	..	..	..	..	176 $\frac{1}{4}$
Jamwanthali	..	..	..	..	..	..	185 $\frac{3}{4}$
Jamnagar	..	..	..	..	..	..	202
Kanalus	..	..	..	..	..	..	218
Okha	..	..	..	..	..	..	306

(c) The general direction of the line was East to West and the country near the site of accident was open, with cultivated fields on both sides; but no crops were growing at the time.

The nearest village was Tamachan on the right hand side of the track about  $1\frac{1}{4}$  miles away. There was no road nearby but jeeps and trucks could reach the site from Jamwanthali through the fields.

(d) The height of the bank was about six feet and it was made up of black cotton soil, which was well consolidated.

(e) For a Down train travelling between Hadmatia and Jamwanthali, there were a series of short curves and straights. At the site of the accident, however, the track was straight from Mile 181 feet 964 to mile 184 feet 160; and it was level from Mile 180 feet 380 to Mile 183 feet 600.

(f) The Railway District Officers were stationed at Jamnagar and the Control Office was also located there. Jamnagar was also the Headquarters of the Civil Halar District and the District Magistrate and the Superintendent of Police were posted there.

13. *Description of the Permanent Way*—(a) The track consisted of 50 lbs B.S. flat-footed rails; 36 feet long, on half round jodka teakwood sleepers laid to N+2 standard. The rails were held on to the sleepers by two dogspikes per rail seat. The fishplates were 16" long and were 4-holed, the fishbolts being  $3\frac{1}{2}$ " long with  $\frac{5}{8}$ " diameter.

(b) The rails were rolled in 1927 and the wooden sleepers were originally laid in 1930. The sleepers were renewed on the 'spot renewal' basis.



(c) The track was stone ballasted with about 4" to 6" of ballast mixed with earth under the sleepers but there was hardly any clean ballast under the sleepers.

14. *Maximum permissible speed and speed restrictions*—The maximum permissible speed on the Viramgam-Okha Section was 35 miles per hour. There was however a speed restriction of 20 miles per hour on the Rajkot-Okha Section (with a booked speed of 18 miles per hour) which was imposed in February 1955, on account of bad sleepers and sinking of bank during the monsoons. This restriction of speed was raised to 25 miles per hour from 12th October 1955 (with a booked speed of 22 miles per hour for the trains).

From 1st April 1956, however, the speed restriction between Rajkot and Okha (with the exception of Mileage 218 to 224 and 235 to 247) was removed and the trains were permitted to run upto the maximum permissible speed of the Section, i.e. 35 miles per hour; and the booked speed of trains was raised to 31 miles per hour.

### III. SUMMARY OF EVIDENCE AND DISCUSSION

15. *Statement of the Driver*—Driver Gulabkhan Pathan stated that he came on duty at 09.00 hours after having a rest of 22 hours. His train left Rajkot at 14.44 hours, i.e. 29 minutes late. He passed through Khandheri at 14.59 hours and arrived at Paddhari at 15.18 hours and left at 15.20 hours. He arrived at Hadmatia at 15.41 hours and left at 15.48 hours. While his train was running in mile 182/18-19 between Hadmatia and Jamwanthali, he received a severe jerk from the rear of the train, as if the engine was being pulled back. Almost immediately after, he received a heavy jerk in the forward direction. He closed his regulator and was in the act of applying the vacuum brakes, when the engine was pushed forward by another heavy jerk.

In reply to questions, he stated that at the time of the accident, he was travelling at a speed of about 30 miles per hour and was not making up time. He could not explain as to why his engine travelled more than 300 feet after the application of brakes. He noticed the time when the engine stopped, and it was 16.00 hours. The running of the track between Hadmatia and Jamwanthali was normal and he did not experience any side oscillations. The engine was also riding smoothly and he did not notice any lurching, nosing or diving movements. At the time of the accident, he was standing on the right side of the engine looking ahead and he did not notice any obstruction on the track. He did not notice any defect in the track nor any subsidence in the bank, which could have caused the accident. He could not say which coach derailed first. He noticed after the accident that several sleepers had been damaged, but did not observe whether the damage had been caused by the right hand or the left hand derailed wheels.

16. *Statements of the Firemen*—The two Firemen generally corroborated the statement of the Driver. Leading Fireman Amin Khan stated that the engine received a sudden pull from the rear followed by a forward jerk. According to him, the train was running at its normal speed of 30 or 31 miles per hour. He was standing on the left hand side of the footplate and was looking ahead, but did not notice any obstruction on the track nor any defect in it. The running of the track between Hadmatia and the site of the accident was normal and he did not notice any defect in the track.

Second Fireman Samji Deva stated that before the accident, both the engine and the track had been running smoothly and he did not know what caused the accident.

17. *Statement of the Guard*—Guard Trivedi stated that his train left Rajkot at 14.44 hours, ran through Khandheri at 14.59 hours and arrived at Paddhari at 15.18 hours and left at 15.20 hours. He arrived at Hadmatia at 15.41 hours and left at 15.48 hours. While his brakevan was in Mile 182/16, he received three heavy jerks in quick succession and he fell down from his seat on to the brakevan floor. After getting out of his brakevan, he went round the site of the accident, but could not form any opinion about its cause. The speed of the train was about 30 miles per hour and he did not notice any defect in the bank or in the track which could have caused the derailment. He noticed the wheel marks on the sleepers but could not make out anything out of these. He did not notice whether the right hand rails had been disturbed as a result of the accident. He did not have any portable field telephone in his brakevan. He had an emergency tool box in his brakevan, but he had no occasion to use it, as he got some iron bars from the Driver.

18. *Statements of the passengers*—Shri J. H. Kothari who was travelling in the second coach of the train, stated that just before the accident, he heard an unusual sound from

the engine side and his coach experienced violent oscillations and it tilted towards the left and got struck in the bank. He could not say anything about the cause of the accident. According to him, the train left Rajkot at 15.05 hours and arrived at Hadmatia at 15.48 hours and in his opinion, the train had been travelling at a speed of about 40 miles per hour. The accident took place between 16.00 hours and 16.15 hours. Before he heard the unusual noise, the running of the coach and the train was quite normal. After this noise, the train hardly travelled 20 to 25 feet before it came to a stop. Asked about the nature of the noise which he heard, he stated that it was like that produced when wagons collided.

19. Shri R. M. Mehta who was also travelling in the second coach, stated that he heard a loud noise followed by three jerks and his coach tilted towards the left. In his estimate, the speed of the train was a little more than normal, but it was not excessive. He could not say anything about the cause of the accident.

20. Shri B. C. Hathi who was travelling by the derailed train, stated that just before the accident, he felt a jerk and thought that on account of some cattle on the track, the Driver had applied the brakes. This was followed by two other backward and forward jerks and the train came to a stop. In his opinion, the speed of the train was 30 to 32 miles per hour and was neither abnormal nor excessive. The sleepers in the track were very old and some passengers stated that the accident might have been due to old sleepers. He thought that the superstructure of the third coach was very old and weak. He did not make any observations about the condition of the rails and sleepers near the derailed coaches and he could not say anything about the cause of the accident.

21. Shri P. P. Shukla who was travelling in the last coach of the train, stated that he felt a violent jolt and the train came to an abrupt halt. In his opinion, the train was travelling at a speed of about 30 to 35 miles per hour which was its usual normal speed. He made no observations about the conditions of rail and sleepers and the cause of the accident.

22. *Statement of the Sub-Permanent Way Inspector-in-Charge*—Sub Permanent Way Inspector in-charge S.B. Kazi stated that after his superannuation as a permanent Way Inspector on 8th March 1954 he was re-employed as a Sub-Permanent Way Inspector-in-charge from 21st January 1956. On 19th May, he was trollying from Jamwanthali to Hadmatia when he learnt about the accident and reached the site at about 16.15 hours. He returned to Jamwanthali to arrange for labour and materials for repairs and came back to the site with the Jamnagar Relief Train.

Asked as to what observations he made at the site about the rails and sleepers and marks of derailed wheels on the sleepers, he stated that on the right hand rails, some fishbolts had sheared and two or three rail joints had got disconnected, though the fishplates had not sheared. He did not notice how many fishbolts in the right hand rails had broken and did not remember which left hand rails and how many had got disconnected. At the joint opposite Mile 182/17, he noticed some wheel marks on the right hand outer fishplate. There were marks on the sleepers on the inner side of the right hand rails and these continued for two telegraph posts. There were wheel marks on the sleepers on the right hand side of the left hand rails and these continued up to the engine. He did not notice if there were any wheel marks on the sleepers on the outer side of the left hand rails. On the right hand side, no rail had been bent or twisted and only the third or the fourth rail had become disconnected. After the accident, all the coaches were found to have derailed towards the left and he did not notice any signs of any right hand wheels having crossed the right hand rails. After the accident he changed 311 sleepers, 3 rails, 8 fishplates and 68 fishbolts, but could not say at which joints the fishplates and the fishbolts had been renewed. He did not notice anything obviously wrong in the rolling stock which could have caused the derailment. He, however, noticed that a buffer coupler pin and a spring hanger had broken.

Asked as to when he had last carefully inspected the track and noted down the number of unserviceable sleepers in each T.P. and whether he could produce these records, he stated that he had deputed Sub Permanent Way Inspector V.C. Dewan for this inspection and the list of unserviceable sleepers in the track, as prepared by him, was forwarded by him to his District Engineer on 3rd March 1956. According to these

records, the number of unserviceable sleepers and the percentage of such sleepers in miles 172 to 184 were as under :—

Mile	No. of un- serviceable sleepers	Percentage of unservice- able sleepers
172 .. .. .	..	79.49
173 .. .. .	1562	60.21
174 .. .. .	1279	61.49
175 .. .. .	1257	51.31
176 .. .. .	1043	61.64
177 .. .. .	1289	71.16
178 .. .. .	1548	63.89
179 .. .. .	1375	70.61
180 .. .. .	1348	75.60
181 .. .. .	1534	68.28
182 .. .. .	1378	74.13
183 .. .. .	1502	61.78
184 .. .. .	1257	63.49

In the above mileages, the number of sleepers changed from 3rd March 1956 to 28th April 1956 was as under :—

Mile	No. of sleepers
172 ... .. .	3423*
173 .. .. .	1665
174 .. .. .	1669
175 .. .. .	..
176 .. .. .	1087
177 .. .. .	1299
178 .. .. .	464
179 to 184 .. .. .	Nil

In reply to a further question, he stated that during 1955-56, he had received 25,803 sleepers and a further supply of 3,436 sleepers was received since April 1956 for renewals and at present only 1,204 sleepers were in hand. The present total requirement of sleepers for renewals was 14,240. There was a speed restriction of 20 miles per hour at miles 172 to 176 and 191/4 to 193/4 and this was removed by the District Engineer on 31st March 1956. He was not aware of any speed restriction in force in mile 182.

23. *Statement of the District Engineer*—Shri Batliwala, District Engineer, stated that the first marks of derailment were noticed by him on the first sleeper in rear of the rail joint opposite mile 182/17. Considering this rail joint as the zero point, and the right and the left hand rails in rear of this joint as R0 and L0; and the right and left hand rails in advance of this joint as R1, R2, R3 and L1, L2, L3, etc., the first mark of derailment was a flange mark on the last sleeper under Rail L0 about 5" towards the right of the rail, and a corresponding mark on the outer fishplate of the right hand joint and a dent on the outer dogspike on this sleeper. One fishbolt in this joint had also broken. The first sleeper under rails R1, L1, also had a wheel mark about 5" towards the right of the left hand rail and a corresponding dent on the head of the outer dogspike on the right hand side. The second sleeper had a flange mark about 6" to the right of the left hand rail and a corresponding mark on the sleeper on the right hand side. The sleepers beyond the second sleeper had dent marks to the right of the left hand rail but no corresponding marks on the right of the right hand rail. These sleepers had cracked at the dent mark and the gauge had widened.

Fishplates and bolts at Joint R1-R2 were undamaged while all the fishbolts at Joint L1-L2 had sheared. Rails R1 and L1 were undamaged.

At the joint R2-R3, all the fishbolts had sheared while at Joint L2-L3, only two fishbolts had sheared and two fishplates had been damaged by derailed wheels.

Rails R2 and L2 were undamaged, but the sleepers under these rails had been cut and broken on the inside of the left rail.

All the fishbolts on joints R3-R4 and L3-L4 had sheared but rails R3 and L3 were undamaged with all the sleepers broken.

Rails R4, L4 and L5 were not visible at site but L6 and L7 had been pushed forward beyond L8. Joint between L6 and L7 was however intact. Rail R5 was lying near its proper position, but was turned over on its side. Right hand rails from R6 onwards and left hand rails from L8 onwards were intact.

At about 01.00 hours on 20th, the District Engineer accompanied the Regional Officers and checked the track for about 100 sleepers in rear of the point of derailment and one rail length ahead of it. He did not notice any defect in the track which could have caused the derailment. The work of restoration of the track was begun at about 02.00 hours. About 165 sleepers had been damaged between the first point of derailment and the first coach and about 45 sleepers between the first coach and the engine.

In reply to questions, Shri Batliwala stated that beyond the first two sleepers from the Joint R0-R1, there were no wheel marks on the right hand side of the right rails corresponding to the wheel marks on the sleepers on the right of the left hand rail. He did not number the first few sleepers beyond the point of derailment and did not preserve these for my inspection. He admitted that there was no particular difficulty in doing so, but that the sleepers got mixed up during the rerailing operations. All the vehicles had been found as having derailed to the left but he could not explain as to what happened to the right hand wheels which were alleged to have derailed to the right, on the first two sleepers at the Joint R0-R1. In the absence of any marks on the sleepers on the outside of the right hand rail, he could not trace the course of the travel of any derailed wheels on the outside of the right hand rail. There was no indication as to where the right hand wheel had crossed the right hand rail again. He thought that the right hand wheels travelled suspended in the air. He had checked the gauge under the rails R1-L1 and the gauge had spread upto  $2\frac{7}{8}$ ".

Asked if he had noticed any defects in the rolling stock which could have caused the derailment, Shri Batliwala stated that the vacuum hose pipe adaptor of the second coach was found broken with an old breakage to an extent of  $2" \times 1\frac{1}{2}"$  and in his opinion, a sudden application of the brakes with a possible jamming of some parts of the brakes could have caused the derailment.

He did not agree with the suggestion that the dropping of the left hand wheels on the inside of the left hand rail indicated that gauge had widened to an extent which permitted the wheels to drop inside the track; and according to him this possibility was remote.

In reply to a question, Shri Batliwala stated that there was a speed restriction of 20 miles per hour between Rajkot and Okha which had been imposed in June 1955 on account of general deterioration of the track due to monsoon conditions and the same was removed when the new Time Table came into force on 1st April, 1956. Asked under whose orders the speed restriction was removed, he replied it was removed in accordance with the Minutes of the Time Table Meeting held in the Regional Office, Gondal, on 23rd January 1956. He did not recollect whether the Regional Engineer had consulted him before agreeing to remove the speed restriction. Asked if he was aware that in mileages 179 to 184, about 63 to 75 per cent of the sleepers were stated to be unserviceable according to the Sub Permanent Way Inspector's Report submitted on 3rd March 1956, he stated that a large number of new sleepers had been supplied to the Permanent Way Inspector for through renewals and the released sleepers were utilised for replacement of unserviceable sleepers in other mileages and he considered that the overall condition of the track had much improved since June 1955 when the restriction was imposed. In his opinion, the assessment of unserviceable sleepers by the Permanent Way Inspector was on the high side. Asked if there were any records to show the number of sleepers renewed in the miles 179 to 182 by those released from elsewhere, he consulted Permanent Way Inspector's records and stated that 200 sleepers had been unloaded in April and had been used for renewal in mileage 183/10 to 183/20 on 4th to 6th May 1956.

24. *Statement of the Regional Engineer*—Shri H. K. D. Capoor, Regional Engineer, Gondal, who had taken over charge from Shri C. L. Kapur on 10th May 1956, stated that near Mile 182/17, there were marks of a right hand wheel mounting the right hand rail

and travelling on the outer fishplate after breaking a fishbolt and thereafter jumping on to the next sleeper and damaging the dogspike there. No further marks of this wheel could be observed beyond this sleeper. The wheel marks of the left wheels could however be traced on the sleepers. His observations about the rails and sleepers were similar to those given by the District Engineer.

He did not notice any obvious defects in the rolling stock or in the track and could not come to any conclusion about the cause of the accident.

In reply to questions, he stated that there were no marks of derailed wheels on the right of the right hand rail beyond the first sleeper after the joint and he was of the opinion that somehow this wheel got rerailed. He did not notice any wheel marks on sleepers towards the left of the left hand rails. He agreed that it appeared that the right hand wheels of the coaches did travel on the right hand rails for at least a few rail lengths beyond the first marks of derailment.

Asked about the condition of sleepers beyond the 9th rail, he stated that about 50 percent of the sleepers had been crushed and split into bits by the derailed wheel. According to him, there was no defect in the sleepers and the spike holes under the first rail after the zero point. Asked if there was no defect in the sleepers and if the spikes were driven firmly into the sleepers, why these sleepers were changed and why these were not preserved for my inspection, he replied that all the sleepers after the first one had been cut through by the wheel flanges and it was necessary to renew these, and through an oversight these were not carefully preserved. He could not give the approximate average life of the wooden sleepers in the track.

25. *Statement of the Permanent Way Mate*—Mate Veesa Puna stated that during the accident, a few fishbolts in the right hand rail joints had broken but no right hand rail joints had fully opened out and all the right hand rails were in position. On the left hand side, however, 4th to 6th rails had been shifted away from their places. The old rails were B. S. rails and as the rails received for renewal were N. S. rails, he had to take out one B. S. rail from the right hand side in order to properly pair the rails. In reply to a further question, he stated that it was not correct to say that Rail R4 was found missing after the accident and that rail R5 was lying on its side. Both those rails were in position though a few fishbolts had sheared.

26. *Statement of the Regional Mechanical Engineer, Gondal*—Shri C. H. Sadarangani, Regional Mechanical Engineer, Gondal, stated that he arrived at the site at about 19.12 hours and after the arrival of the Regional Traffic Superintendent and the Regional Engineer at about 20.20 hours, they jointly inspected the track and the rolling stock to find out the cause of the accident. He noticed that a right hand wheel had mounted the rail near Mile 182/17 and had dropped on the outer flange of the rail and had then jumped on to the next sleeper hitting its spike. Thereafter, there were no marks of derailed wheels on the sleepers outside the right rail. Derailment marks however continued on the sleepers on the right hand side of the left rails. The sleepers had been cut through thereby widening the gauge by 2" to 2½". The coaching stock was also jointly examined and nothing which could have possibly contributed to the accident was discovered. From the fact that the third and fourth coaches had been thrown off the track, he was of the opinion that this had been caused by the initial derailment of some wheels of the first or the second coach. He, however, could not find any defects in these coaches which could have caused their derailment.

In reply to questions, he stated that except for the wheel marks of a right wheel on the right hand side of one sleeper, there were no other derailment marks on subsequent sleepers. There was no indication of any right hand wheel having crossed the right hand rail. Asked about his opinion on the general condition of sleepers in the mileage affected, he stated that condition of some of the sleepers seemed to be poor, but quite a number of new or serviceable sleepers seemed to have been replaced in the recent past. The dogspikes in most of the sleepers were firmly held. Asked as to why these new or serviceable sleepers did not prevent the spreading of gauge on the old sleepers, he stated that this was probably due to concentration of old sleepers in some places. Asked as to how a pair of derailed wheels could have travelled in a derailed condition without causing any marks on the right hand side of the right hand rail, he stated that due to the left wheels having deeply cut into the sleepers, the right wheels might have been floating.

27. *Statement of the Regional Traffic Superintendent, Gondal*—Shri B. N. Wahal, Regional Traffic Superintendent, stated that except for the marks on the first two sleepers, there were no marks of derailment on the sleepers on the right hand side of the right hand rail. It might be that the wheel had rerailed itself or it might have travelled in the air. He agreed that it was possible that the gauge had spread enabling the left hand wheels to drop from the rail table. He did not notice any obvious defects in the coaches which might have led to the derailment. According to him, the sleepers under the joints were good and the other sleepers in general were old but the dogspikes were firmly fixed. He was not able to say what the cause of the accident was.

28. *Statement of the Chief Engineer*—Shri G. Viswanathan, Chief Engineer, who visited the site at about 14.00 hours on 20th May, stated that by the time he reached the site, the work of restoration of the track was in hand and all the damaged sleepers had been changed. He could see only the broken pieces. These broken pieces had the sleeper seats intact which, according to him, were quite sound. The Regional Engineer showed him a Statement of Gauge and Cross Levels of sleepers in rear of the point of derailment and the variation was not more than  $1/16"$ . In the second coach, he noticed broken spring hanger and the end of the leading vacuum pipe had broken for a length of one inch and a width of two inches. The hose pipe clip could not be tightened any further, as the nut had reached the last thread on the bolt. From the observations made by him at the site, he was of the opinion that the accident had been caused by a sudden failure of some part of the rolling stock and the wrenching away of the hose pipe causing sudden application of brakes.

In reply to questions, he stated that as the work of restoration of the track had almost been completed, he could not see the condition of the track as it existed immediately after the derailment and he could not trace the course of the derailed wheels.

He was not aware that according to the records in the Districts Engineer's office, the percentage of unserviceable sleepers in the track in mileage 180 to 182 ranged from 61 to 75.6. He had arranged for a supply of nearly  $2\frac{1}{2}$  lakhs of sleepers for renewal in Jamnagar District alone and the very fact that the above mileages were not included in Through Renewal Programme indicated that the percentage of unserviceable sleepers in these mileages was not high at all. During his inspections, he had checked the percentage of unserviceable sleepers as given by the Permanent Way Inspectors and found that the Permanent Way Inspectors' statements were always exaggerated; where the Permanent Way Inspectors' figures showed 60, he could count only 40.

29. *Statement of the Chief Mechanical Engineer*—Shri R. Krishnaswami, Chief Mechanical Engineer, who arrived at the site at about 14.00 hours on 20th May, stated that he inspected the coaching stock and noticed that none of the wheel flanges were sharp nor were they in any way worn to an extent as to be considered unsafe. The central couplers of the various coaches had suffered damage and in some cases had fractured, but the fractured surface did not indicate any old flaws. Some of the spring hangers had also fractured but the fractures were fresh and did not reveal any old flaws. In his opinion, the breakage of a spring hanger would not cause a derailment at speeds permissible in the Section and in any case the breakage would first result in rough riding as a result of the weight distribution of the bogie getting upset, and the passengers would sense that something was wrong. He considered that the breakage of the vacuum train pipe would only result in the brakes acting on the two portions of the train and each portion would come to a stand. He had not known of any case where sudden application of brakes had caused any vehicle to derail while travelling on a straight road. He did not notice any defect in the rolling stock which was likely to cause a derailment.

30. *Discussion*—From the above evidence, the cause of the accident was not very clear. The Railway Engineers appeared to think that the derailment started at the joint opposite Mile 182/17 where the right hand outer fishplate and two outer dogspikes, one on the sleeper in rear of the joint and one on the sleeper ahead of the joint, had light damage marks evidently caused by a wheel flange. But apart from these marks, there were no other marks or evidence to suggest that any right hand wheel had derailed on the right hand side of the right hand rail. There was no evidence to suggest that any derailed right hand wheel had travelled on the right hand side of the right rails. On the other hand, the evidence was unanimous that the track sleepers had been cut by the derailed left hand wheels travelling on the right hand side of the left rails. In other words, while the right hand wheels were travelling on the right rails, the left wheels had dropped inside the track, which can only be due to spread gauge.

31. The District Engineer and some other witnesses suggested that the right hand derailed wheels might have travelled suspended in the air. While it was possible for a light Broad Gauge wagon with side buffers to travel in this condition, it was difficult to visualise a Metre Gauge bogie coach with central buffer couplers to travel in this condition for a fairly long distance. Further if any right wheel had travelled outside of the right rails, it must have at some stage re-crossed the right hand rail, as all the coaches were eventually found lying derailed to the left of the track. There was, however, no evidence of any right derailed wheel having re-crossed the right rails. None of the right hand rails had been damaged or bent by the derailed wheels crossing the rail. It was, therefore, reasonable to conclude that no right hand wheel had derailed towards the right, beyond the first sleeper of the joint opposite Mile 182/17.

32. In his evidence, the District Engineer, Jamnagar, stated that the rail R4 was missing and rail R5 was found lying on its side. The other Regional and District Officers had also deposed to the same effect. The Mate of the Permanent Way, however, who was in actual charge of the work of restoration of the track, was definite that though several fishbolts had sheared, no right hand rail joints had opened out and all the right hand rails were in position. In this evidence, the Mate stated that it was not correct to state that rail R4 was missing or the rail R5 was lying on its side. It appeared that what actually happened was that three left hand B. S. rails had been carried away under the derailed coaches and had to be replaced by N. S. rails. The Mate had therefore to open out two B. S. rails from the right hand side and to transfer one of these to the left hand side, in order to properly pair the B. S. and the N. S. rails. The Assistant Engineer who made out the sketch of the site of the accident, had evidently made his observations when the Mate had opened out the two right hand rails and was therefore misled into believing that the fourth rail was missing and the fifth rail had been lying on its side. It was also clear that the evidence tendered by other Railway Officers on this point, was based on the sketch prepared by the Assistant Engineer and not on their own personal observations, made and recorded by them at the site of the accident.

33. According to the statement of Gauge and Cross Levels recorded by the Regional Officers after the accident, the gauge on the sleepers under the first rail was as under:—

Sleeper No.	Gauge	Remarks	
1 (joint sleeper)	$+\frac{1}{2}''$	Sound	
2	$+\frac{1}{4}''$	One end split	} Broken due to derailed wheel on the left inside of rail.
3	$+\frac{1}{2}''$	Good 1952	
4	$+\frac{7}{8}''$	One end split	
5	$+\frac{11}{4}''$	End split	
6	$+\frac{13}{8}''$	Sound	
7	$+\frac{23}{8}''$	Sound 1952	
8	$+\frac{27}{8}''$	Old but firm	
9	$+\frac{23}{4}''$	One end split	
10	$+\frac{23}{4}''$	Good	
11	$+\frac{23}{4}''$	Good	
12	$+\frac{21}{2}''$	Good both ends split	}
13	$+\frac{21}{4}''$	One end split	
14 (joint sleeper)	$+2''$	Good	

According to the evidence, the marks on the sleepers were of a single wheel flange. The fact that one derailed wheel or even a pair of derailed wheels could break 12 out of 14 sleepers under the first rail into two pieces indicated that the condition of the sleepers could not have been anything but poor.

Unfortunately, I could not inspect these sleepers, as these had not been preserved for my inspection.

34. At my inspection at the site, I had the stacks of released sleepers spread out and noticed that most of the sleepers had broken near the right edge of left hand rail



seat and there were no marks of derailment towards the right of the right hand rail seat. This confirmed my suspicion that the derailment had occurred by the spread of gauge on old sleepers. Most of the sleepers were half round jodka teakwood sleepers and I learnt that they were about 26 years old and in many cases, the ends were badly split and the outer dogspikes could not have been firmly fixed. I could find very few broken pieces of sleepers containing the left rail seats and spike holes and so could not obtain any evidence regarding the actual condition of the rail seats and spike holes.

I also inspected the track for some distance in rear and some distance ahead of the area of derailment and noticed that though the sleepers were very old, majority of these were just serviceable and the dogspikes were generally holding fairly firm. In several sleepers, however, the ends were badly split and the spikes could be extracted by hand. I did not notice any double spiking of sleepers on the outer side and in fact there was no room for driving any additional spikes. In several sleepers, both the dogspikes were missing from the rail seats. The sleepers had about 4" to 6" of ballast mixed with earth under the sleepers. The alignment of the track was good and the gauge fairly uniform and the cross levels did not vary by more than 1/8". The track was generally fairly well maintained except that there was a large number of unserviceable sleepers. In a few places, there were more than three or four consecutive unserviceable sleepers in the track.

There had been a speed restriction of 20 miles per hour imposed on this Section in February 1955 which had been raised to 25 miles per hour in October 1955. Though spot renewals of sleepers had been carried out and there were a few 1945 and 1952 wooden sleepers in the track, the majority of the sleepers were so old that their retention in the track was not desirable without a restriction of speed.

35. The third and fourth coaches of the train had been thrown off the track to a distance of about 45 to 55 feet and it was evident that this was due to the sudden retardation in speed consequent on the derailment of either one or both of the first two coaches and the momentum of the coaches in the rear. It was clear that it was one of the first two coaches which had derailed first.

If the first or the second coach had derailed at the joint opposite Mile 182/17, as suggested by the Railway Officers and had travelled in this derailed condition for a distance of 330 to 430 feet, much more damage would have been done to the track than was actually the case; and the third and the fourth coaches would have been thrown out much earlier, and the seventh to ninth coaches would not have been able to keep so closely to the alignment of the track. Furthermore, the rear bogie of the eighth coach would not have remained underailed on the middle of the second rail.

The above considerations suggested that the derailment of the first or the second coach did not commence at Mile 182/17, but a few rail lengths ahead of this place and that the derailment of the last two or three coaches was caused by the sudden retardation in speed resulting from the derailment of the coaches in front. It also appeared that the abrupt stoppage of the rear of the train, caused one of the bogies to be sprung off the rails, resulting in the damage to the outer fishplate and two outer dogspikes at the first right hand rail joint. This bogie appeared to have regained the rails during the recoils of the rear coaches. This satisfactorily explained the absence of any further damage marks on the right side of the sleepers and also the fact that the rear bogie of the eighth coach was not derailed.

I, therefore, consider that the derailment did not initially start at Mileage 182/17, but somewhere in advance of this mileage and that it spread backwards to this place. I also noticed that the condition of the first sleeper under the rails R1L1 was good and that the dogspike was firmly fixed to the sleeper and there was no obvious reason for any wheel to derail there. Furthermore, the fact that the first mark of derailment on the left side of the sleeper was not near the foot of the rail but five inches away, indicated that this was not a case of an ordinary derailment but a case of a wheel having been violently flung off the track by some unusual forces.

36. From the Gang's Charts it was noticed that the mileage at which the accident took place had been attended to by the Permanent Way Gang on 28th April 1956. The Permanent Way Inspector had trollied over the section on 15th May and the Assistant Engineer on 1st April while the District Engineer had inspected it on 13th March; none of them had noticed anything wrong with the track.



In my report on the derailment of Grand Trunk Express at Basin Bridge on 30th October 1953, I pointed out that some wooden sleepers looked quite good in appearance from the top exposed surface but they were unserviceable due to decay on the underside and elongated spike holes which could not be easily observed while trolleying. After a day's work, the sleepers are boxed up and as the Permanent Way Inspector generally inspected his Section once a week, it was not very easy for him, unless he was very careful and conscientious, to know the exact condition of the majority of unserviceable sleepers in the track. Therefore, under the system of 'spot renewal' of sleepers, there was a danger that the Permanent Way Inspectors and the Engineers might not be able to properly discharge their responsibilities for the detailed inspection of sleepers and the responsibility in this connection might in actual practice be devolving on the semi-skilled illiterate Mates with limited intelligence.

37. I also looked into the possibility of the track suddenly buckling while the train was passing but could not obtain any evidence to support this possibility. I measured the creep in the rails at a few places and found that it was not more than 2" to 4". On inspecting the site in rear and in advance of the point of derailment, I noticed that though at one place 6 or 7 rail joints had closed up, there was, generally, adequate expansion gaps available for free expansion of rails. None of the witnesses had observed any distortion of the track which could be attributed to buckling.

38. *Examination of the Engine*—The engine had not derailed except for the front bogie of the tender which had derailed towards the right. It was evident that this derailment had resulted from the derailment of the first two coaches to the left. The engine No. 1964 YP was given its last Periodical Overhaul on 19th March 1953 and a Maintenance Overhaul on 7th February 1955. Its total mileages since last Periodical Overhaul and Maintenance Overhaul were 1,23,047 and 55,312 against the normal mileages of 1,20,000 and 60,000 for such overhauls. The engine had undergone A.B.C. Schedule examination on 17th and 18th May when all the component parts of spring gear, running-gear and brake-gear were examined and attended to. After the accident, the wheel gauge, wheel flange profiles, axle guards, axle boxes, bearing springs, etc., were examined to detect any condition which could have caused the derailment, but none could be discovered.

The entries in the Engine Repair Book were scrutinized for the last two weeks and it was noticed that necessary action had been taken on the repairs booked. The repairs booked did not disclose any defect which could cause the derailment of the engine tender.

Enquiries revealed that Driver Gulabkhan Pathan of No. 340 Down had passed his eye-sight test on 13th January 1955 and should have been re-examined before 13th January 1956. His eye-sight test was, therefore, overdue by more than four months.

39. *Examination of the coaches*—According to the evidence of the Regional Mechanical Engineer and the Chief Mechanical Engineer, they carefully inspected the derailed coaches and though several components and fittings of the running gear, brake gear and buffing gear had broken or had been damaged, they did not notice any defects in the rolling stock which might have contributed to the accident. A piece  $1\frac{1}{2}" \times 2\frac{1}{2}"$  of the leading vacuum swan neck of the second coach had broken and the broken surface showed an old crack and a new fracture. The hose pipe clip was loose and it could be inserted or removed by hand without loosening or tightening the clip. The District Engineer and the Chief Engineer were of the opinion that the breakage of this leading swan neck of the train pipe might have resulted in a sudden jamming of brakes of the coach while other coaches continued to be in motion and that this might have resulted in the derailment. The Chief Mechanical Engineer was, however, of the opinion that a breakage of a vacuum train pipe could only result in the brakes acting on the two portions of the train and each portion coming to a stand.

I agree with the opinion of the Chief Mechanical Engineer and consider that a total application of the brakes either by the Driver or by the disconnection of a hose pipe or through the breakage of a vacuum train pipe would not result in the derailment of a train, unless the adjustment of the brake gear was seriously defective. There was, however, no evidence of defective brake power of the train and the Driver had no difficulty in stopping the train at the various halts.

40. I examined the wheel gauge, wheels, tyres, axles, axle guards and bearing springs of the coaches at the site, but could not find any serious defect which could have resulted in the derailment. A few spring hangers of some of the coaches had broken, but the freshly fractured surfaces and the absence of any old progressive cracks indicated that the breakages were the result of the derailment.

Instructions were issued for taking the first six derailed coaches to Jamnagar Workshops, where their bodies were lifted and the bogies were run out and condition of wheels, flanges, tyres, springs and their free camber, spring hangers, spring buckles, axle boxes, bearing brasses, axle guards, bogie frames, draw and buffing gears and brake gear was examined and various clearances checked. The following defects were noticed in the first three coaches :—

First Coach No. 804—In three axle boxes, the lateral play between brasses and journals was  $5/16"$  against maximum permissible of  $1/4"$ .

In six out of eight axle boxes, the lateral clearances between the axle boxes and the horn cheeks were  $1/4"$ ,  $1/4"$ ,  $1/4"$ ,  $7/16"$ ,  $3/8"$  and  $1/4"$  against the maximum permissible clearance of  $3/16"$ .

The free cambers of the right and the left bearing springs of the leading bogie were  $4"$ ,  $3-7/16"$ ,  $4-3/8"$  and  $4"$ . There was thus a difference of  $15/16"$  in the camber of the right trailing and the left leading springs. Under loaded conditions, this difference was  $31/32"$ .

Second Coach No. 2082—In seven out of eight axle boxes, the lateral clearance between the axle boxes and the horn cheeks were  $5/16"$ ,  $5/16"$ ,  $1/4"$ ,  $1/4"$ ,  $1/4"$ ,  $3/8"$  and  $7/16"$  against the maximum permissible clearance of  $3/16"$ .

In three left hand bearing springs, the buckles showed signs of rubbing against spring stop brackets. This, I consider, was the result of the left wheels travelling in a derailed condition.

In two axle boxes, white metal had broken into smaller pieces, but there was no indication of hot axle.

The leading bogie was slightly out of trammel, but the difference in the length of the diagonals was not more than  $3/8"$ .

Third Coach No. 2784—In one axle box, the lateral play between the brasses and the journal was  $5/16"$  and in seven axle boxes, the lateral clearances between the axle boxes and the horn cheeks were  $3/8"$ ,  $7/16"$ ,  $5/16"$ ,  $3/8"$ ,  $1/4"$ ,  $3/8"$  and  $3/8"$  against the maximum permissible clearance of  $3/16"$ .

Though the above lateral clearances were more than the maximum permissible, I consider that their effect would be to introduce a certain amount of side oscillation in the coaches and that these defects were not so serious as to normally cause a sudden derailment of the coaches, especially on a straight level track. The difference in the camber of the diagonally opposite springs of the leading bogie of the first coach was likely to lead to uneven distribution of load on the four wheels, but in the case of a bogie where the load is distributed through its centre, this was not likely to cause the derailment of the wheels unless the extent of uneven distribution of the load was excessive.

I consider that though there were certain defects in the first two coaches, these were not primarily responsible for the derailment of the train. It is true that some additional lateral forces came into play due to liberal lateral clearances in the brasses, journals and the horn cheeks, but I consider that the normal factor of safety in the strength of the track should have enabled the track to withstand these forces. However, the excessive lateral clearances in the first two coaches can be considered to have, in some measures, contributed to conditions leading to derailment.

It was noticed that the second, third and fourth coaches had not been given their Periodical Overhaul for the last 19 months instead of the usual period of 12 months laid down for such overhaul. In three other coaches also, the Periodical Overhaul was overdue by 1 to 4 months.

41. *Speed of the train*—The normal and the minimum running times and the time actually taken by the train in travelling between Rajkot and the site of the accident, according to the different sources, were as under :—

Stations	Distance in miles	Normal running time	Minimum permissi- ble time	Time actually taken according to		
				Guard	Control	Station records
		Mts.	Mts.	Mts.	Mts.	Mts.
Rajkot ..	6 $\frac{3}{4}$	15	14	15	15	15
Khandheri ..	8 $\frac{3}{4}$	19	17	19	19	19
Paddhari ..	8 $\frac{1}{2}$	21	18	21	20	20
Hadmatia ..	6 $\frac{1}{2}$	..	..	12	..	..

#### Site of accident

From the above timings, it was evident that the train had been running between Rajkot and Hadmatia according to the normal booked speed of about 31 miles per hour. The journey of 6 $\frac{1}{2}$  miles from Hadmatia to the site of accident was covered in 12 minutes. Allowing one minute for acceleration, the average speed of the train for this portion of the journey worked out to 35.5 miles per hour, which was more or less the same as the maximum permissible speed of the section.

According to the statements of the Driver and the Guard, at the time of the accident, the train was running at a speed of about 30 miles per hour. Shri Kothari who was travelling in the second coach, stated that the speed of the train was about 40 miles per hour, while Shri Mehta who was also travelling in the same coach, stated that the speed was a little more than the normal but that it was not excessive. Shri Hathi, Personal Assistant to the Collector, considered that the speed was 30 to 32 miles per hour and that it was not excessive. Shri Shukla who was travelling in the last coach, stated that the train was running at its usual normal speed of 30 to 35 miles per hour.

Considering all evidence, I am of the opinion that at the time of the accident, the train was running at speed of about 30 to 35 miles per hour, which was within the maximum permissible speed.

42. *Responsibility for the accident*—As stated above, I consider that the accident was primarily due to the spreading of the gauge on wooden sleepers which permitted the wheels of the coaches to derail inside the two rails. Unfortunately, the Engineers did not preserve, in a serial order, the damaged sleepers nor did they make out a plan showing the marks of derailment on the sleepers and their fitting before taking up the work of restoration of the track. Thus, valuable evidence on this point was lost.

As a result of the derailment, several rail joints of the left hand rails opened out and three rails were dragged forward providing a gap between the third and the fourth rails which permitted the wheels of some of the coaches to go over to the left of the left hand rails. This accounted for the three left hand rails being found under the fifth and the sixth coaches.

From the evidence of the Permanent Way Inspector, it was clear that there was a large number of unserviceable sleepers in his Section; and according to the statement submitted by him to his District Engineer on 3rd March 1956, the percentage of unserviceable sleepers in miles 179 to 184 was 61.58 to 75.60 and in mile 182, it was 74.13. The District Engineer and the Chief Engineer considered that the assessment of the Permanent Way Inspector was rather exaggerated. From my inspection of the track, I feel that there is some truth in the Chief Engineer's contention, but the percentage of unserviceable sleepers as estimated by the Permanent Way Inspector was so high that it could not be lightly ignored. If the assessment of the Permanent Way Inspector was not acceptable to the Administration, the proper course would have been for the Assistant Engineer or the District Engineer to check it, so as to arrive at a correct assessment of unserviceable sleepers.

The Railway Administration in a subsequent explanation stated that a few days after the accident, the track sleepers were jointly inspected by the Dy. Chief Engineer, the Regional Engineer and the District Engineer and their assessment showed that the percentage of unserviceable sleepers in mileages 178½ to 185 varied from 8 per cent to 27 per cent only. While I have no reason to doubt the accuracy of this statement about the condition of the track sleepers *a few days after the accident*, I consider that this does not represent the correct position *at the time of the accident*, as a large number of sleepers are known to have been renewed immediately after the accident.

Again from paragraph 22 of the Report, it would be observed that in mileages 173, 174, 176 and 177 the numbers of sleepers actually renewed in March and April 1956 were 1665, 1669, 1087 and 1299 against the S.P. W.I.'s original estimate of 1562, 1279, 1043 and 1289 unserviceable sleepers for these mileages. This showed that the S.P.W.I.'s estimate of unserviceable sleepers was substantially correct and that the number of sleepers requiring renewal was actually more than that estimated by the S.P.W.I. If the S.P.W.I.'s estimate of the unserviceable sleepers was substantially correct for mileages 173 to 177, there was no reason to doubt the accuracy of his estimate for the mileage in which the accident took place.

43. From the Working Time Table of the Gondal Region in force from 1st October 1955, it was noticed that a speed restriction of 20 miles per hour was in force from Rajkot (Mile 152½) to Okha (Mile 306) on account of bad sleepers. At the end of the monsoons in October 1955, this speed restriction was raised to 25 miles per hour by the Regional Engineer, Gondal, following the Chief Engineer's inspection of the section when the track was considered fit for the enhanced speed. From 1st April 1956, however, this speed restriction was entirely removed and the trains were permitted to run upto the maximum permissible speed of the section, i.e. 35 miles per hour, except for mileages 218 to 224 and 235 to 247, where the speed restriction of 25 miles per hour was retained.

The Chief Engineer of the Railway pointed out that the speed restriction on account of bad sleepers in Hadmatia-Kanals Section was imposed in February 1955 only in mileages 180/10—182/1 and 185½—215, and that no speed restriction for track reasons was imposed in mileage 182/1 to 185½, where the accident actually took place. The speed restriction was notified for the whole Section only for operating reasons. The Chief Engineer, therefore, considered that the condition of sleepers in mileage 182/1 to 185½ could not have been bad. While I accept that the condition of sleepers in this mileage might not have warranted the speed restriction in February 1955, it would not be reasonable to assume that the condition could not deteriorate during the subsequent 14 months. In fact, the Sub-Permanent Way Inspector's Report dated 3rd March 1956 should have indicated the desirability of retaining the speed restriction in mileage 179 to 182.

44. It was not very clear as to who issued orders for the removal of speed restriction between Rajkot and Jamnagar while the percentage of unserviceable sleepers in the Section was still high, in spite of making allowances for the liberal assessment by the Permanent Way Inspector. From the Permanent Way Inspector's statement, it would be evident, that according to the list of unserviceable sleepers, submitted on 3rd March 1956, the percentage of unserviceable sleepers was very high in mileages 172 to 184. A large number of sleepers had however been renewed in mileages 172 to 178 from 3rd March to 28th April, but no sleepers had been renewed in miles 179 to 182 when speed restriction of 25 miles per hour was removed.

Enquiries revealed that no definite orders regarding the removal of the speed restriction were issued by any officer, but the speed restriction got automatically removed, with the coming into force of the new Time Table from 1st April 1956, on the basis of the assurance given by the Regional Engineer, Gondal, at the Time Table Meeting held at Gondal on 23rd February 1956 that the speed restriction of 25 miles per hour between Rajkot and Okha would be removed from 1st April 1956 except for the Sections Lakhabawal to Pipli (Mile 209—215) and Modpur to Bhatel (Mile 225—247).

In his evidence, Assistant Engineer Shri Saxena stated that he was not consulted about the removal of this speed restriction and the District Engineer did not recollect whether the Regional Engineer had consulted him before agreeing to remove the restriction. The Regional Engineer, however, stated that his agreement to the removal of

the speed restriction had been given, after consulting the District Engineer. He had inspected the Section Rajkot-Jamnagar by train on 26th March and he agreed with the District Engineer that the speed restriction could be removed.

I consider that the Regional Engineer must have obtained the concurrence of the District Engineer before agreeing to the removal of the speed restriction. Both these Officers probably thought that the work of extensive renewal of unserviceable sleepers in miles 179 to 184 would also be completed by 31st March. It was unfortunate that in their zeal for the speeding up of train services, the Regional Engineer and the District Engineer failed to retain the speed restriction in mileage 179—184, when they knew that it had not been possible to complete the work of extensive renewal of sleepers by 31st March 1956.

45. Normally, the Permanent Way Inspector and the Assistant Engineer were responsible for the safety of track in their Sections and I find that the Permanent Way Inspector and Assistant Engineer had carried out heavy renewals of sleepers in their Sections during the past several months. I have no doubt that on receipt of further supply of sleepers, they would have carried out heavy renewals in mileage 179 to 184 also. Unfortunately, the speed restriction was removed by the higher Officers, without waiting for the completion of work of sleeper renewals. Under the circumstances, I do not hold the Permanent Way Inspector or the Assistant Engineer responsible for the accident, as the same might not have occurred if the speed of the trains had been restricted.

I, however, consider that Regional Engineer Shri C. L. Kapur and District Engineer Shri B. K. Batliwala committed an error of judgement and took unjustifiable risk in removing the speed restriction of 25 miles per hour in miles 179 to 184 when the condition of sleepers did not warrant its removal.

#### IV. CONCLUSIONS

46. *Cause of the accident*—I am of opinion that the derailment of No. 340 Down Rajkot-Okha Mail at Mile 182/17-19 between Hadmatia and Jamwanthali stations on the Metre Gauge Section of the Western Railway at about 16.00 hours on 19th May 1956 was primarily due to the spreading of the gauge of the track on the old wooden sleepers.

I, however, consider that the defects in the camber of the springs on the leading bogie of the first coach and excessive lateral clearances between the brasses and the journals, and the axle boxes and the horn cheeks of the first two coaches, did, in some measure, contribute to the conditions leading to the derailment.

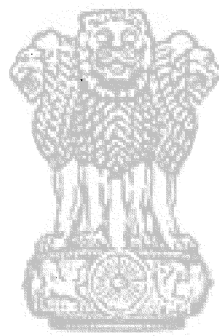
47. *Responsibility*—I consider that Shri B. K. Batliwala, District Engineer and Shri C. L. Kapur, Regional Engineer, committed an error of judgment in removing, from 1st April 1956, the speed restriction of 25 miles per hour from miles 179 to 184 which had been imposed on Rajkot-Okha Section in February 1955, without ensuring that the number of unserviceable sleepers in these miles had been substantially reduced.

48. *Relief Measures*—The Relief arrangements were prompt and satisfactory and adequate medical aid was made available at the site, with as little delay as possible. The arrangements made for the formation of a new rake to enable the passengers to continue their journey were also satisfactory.

Yours faithfully,

R. C. SOOD  
Government Inspector of Railways

BOMBAY, the 14th June 1956



सत्यमेव जयते



GOVERNMENT OF INDIA  
MINISTRY OF TRANSPORT & COMMUNICATIONS  
(RAILWAY INSPECTORATE)

# RAILWAY ACCIDENTS

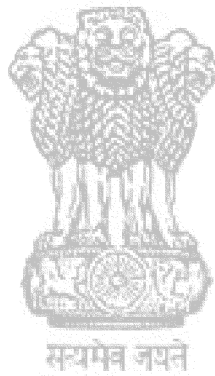


## REPORT

on  
DERAILMENT  
of  
**DOWN WORKMEN'S TRAIN**  
at  
**KHARGPUR (SOUTH EASTERN RAILWAY)**  
on  
26TH MAY 1956

## SUMMARY

Date .. ..	May 26, 1956.
Time .. ..	6-40 hours.
Railway .. ..	South Eastern.
Location .. ..	Khargpur Station Yard.
Kind of accident .. ..	Derailment.
Train involved .. ..	Down Workmen's Train.
Engine number .. ..	681 G.S. (4-6-0).
Consist .. ..	2 bogie coaches and a Goods Brakevan.
Estimated speed .. ..	40—45 miles per hour.
Operation .. ..	Absolute Block System.
Track .. ..	Broad Gauge (5' 6"), straight, level.
Weather .. ..	Clear.
Casualties .. ..	62 injured.
Cause .. ..	Forcible removal of engine crew and setting the locomotive in motion by some unidentified persons.





Report on Derailment of Down Workmen's Train  
at Khargpur (South Eastern Railway), on 26th  
May, 1956.

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E R R A T A.

On page 2, para 7(b), lines 1 and 3, read 'Coach' for 'bogie'

" " " " 7(c), line 1, delete the word 'bogie', appearing  
between 'coach,' and 'No.1520 T,'

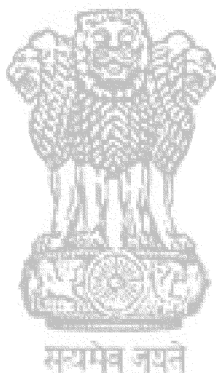
" " " " 9(a), line 2, read 'non-block' for 'non-bloc'

" " 4, " 13, line 2, read 'left' for 'eft'

" " " " " line 6, read 'assaulting' for 'ssaulting'

" " 5, " 17, line 12, read 'Home' for 'home'

" " 9, " 34, line 11, read 'confirms' for 'confirm'



To

The Secretary to the Government of India,  
Ministry of Communications,  
New Delhi.

Through : The Chief Government Inspector of Railways, Simla-3.

Sir,

*Reference to orders*—In accordance with Rule 9 of the Railway Board's Notification No. 1926-T of 19th March 1930, I have the honour to submit herewith the results of my Inquiry into the circumstances of the accident to Midnapore-Khargpur Workmen's Train at Khargpur Station (S. E. Railway) on 26th May 1956.

2. *Inquiry held*—The inquiry into the accident was held by me at Khargpur Railway Hospital on 27th and in the office of the District Operating Superintendent on 28th May 1956. Prior to the inquiry, I inspected the site and the derailed vehicles in company with the Chief mechanical Engineer, Deputy Chief Mechanical Engineer, Deputy Chief Operating Superintendent, Superintendent Railway Police and other officers.

The following officers were present at the Inquiry :—

- (1) Shri V. K. Rangaswami, Deputy Chief Operating Superintendent, S.E. Railway, Garden Reach.
- (2) „ E.C. Lamb .. Deputy Chief Mechanical Engineer, S.E. Railway, Khargpur.
- (3) „ T.V. Raju .. District Engineer, S.E. Railway, Khargpur.
- (4) „ T. P. Ganguly .. District Operating Superintendent, S.E. Railway, Khargpur.
- (5) „ H. K. Ray .. Superintendent, Government Railway Police, Howrah.
- (6) „ C.R. Bhattacharjee Sub-Divisional Officer (South), Midnapore.

Evidence of 25 witnesses was recorded and the statement of one Police Officer was obtained through the Railway Administration.

3. *Brief description of the accident*—On 26th May 1956, when the Midnapore-Khargpur Workmen's train stopped at Arora Cinema Halt, a large number of men from either side of the track started pelting stones. Thereafter, they boarded the engine, assaulted the engine crew and dragged them out of it. They also attacked some of the workmen in the train. After a stoppage of about 3 minutes, the train was found moving without any engine crew on the locomotive. The train gradually gained speed and ultimately crashed on the buffer stop situated at the end of road 'E' by the side of the bay platform No. 5 of Khargpur Station at about 6-40 hours. The engine broke through the buffer stop and mounted on the platform ploughing a distance of 60 feet. While doing so, it smashed a portion of the bathing cubicle that was built on the platform.

The weather at the time was clear and bright.

4. *Casualties*—I regret to report that as a result of the accident, 62 persons received injuries, of whom 4 were grievously hurt. Considering the high speed attained by the train and the resulting crash, the casualties and the damage were extremely light.

5. *Composition of the train*—The train consisted of 2 bogie coaches and a goods brake-van. The total length, weight and brake-power of the train including the engine were 226 ft., 203 tons and 110.5 tons respectively. The engine of the train ran tender foremost and the vehicles on the rake were marshalled in the following order:

Engine (Tender-foremost)	681 GS (4-6-0)
Third class bogie coach	1595 SE.
Do.	1520 SE.
Goods Brake-van	8254 ER.

The train was fully vacuum-braked.

6. *Number of passengers in the train*—It has been estimated by the Railway Administration that about 90 persons were travelling in the train at the time of the accident.

7. *Damage*—(a) Engine No. 681 GS had its brake rigging gear, ash pan and other components badly smashed. The engine with its tender left the rails and rested on the furrowed platform. As the tender was leading, it received the first impact but its apparent damage was rather light. The tender and the engine were upright but the former canted upwards longitudinally and their corresponding buffers remained interlocked with one another.

(b) The first bogie, 3rd class coach No. 1595 T, was, except for last pair of wheels, lifted off the track. Its under-gear was damaged. The leading portion of its body got detached from the under-frame. This bogie had mounted the platform and rested on it, except for the rear eleven feet.

(c) The 2nd coach, bogie No. 1520 T, was intact on rails and suffered little damage.

(d) The brake-van (No. 8254 ER) was unaffected.

(e) The dead-end buffer of Road 'E' was demolished but there was no major damage to the Permanent-way.

(f) It was interesting to note that in spite of the crash at high speed, no telescoping of the vehicles took place. It may be due to the easy yielding of the dead-end wall and the platform providing a sort of a ramp.

(g) The cost of damage to the engine, rolling stock and structural works as estimated by the Railway is furnished below:—

	Rs.
Engine .. ..	5,000 approximately.
Rolling stock .. ..	6,000 „
Structural works .. ..	5,000 „
	<hr/>
Total .. ..	16,000 „
	<hr/>

8. *Construction of the coaches*—The coaches had wooden bodies with outside steel panelling mounted on steel under-frames. The brake-van did not have any outside steel panelling. The rolling-stock had standard side buffers and central screw couplers.

9. *Description of the site* (a) The engine of the ill-fated train was rendered crewless at Arora Cinema Halt, which is a non-bloc station without any telegraph or telephone communications. The employees of the Railway Workshops usually detrain and entrain here to go to and return from their works.

(b) The actual crash occurred on the dead-end buffer located at the end of Road 'E' by the side of No. 5 bay platform of Khargpur Station. The above dead-end is 5,600 ft. in advance of Arora Cinema Halt and is situated on a straight and level portion of track. The railway line from Arora Cinema Halt to Khargpur runs approximately west to east.

(c) Leaving Arora Cinema Halt, a Down train has to negotiate a rising gradient of 1 in 200 for 439 ft., level for the next 300 ft. and a falling gradient of 1 in 200 for the next 2,574 ft. The track, thereafter, is on a level up to Khargpur Station yard.

(d) Khargpur-Midnapore-Adra Section has got double line and the stations on it are connected with the Control. It has got the usual double-line block instruments. Khargpur is a fully interlocked station. There are telephone communications between its Cabin Assistant Station Masters, Cabin Master on the top floor of the station and the General Assistant Station Master on the station platform.

(e) Khargpur is the headquarters of the Chief Mechanical Engineer, 3 Deputy Chief Mechanical Engineers, a few District Mechanical Engineers, a District Engineer, a District Operating Superintendent and a District Commercial Superintendent of the Railway. A District Medical Officer of the Railway with a large hospital and staff is also stationed here. The Control Office is attached to the office of the District Operating Superintendent at the same station.

(f) The mileages of various places of interest in the report are given below:—

Midnapore	..	..	..	..	..	79·643 miles
Gokulpore	..	..	..	..	..	75·468 „
Arora Cinema Halt	..	..	..	..	..	72·897 „
Khargpur	..	..	..	..	..	71·685 „

NOTE (1) Kharida is a suburb of Khargpur and is situated adjacent to the Arora Cinema Halt.

(2) There are generally 24 telegraph posts per mile on the section.

(3) The terms 'Right', 'Left', 'Front' and 'Rear' etc. have reference to the direction of journey of the Workmen's train.

10. *Interruption of traffic*—As the accident took place at a dead-end, no interruption to traffic occurred.

11. *Relief arrangements*—(a) The accident occurred at about 6·40 hours. But shortly before that, the West Cabin Assistant Satation Master informed on phone the Cabin Master, on the top floor of the station building, that the Midnapore-Khargpur Workmen's train had entered the yard at a high speed against signals, although, fortunately the points had been properly set. While he was communicating this information, the crash took place. The Cabin Master immediately telephoned the General Assistant Station Master on the platform to rush to the site and take necessary action. The Cabin Master, at the same time, informed the Deputy Chief Controller and the District Operating Superintendent. The Controller then informed the Railway Hospital at 6·45 hours. Meanwhile the General Assistant Station Master assisted by the yard staff, rendered First Aid to the injured making use of the two First Aid boxes available at the station.

(b) The District Operating Superintendent, Khargpur, got the intimation of the accident on phone at 6·45 hours and immediately rang up the Assistant Medical Officer at 6·46 hours. The General Assistant Station Master, Khargpur, had earlier informed both the North Block and South Block Hospitals at about 6·44 hours. The Railway ambulance van was waiting at the station expecting a sick railway employee from Khurda Road. It was sent back to the Railway hospital at 6·48 hours to fetch Doctors and medical equipment. It returned at 7·00 hours with one Assistant Surgeon, Grade I, one Assistant Surgeon, Grade II and a couple of Dressers along with surgical equipment and medicines whereupon further medical aid was given to the injured by the above medical staff. The District Operating Superintendent arrived at the station at 7·05 hours and so also did the Chief Mechanical Engineer, Deputy Chief Mechanical Engineer, District Mechanical Engineer, District Commercial Superintendent and District Engineer.

(c) One truck belonging to the Indian Institute of Technology was waiting at the station. The first batch of 20 injured persons was transported to the Railway hospital by this truck, leaving Khargpur Station at 6·55 hours. The second batch consisting of 5 injured persons was sent in the car of Shri Shivlal Dharam Singh, a contractor, who was also present at the station. The Railway ambulance van on its return from the hospital, took 12 of the injured people to the Railway hospital at about 7·05 hours. The Assistant Medical Officer arrived at about 7·08 hours by which time all except 2 of the injured were in the station. These 2 patients were taken to the hospital by him in his car. Thus 39 injured people were removed reaching the Railway hospital by 7·20 hours. Out of the above 39, 18 were admitted into the hospital and others were treated as outdoor patients and sent away. Later on 23 more injured persons, who went away from the station, reported to the hospital for treatment and some of them were admitted as indoor patients. The total number of casualties thus mounted to 62, as stated earlier.

### SUMMARY OF EVIDENCE

12. *Shri K. Sinhachalam*, Driver of the ill-fated train, stated that on 26th May 1956 he left Midnapore at 6·05 hours driving the Down Workmen's train. He came up to Kharida Level Crossing (Arora Cinema Halt) at mile 72/22 without any event. As soon as he stopped at the level crossing a large crowd assembled there and started pelting stones. He managed to squeeze himself in one corner of the engine in order to escape injury. His Fireman and Agwalla made way towards the tender in order to save themselves. The train was still stationary and a number of people came on to his engine, beat him

up and pulled him down on the ground where also they assaulted him. He did not know any further as to what happened to him since he became unconscious. Questioned as to why they assaulted him, he replied that it was because he was working in spite of the strike. In reply to a question he stated that when he was being pulled down from the engine his steam regulator was in shut position and the cut-off lever was in the back gear. As regards the vacuum ejector handle he stated that after destroying vacuum which brought the train to a halt, he pushed the handle to its rear position in order to create vacuum but he did not clearly remember whether he was able to bring it back to the running position, as the assault on him started soon after he stopped the train. He did not recognise any of those that came and assaulted him. It was bright daylight with good visibility when this incident occurred.

13. *Shri Sudama*, Fireman of the train concerned stated that on 26th May 1956 he left Midnapur for Khargpur at about 6.05 hours. He arrived at Kharida Level Crossing at mile 72/22 (Arora Cinema Halt) uneventfully but shortly afterwards the people that gathered on either side started pelting stones on the engine. He being afraid of being hit by the stones went inside the bunker of the tender. About 15 people boarded the engine from either side and started assaulting Driver Simhachalam and dragged him out of the engine on to the ground. Some members of the mob caught hold of Sudama and abused him because he was working in spite of the strike. Then they took him out of the bunker to the ground and belaboured him. He was badly injured near the spine and became almost unconscious. One Police Van came and picked up the injured Police Officials and he was also taken in it and brought to the Town Police Station at Kharida. As they were being taken to the Police Station he noticed the train leaving Kharida Halt (Arora Cinema Halt) and proceeding towards Khargpur. He was unable to see if there was anybody inside the engine when it started moving.

14. *Shri A. Francis*, Agwalla of the train stated that on 26th May 1956 as soon as his train stopped near Arora Cinema the people from either side started pelting stones. A few persons came on the engine, belaboured him and dragged him out of the engine. The mob started assaulting certain people and a few Police men were approaching the site. He got that opportunity and made escape to the shed where he gave the news of this incident to the Foreman and Dy. C. M. E. He did not recognise any of those who came to the engine and created this trouble.

15. *Shri L. Edwards*, Guard of the ill-fated train stated that on 26th May 1956 he left Midnapur with Workmen's train at about 6.00 hours. After stopping at various stations, his train reached Arora Cinema Halt when suddenly a mob came up and started pelting stones. Then some members of the mob got on to the Brakevan and pushed him inside the Brakevan where he fell down and was trampled upon. They abused him and he was dazed. The train started soon after and within a little while there was a severe bump. He then got up, detrained from his brakevan and informed the General Assistant Station Master at Khargpur of the incident. He stayed in the office of the General Assistant Station Master after giving the information. He was unable to reply many of the questions asked by me, as he stated that after the incident he was dazed and did not remember what had happened at the time. He was in the hospital when I recorded his evidence and he behaved somewhat like a person mentally affected and was not responsive.

16. *Shri Paresh*: Gateman at mile 72/21-22 stated that on 26th May 1956, three Police Vans containing certain Police officials arrived near his level crossing about 10 or 15 minutes before the arrival of the Midnapur-Khargpur train. All the three trucks were heavily stoned by the crowd that had assembled there. Two of the trucks went towards Kharida and the remaining one towards Arora Cinema. Just at that time Workmen's train arrived from Midnapur. The crowd then shouted and proceeded towards the train pelting stones. He noticed a man dressed like a driver getting down from the engine on the right hand side covering his head with one hand as if he had been injured. Before that a few men got into the engine from the left hand side and he could not say whether those people had assaulted the Driver. That injured man (presumably the Driver) took shelter behind the waiting hall where the crowd again surrounded and belaboured him. Shortly after this, he noticed that the train had started. He stated that he did not recognise any of the miscreants. In reply to a question he stated that there were certain men inside the engine before the train started but when it was actually in motion he did not see anybody inside. In his opinion some of the miscreants might have opened the regulator and started off the train.

17. *Shri Muralidhar Saha*, Khalasi, Wagon Shop, Khargpur; stated that on 26th May 1956, he left Midnapore by the Workmen's train which arrived uneventfully at Arora Cinema Halt. Immediately thereafter, a big crowd started pelting stones and some of them attempted to entrain with the object of committing violence. He travelled in the Brake-van along with a few others and all of them rushed inside the Brake-van and bolted the doors from inside. Some of the miscreants still tried to force the doors open from outside but could not. So they decamped with a few of their cycles which were kept in the Brake-van lobby. After stoppage of about 4 minutes the train started again even while the stones were being pelted on the train. The Guard was previously sitting in the rear open lobby of the Brake-van but after all of them entered inside and bolted the doors of the Brake-van he did not see the Guard any more. The train gradually gained speed and he felt violent jolts as it passed the home gantry signal. The train attained very high speed and soon after the crash took place. He came out of the Brake-van and shortly after became unconscious. In reply to a question he stated that about 30 or 40 people might have rushed inside the Brake-van and he felt that the Guard was not inside.

18. *Shri Adhir Kumar Banerjee*, Turner, Shop No. 7, Khargpur who travelled by the Brake-van of the ill-fated Train corroborated the statement of Shri Muralidhar Saha. He said that he was unable to recollect whether the Guard also rushed inside the Brake-van at Arora Cinema Halt with them or he was elsewhere, because there was considerable confusion.

19. *Shri Dhurdeshi*, Fitter, I.O.Ws'. Workshop, Khargpur, who also travelled by the Brake-van of the concerned train more or less corroborated the statements of Shri Muralidhar Saha and Shri Adhir Kumar Banerjee. In reply to questions he said that the Guard was at first in the lobby of the Brake-van. But after the trouble at Arora Cinema Halt the Guard also rushed inside with them. He further affirmed that the Guard travelled in the Brake-van up to Khargpur where the train crashed. In reply to a question he said that it did not strike him to ask the Guard to destroy the vacuum and check the speed of the train, as they were panic-stricken and lost all their wits.

20. *Shri Ashutosh Banerjee*, Khalasi, Carriage Workshops, Khargpur, who also travelled by the Brake-van of the train corroborated the statements of Sarvashri Muralidhar Saha, Adhir Kumar Banerjee and Dhurdeshi. In reply to a question he said that he was unable to say whether the Guard was in the Brake-van after the train left Arora Cinema Halt, as there was considerable amount of confusion. But he said that his companion Shri Adhir Kumar Banerjee in course of a discussion at Midnapore, at 7 P.M. on the same day informed that the Guard was in the Brake-van up to Khargpur.

21. *Shri S.N. Auddy* of the office of the District Controller of Stores, Khargpur, stated that on 26-5-56 he travelled by the Workmen's Train in the first 3rd class bogie coach. At Arora Cinema Halt a crowd of three to four hundred people started pelting stones from both sides. He went inside his compartment and put up the window shutters and closed the doors. The train stopped only one or one and a half minutes and started again. From the Down Outer Signal the train picked up speed and started moving very fast. The speed became unusually high near the Home Signal. He pulled the alarm chain of his compartment but it had no effect and within a minute the crash took place. Another gentleman in his compartment also pulled the alarm chain but it was of no avail.

22. *Shri U.P. Sanyal*, Cabin A.S.M., stated that at about 6.39 hours he set the route to platform No. 5 for the Down Workmen's Train and before his Cabinman lowered the signals he found the train disregarded the Down Outer Signal and had come inside the Home Signal also. He went outside on the terrace to see what had happened and within a minute the train passed the Cabin at an excessive speed and he did not find anybody inside the engine. He promptly reported it to the Cabin Master. By that time the train entered platform No. 5 and met with the accident. According to him, the speed of the train was about 40 miles per hour before the crash.

23. *Shri P. Bose*, Cabin Master, stated that shortly after 6.39 hours Shri Sanyal Assistant Station Master, West Cabin, reported to him that he had set route for the Down Workmen's train to platform No. 5 but before the signal could be lowered the Down Workmen's train disregarded the signal and had already entered inside the Down Home Signal. Before the conversation was complete Shri Sanyal further stated that the train had passed his Cabin at a high speed and that he could not find any crew on the

engine. Within a few seconds he heard a terribly unusual sound at about 6.40 hours. He immediately informed the General Assistant Station Master, Khargpur to rush to the spot. He also spoke to the Deputy Chief Controller and the District Operating Superintendent on the telephone.

24. *Shri S.N. Ghosh*, General Assistant Station Master, Khargpur, stated that at about 6.40 hours *Shri P. Bose*, Cabin Master, rang him up and communicated that the Driver of Down Workmen's Train had entered station against signals and was running at a very high speed. Before the conversation was over he heard an unusual sound and immediately he rushed out of his office towards the site. He noticed that there was no crew on the engine of the Workmen's Train which had mounted the dead-end buffer and come to a stop on the platform after damaging the bathing shelter. He informed the Khargpur Hospital for doctors and communicated the incident to the Deputy Chief Controller and others.

25. *Shri Mohd. Khalilur Rahman*, Driver, stated that on 26th May 1956, he worked the Bulky Special and was standing in front of the tea stall on line No. 4, Khargpur. All on a sudden he observed that a train was coming in at a high speed from Midnapore end. Suspecting something wrong with the train he left his engine and came towards the above train. Meanwhile, the engine of that train crashed into the dead-end of the local siding. He noticed that there was no staff on the engine of the ill-fated train. Driver Murty who arrived there meanwhile closed the regulator as it was fully open. The vacuum ejector handle was found in pushed back position implying it was in the vacuum creating position. In his opinion the speed of the train immediately before the crash was between 40 and 45 miles per hour. He stated that he had seen the Guard of the train on the platform soon after the accident. He tried to speak to him but the Guard could not, as he appeared to be suffering from shock and was in a semi-conscious state. So one man was holding him and helping him to walk. The Guard was unable to speak though he asked him a few questions.

26. *Shri Nikhil Chakravarty*, Sub-Inspector of Police, Midnapore, in his statement said that at about 6.30 hours on 26-5-56 he got orders from his Additional Superintendent of Police to proceed to Arora Cinema level crossing gate as there was some trouble alleged to have been created by the Railway strikers. He along with other Police officials proceeded in a Police van to the site where he noticed a mob of about 300 to 400 people. This crowd was pelting stones towards the Down Workmen's Train which was standing at the halt and also towards his van. The police party was not equipped with any fire arms. He noticed that a few men got up on the engine cab and pulled one of the engine crew and brought him down on the ground. Thereupon they assaulted that man. *Shri Mukherjee*, Assistant Commandant, who went up in an effort to save the above engine crew was also attacked and while escorting the above man after release, *Shri Mukherjee* fell unconscious on the ground being struck by brickbats thrown by the mob and *Nikhil Chakravarty* while trying to pick him up was also hit by stones and injured. Meanwhile other members of the police party returned to the police van, all of them having sustained injuries. Then they all left the place in that van and at that time he noticed that the Down Workmen's Train had started from Arora Cinema Halt at normal speed. He did not notice whether there was anybody on the engine. He along with others reached the Town Police Station where they conveyed the information about the assault. Then they proceeded to the Railway Hospital, Khargpur, for medical treatment.

#### DISCUSSION

27. *Time and place of the accident.* (a) *Shri P. Bose*, Cabin Master, gave out the time of accident as 6.40 hours. *Shri S.N. Ghosh*, General Assistant Station Master, Khargpur, stated that at about 6.40 hours *Shri P. Bose*, Cabin Master, rang him up and communicated that the Driver of the Down Workmen's Train had entered Khargpur Station against signals running at a high speed and before the conversation ended he heard an unusual sound and immediately rushed to the site and saw the mishap. The Cabin Assistant Station Master *Sanyal* stated that the crash occurred within less than a minute after 6.40 hours. I, therefore, accept that the accident took place at about 6.40 hours.

(b) The evidence bears out that the engine of the ill-fated train was rendered crewless at Arora Cinema Halt at mile 72/21-22 and the train crashed in Khargpur Station yard on the dead-end of road "E".

28. *Speed of the train.* According to Drivers Khalilur Rahman and G.S.N. Murty, who were present at the station at the time, the speed of the train with which it crashed was between 40 and 45 miles per hour. Shunter Roderiques, who was also at the station, estimated the speed as 40 miles per hour. Shri J. Scott, Driver on Special Duty, who was in the Shunter's office by the side of the West Cabin at Khargpur considered the speed of the train to be about 45 miles per hour. According to Shri U.P. Sanyal, Cabin Assistant Station Master, the speed of the train was 40 miles per hour. Taking into consideration the statements of the above experienced men, I formed the opinion that the speed of the train before the crash was 40 to 45 miles per hour.

29. *Background of the incident.* From the 1st to 7th of May 1956, there was certain amount of trouble from the Railway staff due to one reason or the other at different stations of South Eastern Railway. On 8th May 1956, a stay-in-strike at Khargpur Workshops was started by the staff without giving any reason for doing so either before or immediately after they stopped work. Subsequent to that there was a recrudescence of trouble on the line when two Guards commenced hunger strike on 15th May, joined by another two the next day. Eventually they resumed duty by May 19th. The stay-in-strike in Khargpur Workshops extended to the Electrical Shops, General Stores, Signal Shops and Loco. Sheds. The West Bengal Government shortly thereafter declared the Khargpur Workshops including the Electrical Shops to be a 'Protected Area' making it incumbent upon everyone entering the shops to be in possession of a permit and this was implemented. There was a recrudescence of assaults on 22nd May when 6 workers coming out of the Workshops during the lunch break were attacked and assaulted. Acts of intimidation continued and the employees willing to work were prevented from coming to their work spot. The Railway Administration, assisted by the Police, escorted staff to and from their place of work in order to maintain the essential service till the date of the accident.

30. *Evidence.* The evidence is unanimous to the effect that as soon as the Midnapore-Khargpur Workmen's Train arrived at Arora Cinema Halt, the crowd of people that had assembled there started pelting stones on the train, presumably in an effort to dissuade the workers from going to their work. Then they got on to the locomotive, belaboured the engine crew and pulled them out of it, thus rendering the engine crewless. Although there are actually no eye witnesses, it is evident that some person had mischievously opened fully the steam regulator of the train engine, setting it in motion, which ultimately crashed into the dead-end buffer of road 'E' of Khargpur Station.

31. *Position of vacuum ejector handle.* (a) After the crash the vacuum ejector handle of the engine was found in blowing position, as may be seen from the statements of Drivers Khalilur Rahman and Murty. It was suggested by some that the handle was deliberately pushed back to the blowing position by the miscreants, who were familiar with its working, so as to make it difficult for the train to stop by applying vacuum brakes.

(b) Before the assailants came on the engine, the Driver had stopped the train at the halt by closing his steam regulator and destroying vacuum as usual. By the time he started recreating vacuum by pulling the vacuum ejector handle in the blowing position these men came and removed the crew and the above handle was either pulled forward in the running position by the Driver or was left in the vacuum creating position about which, the Driver said, he did not remember. So it cannot be established that it was the doing of the intruders.

32. *Why the train could not be stopped by applying brakes from the Guard's brake van?* (a) During the course of the inquiry a doubt arose as to whether the Guard was travelling in his Brake-van between Arora Cinema Halt and Khargpur, that is, after the train had been set in motion by the miscreants. Shri Muralidhar Saha who travelled right through in the Brake stated that the Guard was in the rear lobby of Brake-van from Midnapore up to Arora Cinema Halt. But he was not sure that the Guard had travelled in the Brake-van thereafter and in his opinion he had not. Shri Adhir Kumar Banerjee stated that he was unable to say whether the Guard was inside the Brake-van or not. Shri Dhurdeshi who also travelled by the Brake-van right through, stated that the Guard was at first outside the Brake-van and after the trouble at Arora Cinema Halt he also came inside with him and confirmed that the Guard had travelled in the Brake-van during the run of the train between Arora Cinema Halt and Khargpur. Shri Ashutosh Banerjee stated that he was in the Brake-van but he was not very



sure whether the Guard was also inside after the train left Arora Cinema Halt, as there was considerable amount of confusion due to the assaults. He, however, stated that his companion Shri Adhir Banerjee in course of a discussion at Midnapore at 7 P.M. the same day informed him that the Guard had travelled inside the Brake-van up to Khargpur. The Guard, Shri Edwards, stated that he did travel in the Brake-van between Arora Cinema Halt and Khargpur Station. The above evidence indicates that the Guard was in his Brake-van right through.

(b) The question then arises as to why the Guard did not apply the vacuum brakes by lifting the vacuum valve which was fitted in his Brake-van in order to stop the train. The depositions bear out that the Brake-van was packed with Railway employees who rushed inside in order to escape the assault. It appears that they were to some extent familiar with the working of the vacuum valve. Their evidence indicates that after the incident at Arora Cinema Halt there was considerable confusion among the crowd that had rushed inside the Brake. That the engine was rendered crewless was not known to any one, since they were unable to look out. Even when the train restarted and gained high speed the men inside the Brake-van remained panic-stricken and lost their wits so much so that they failed to take any action either to open the vacuum valve or ask the Guard to do so in order to stop the train. The Guard said he had been pushed inside by some members of the mob and was trampled upon. He was dazed and did not remember what happened thereafter. There was no corroboration of the Guard being trampled upon. No members of the mob could actually enter the Brake-van. Those who rushed into the Brake-van did not really belong to the mob, but the Guard might have thought so being perplexed. He was unable to reply many of the questions put to him by me in the Railway Hospital where he was at the time of my Inquiry. He appeared to be like a mentally affected person. Shri Mohd. Khalilur Rahman, who met the Guard at Khargpur Station shortly after the accident, stated that he tried to speak to the Guard, but the latter did not respond. The Guard appeared to him to be suffering from shock and was in a semi-conscious state and was being helped to walk by a man holding him. When I questioned the Guard as to why he did not apply the vacuum brakes, he simply said that he was dazed and did not remember anything. There was, no doubt, general confusion, panic and loss of wits among those who were in the Brake-van as affirmed by them. But the Guard should have risen above the merit of others and controlled the train by operating the vacuum valve.

33. *Trials conducted*, (a) As the vacuum ejector handle of the engine was found in the blowing position after the accident, I had a doubt whether the train could be brought to halt before the crash by applying vacuum brakes from the Guard's Brake-van after the train had gained high speed. I also wanted to ascertain the speed that could be attained by such a train under similar conditions. I, therefore, requested the Chief Mechanical Engineer to carry out trials. He informed me that as there were severe speed restrictions in Khargpur Station Yard along the route taken by the ill-fated train, no experiment as suggested above could be undertaken. He, however, chose almost a similar length on the Khargpur-Jakpur Section for the purpose and carried out acceleration and deceleration tests with the same type of engine and load. During the trials the vacuum ejector handle of the engine was kept in the blowing position, the steam regulator fully open and the lever in reverse gear. In other words the condition of the ill-fated train was simulated in these trials. It was noticed that a speed of 45 miles per hour was attained within half a mile and it is no wonder that the speed of the ill-fated train was assessed by many of the eye witnesses as between 40 and 45 miles per hour. Shortly after this, the train attained a speed of 50 miles per hour. Then the vacuum valve provided in the Guard's Brake-van was lifted and vacuum brakes applied. Despite the application of vacuum brakes, the speed of 50 miles per hour was maintained over  $3\frac{1}{2}$  telegraph posts after which it dropped to  $37\frac{1}{2}$  miles per hour at which speed it ran for 9 telegraph posts. Thereafter, the train gradually came to a stop. It was found that the train took over  $1\frac{1}{2}$  miles to come to a halt from the time the speed was reduced to  $37\frac{1}{2}$  miles per hour mentioned above.

(b) According to the depositions, the ill-fated train gained high speed near the Down Home Signal which is situated on a straight alignment and its distance from the Dead-end Buffer where the crash took place is 2,886 feet. That the train was going at high speed was severely felt when it negotiated with a bad jolt, the facing turnout situated 360 feet ahead of the Down Home Signal. So, it is at this point—2,526 feet from the Dead-end—that the emergency application of vacuum brakes should be expected from the Guard in the Brake-van. On completion of the trials detailed in the above subpara,

the Chief Mechanical Engineer of the Railway considered that even if the Guard had been alive to his duties and applied vacuum brakes from the Brakevan of the ill-fated train after it had attained high speed, the train would have still impacted with the dead-end at approximately 38 miles per hour. I am inclined to concur with him in that the train would not have stopped before the crash under the above circumstances. The speed of the impact would depend on various factors and in any case it would not have been less than 30 miles per hour.

34. *Could the engine crew resist the mob and remain on the engine to perform their duties?* Before this question is considered it is necessary to recapitulate the various incidents that had occurred at the site. There were severe assaults on the ill-fated train as soon as it arrived at Arora Cinema Halt by the mob that gathered there. This took place in the shape of heavy pelting of stones, manhandling of the train crew and infliction of injuries to them and others. The statement of gateman Paresh who was on duty at the time revealed that three police vans containing police officials that arrived 10 to 15 minutes before the arrival of the ill-fated train were heavily stoned by the mob so much so that these trucks had to be driven away. In the conflict a number of police officials were also injured as borne out in the statement of Shri Nikhil Chakravarty, Sub-Inspector of Police. Evidence confirm that the three engine crew were manhandled out of their locomotive and badly assaulted. With the above circumstantial evidence, therefore, it is considered that they could not have resisted and stayed in the engine to perform their duties.

35. *Conclusion, (a)* After investigation I have come to the conclusion that the accident to Midnapore-Khargpur Workmen's Train on 26th May 1956 at Khargpur Station was brought about by forcibly removing the engine crew from the locomotive of the above train and setting it in motion by fully opening the steam regulator by some person or persons unidentified. The crewless engine of the above train with its load gained high speed, and ultimately crashed into the dead-end of road 'E' of Khargpur Station.

(b) The entire responsibility for the disaster rests on the unidentified person or persons who had opened the steam regulator of the engine and set it in motion at Arora Cinema Halt. I do not hold the Driver or any engine crew blameworthy for not averting the accident, as it was beyond their power to resist the mob. The subject of controlling the speed of the train by the Guard has been discussed in para 32. I consider that he should have risen to the occasion and operated the vacuum valve in an endeavour to stop the train. The trials carried out by the Chief Mechanical Engineer brought out, however, that even if the Guard had applied the vacuum brakes from his Brakevan, the train could not have been saved from the crash. Under the circumstances I do not hold the Guard responsible for not averting the accident. If, however, he had applied the vacuum brakes by operating the vacuum valve as soon as high speed was experienced, the speed of the impact would have been less. The Guard should therefore share the blame to that extent for the default in terms of General Rules 121 and 126(d).

(c) The relief measures were prompt and satisfactory.

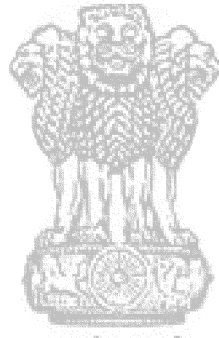
Yours faithfully

A. K. GUPTA

Government Inspector of Railways

CALCUTTA ;

The 17th July, 1956.



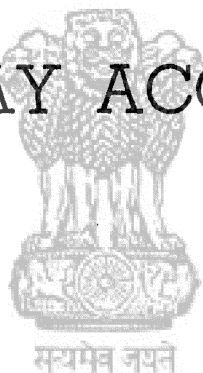
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GOVERNMENT OF INDIA  
MINISTRY OF TRANSPORT AND COMMUNICATIONS  
(RAILWAY INSPECTORATE)

# RAILWAY ACCIDENTS



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## REPORT

on

HEAD-ON COLLISION

of

**46 DOWN EXPRESS WITH RUNAWAY BFR NO. 18398/SE**

between

**PALASA AND PUNDI (SOUTH EASTERN RAILWAY)**

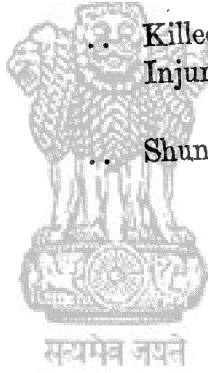
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## SUMMARY

Date	..	..	..	19-8-57.
Time	..	..	..	13.40 hours.
Railway	..	..	..	South Eastern
Location	..	..	..	Mile 422/13-14 T.P. (East Coast—Main Line).
Kind of accident	..	..	..	Collision.
Trains involved	..	..	..	(i) Passenger Train. (ii) A Runaway Wagon.
Train Numbers	..	..	..	(i) No. 46 Down Janata Express. (ii) BFR No. 18398/SE.
Engine Number	..	..	..	(i) 7351/WP
Consist	..	..	..	(i) 10 bogie coaches (Janata Express).
Estimated speed	..	..	..	(i) About 45 m.p.h. (Janata Express). (ii) 10 m.p.h.
Operation	..	..	..	Absolute Block System (with Neale's ball token).
Track	..	..	..	Single line (5'—6" Gauge), straight, level.
Weather	..	..	..	Cloudy weather, visibility clear for about 1 mile.
Casualties	..	..	..	Killed—4 Injured—4 grievous. 13 simple.
Cause	..	..	..	Shunting in face of an approaching train.



To

THE SECRETARY TO THE GOVERNMENT OF INDIA,  
MINISTRY OF TRANSPORT & COMMUNICATIONS  
(DEPARTMENTS OF COMMUNICATIONS & CIVIL AVIATION)  
NEW DELHI.

(Through : The Chief Government Inspector of Railways)

SIR,

*Reference to orders*—In accordance with paragraph 9 of the Railway Board's Notification No. 1926-T dated 19th March 1930, I have the honour to submit herewith the result of my Inquiry into the circumstances of the head-on collision between No. 46 Down Janata Express Train and run-away BFR No. 18398/SE at mile 422/13-14 T.P. between Palasa and Pundi stations of South Eastern Railway (East Coast Main Line) on 19th August 1957.

2. *Inquiry*—The site of the accident was inspected on the morning of the 20th August. Statements of witnesses were recorded at Palasa station on 20th and 21st and of 2 injured persons in the Civil Hospital, Berhampur on 21st August 1957.

Statements of 18 witnesses were recorded.

The following officers were present at the Inquiry :—

- (1) Shri J. S. Mathur, Chief Operating Supdtt., S.E. Rly. (on 20-8-57).
- (2) Shri P. S. Venkataraman, Chief Mechanical Engineer, S.E. Railway (on 20-8-57).
- (3) Shri G. S. Khosla, Dy. Chief Operating Supdtt., S.E. Railway (on 21-8-57).
- (4) Shri R. K. Rau, District Mechanical Engineer, S. E. Railway, Waltair (on 21-8-57).
- (5) Shri P. D. Peres, District Engineer, Titilagarh (on 20-8-57 and 21-8-57).
- (6) Shri V. Surya Narayan Murti, Inspector, Railway Police, Waltair (on 20-8-57 and 21-8-57).

Shri Dorai Swami Reddy, Sub-Divisional Magistrate, Shrikakulam, and Shri Oval Reddy, Dy. Superintendent, Police, Vizianagram, saw me both on 20th and 21st August but they did not attend my Inquiry.

3. *Description of the accident*—On 19th August 1957, No. 1221 Up Express Goods Train arrived at Palasa station at 10.55 hrs. Shunting Jamadar was instructed to attach one wagon and remarshal some of the wagons on that train after 11.00 hrs. Line clear was given for No. 46 Down Janata Express at 13.7 hrs. and this train was to be received on the Main Line (Line No. 2). Shunting was still going on at Pundi-end when the line clear was given.

After fly-shunting BFR No. 18398/SE loaded with angle-iron on to line No. 6, the shunting engine went back to line No. 3. The loaded BFR rolled back from line No. 6 and passing the cross-over between lines Nos. 2 and 3, it went on to line No. 2 (Main Line). It gained speed and went beyond the Outer Signal till it collided with the approaching No. 46 Down Janata Express at mileage 422/13-14 T.P. After the impact, the whole train moved forward for a distance of over 550 ft. Here the tender parted from the next vehicle and the engine moved forward pushing the BFR for another 387 ft. before coming to a stop.

The BFR got entangled with the front portion of the engine and was lifted at that end. The front pair of wheels of the leading bogie of the engine got derailed. The tender had partially telescoped into the front end of the bogie-coach next to it, demolishing it at that end. The trailing bogie trolley of the tender shifted forward having been wrenched off the pivot.

4. *Casualties*—I regret to report that, as a result of the accident, 3 women passengers were killed at the site and one boy, who was injured seriously, succumbed to his injuries by the time he reached the railway dispensary at Palasa. Besides these, 17 persons were injured, of whom 4 had received grievous injuries.

5. *Composition of train*—The composition of No. 46 Down Janata Express was as under :—

	Weight		Length		Brake-power
	T	Cwt.	Ft.	In.	Tons
Engine No. 7351/WP(4-6-2)	173	17	(approx)	77 6 (approx.)	88
TLR 2507/SR.	43	11	}	722 0	323
T 4036/C.R.	38	19			
GTY 1972/S.E.R.	37	3			
GTY 1967/S.E.R.	37	3			
GT 1966/S.E.R.	37	3			
GT 1874/S.E.R.	41	11			
GT 1685/S.E.R.	44	4			
GTY 1945/S.E.R.	44	13			
LR 2817/S.E.R.	41	5			
TLR 2564/S.R.	37	13			
	577	2(approx).	799	6 (approx.)	411

The coaches had steel underframes, wooden pillars and angle iron frame work in the superstructures with mild steel panelling on the outside. They had cylindrical side buffers and standard central screw couplings.

The BFR was old B.N.R. type with steel underframe and body and old type side buffers with conical casing for buffer shaft.

6. *Number of passengers*—The total seating capacity of No. 46 Down was 656 but the number of passengers was only about 200.

7. *Relief and succour*—The accident occurred at about 13·40 hrs. The information of the accident was given by the Guard on Field Telephone to the Controller at 14·03 hrs.

When the BFR started rolling down, the Assistant Station Master received the information from the Cabin Leverman of West Cabin at about 13·30 hrs. He called his Station Master, who, finding that No. 46 Down Express was on line clear and had already left Pundi at 13·28 hrs., commandeered a motor bus which was waiting at the station and rushed towards Pundi along the public high-way—which ran more or less parallel to the track. This he did to warn driver of No. 46 Down of the fugitive wagon. He took a turn towards the C-Class level crossing at mile 422/8 but reached there only at 13·45 hrs. when the collision had already taken place nearby, the engine of the train having come to a stop opposite mileage 422/9 T.P.

The seriously injured persons were accommodated in the motor bus and 8 of them were rushed to the Palasa railway dispensary where they reached by 14·00 hrs. At 14·40 hrs. the Station Master went back to the site of accident with the Relief Train reaching there at 15·10 hrs. 9 other injured persons were accommodated in the ambulance van and they were brought back to Palasa by 16·40 hrs. Of the 8 persons who had been taken to Palasa dispensary earlier, one died and the remaining 7 were brought to the ambulance van. Two of these injured persons and another who reported at Palasa itself, were allowed to go at their own request. 14 injured persons were carried in the ambulance van to Berhampur and reached there at 21·25 hrs. The injured were taken by motor ambulance van to the Civil Hospital, and admitted there at 21·40 hrs. The injured crew of the train were transferred to Railway Hospital, Waltair, on the 20th night. I met the injured crew in the ambulance train while being transferred to Waltair Hospital, and visited other casualties in the Civil Hospital at Berhampur on the 21st August. I found that they were being given all attention possible.

The Relief Train from Waltair reached Pundi at 19·55 hrs. The engine of this Relief Train was sent to pull back the coaches except the one that had been damaged. The engine left Pundi at 20·05 hrs. and returned at 21·50 hrs. The Relief Train was then pushed up to the site of accident at 23·10 hrs. The damaged bogie was then carefully pulled back into Pundi after rerailment.

The BFR was entangled with the front portion of the engine, the angle irons having pierced into the smoke-box. The two could not be separated and this necessitated unloading the BFR and cutting portions of it with Oxy-acetylene flame. After the two were separated, they were carefully towed into Palasa station yard.

The track was not damaged much and it was restored to traffic at 8.06 hrs. on 20-8-57. No transshipment was arranged.

8. *Damage (a) No. 46 Down Janata Express*—The smoke-box of the engine was extensively damaged. The front buffer beam was bent, vacuum cylinder of the tender was broken. The rear tender bogie was pulled off its pivot and safety chains were broken. Brake gear was twisted and tender buffer beam was twisted. The left side rear buffer had dropped off. The tender coupling had dropped off due to shackle having broken. The approximate cost of damage to the engine was about Rs. 50,000.

The first bogie coach in the train TLR 2507 S.R. had its end-compartment completely demolished. The leading head stock had bent, the vacuum cylinders, battery box and dynamo were broken. There was minor damage caused to the electrical fittings, foot-boards, etc. This coach had its P.O.H. on 24-11-56 in the shops and had been re-packed at Madras on 3-8-57. The cost of damage was approximately Rs. 13,607.

(b) *BFR 18398/SE* had its Waltair end sole bars, diagonal bars, head stock and both buffers completely smashed. The bogie truck channel bars, axle boxes, bearing springs, brake gear and vacuum cylinders were completely destroyed. Palasa-end bogie truck had shifted by about  $4\frac{1}{2}$ " bending the pivot pin and tearing the bolster cross-bar. The pull rod at Waltair-end was also badly distorted. The estimated cost of damage to this BFR was Rs. 32,000.

(c) The rails were bent vertically at the place where the collision took place necessitating their changing. A few clips and bolts securing them to sleepers were broken and a number of saddle plate steel trough sleepers were slightly damaged. The total cost of damage to Permanent-Way was Rs. 800 (approx.)

(d) The total cost of damage was as under :—

Engine (locomotive and tender)	..	..	Rs. 50,000
Rolling-stock	..	..	Rs. 45,607
Track	..	..	Rs. 800
			96,407

9. *Local conditions*—(a) Mileages of some of the places mentioned in this report are :—

Howrah	..	..	..	0 miles.
Berhampur	..	..	..	357 „
Palasa	..	..	..	420 „
Site of accident	..	..	..	422/13-14 T.P.
Pundi	..	..	..	427 $\frac{3}{4}$ miles
Shrikakulam Road	..	..	..	465 $\frac{1}{2}$ „
Waltair	..	..	..	547 „

*N.B.*—There are 24 telegraph posts to a mile on an average. Words “Left”, “Right”, “rear”, “ahead” are used in what follows with reference to movement of the train or vehicle concerned. Trains from Waltair to Palasa are Down trains and in the reverse direction Up trains.

(b) The site of accident is situated between Palasa and Pundi stations on the Waltair District of the S.E. Railway. The headquarters of Transportation, Mechanical and Medical Districts in whose jurisdiction the site of accident lies, are at Waltair. The Engineering District concerned, however, has its headquarters at Titilagarh. The Train Control Office is located at Waltair.

(c) After passing Pundi, a Down train has to negotiate one left-handed curve from mile 426/20 to 426/1 T. P. and then two reverse curves from mile 424/6 to 423/7-8 T. P. At 423/7-8 T.P. it has to cross bridge No. 1185 (6×40' Girder Spans). From here the track is straight upto the site of collision (mile 422/13-14 T.P.) and beyond upto mile 420/20 T.P.



(d) The stretch of track from mile 423/23 to 423/22 T.P. is level, after which a Down train has to take a rising grade of 1 in 500 which extends to beyond the site of collision, viz., mile 422/6 T.P. From here upto Palasa station the gradients are :—

422/6 to 421/10 T.P.	..	..	.. Rise 1 in 670.
421/10 to 420/12 T.P.	..	..	.. „ 1 in 150.

It will be seen that approaching Palasa station, the track is on a steep gradient of 1 in 150 from mileage 421/10 T.P.

(e) The general direction of track in Palasa yard is from East to West. The lines are numbered from South to North. Lines Nos. 1 and 2 are on either side of an island platform, line No. 2 being the Main Line.

At Pundi end cross over No. 25 isolates the Main Line from the 3rd Line which is to north of it. Reckoning from the Pundi end the lines Nos. 6, 5 and 4 take off from the line No. 3 at points Nos. 22, 20 and 19 respectively. At the same end, line No. 7 takes off line No. 6 at points No. 18. Departure and arrival of trains from and on these goods lines are governed by Starter Signal No. 10 and Home Signal No. 31. Lines Nos. 3, 4, 5 and 6 have shunting signals provided which are respectively numbered 10, 9, 8 and 7.

10. *Working Rules*—(a) Absolute Block System of train working is being followed at this station. Single Line Neale's Ball Token Instruments are used.

(b) The Special Working Orders for the station prescribe a system of exchange of Line Badges for regulating shunting in the station yard. (See paras 32 and 33 below).

11. *Weather*—Though the evidence is not unanimous, it was gathered that about the time of the accident the sky was overcast and soon after the accident it started raining lightly. The visibility was good and the track was clearly visible for over a mile on the straight.

## II, EVIDENCE AND DISCUSSION

12. *T. Harkrishna* was a permanent Assistant Station Master at Palasa but was working as the Station Master on 19-8-57. At about 13.30 hrs., Assistant Station Master S. Ramachandra Rao reported to him that a loaded BFR had escaped in the section Palasa-Pundi. He went into the ASM's room and saw that ASM's control slide for signals had been pulled; so he pushed it back and instructed Cabin Leverman not to lower the signals. Time was then 13.33 hrs. He was told by Assistant Station Master S.R.C. Rao that No. 46 Down had left Pundi at 13/28 hrs. So he commandeered a waiting motor bus and reached the level crossing at mile 422/8 at about 13.45 hrs. But by that time the collision had already taken place very near that level crossing. The shunting engine with Shunting Jamadar Satyanarayana had come from Palasa about the same time but went back without waiting. He met the driver of No. 46 Down who told him that he controlled the train but could not avert the collision.

At 14.30 hrs. he questioned the Shunting Jamadar who told him that he went with the engine towards Pundi to bring back the fugitive wagon but saw the collision take place so he returned to the station.

He had not obtained the assurance from all the staff about knowledge of the current working rules of that station until 14th August 1957, when the D. T. I. inspected the station. He said that the instructions contained in paras 12, 13 and 14 of the Special Working Orders of Palasa were not being followed at his station as all the badges required were not there. He had, however, never reported the matter.

He said that he demanded the Down side Badge from ASM S. R. C. Rao at about 14.10 hrs. on return from the dispensary and the A.S.M. gave it to him at that time. He did not demand the "Up side" badge.

13. *S. Ramachandra Rao*, Assistant Station Master on duty at Palasa on 19th August 1957, said he had given the two badges to Jamadar Suryanarayana to perform shunting on No. 1221 Up Goods upto 12.55 hrs. At that time he gave line clear for No. 325 Up. After arrival of that train at 13.15 hrs., he gave line clear for No. 521 Up at 13.17 hrs. which was to be received on line No. 4. At 13.07 hrs. he gave line clear for No. 46 Down Janata Express. He said that at 13.22 hrs. he gave his slide control for reception of No. 46 Down on line No. 2. He went out of his office to see the Down side signals but found these in the 'ON' position. He went back to his office and rang up the Cabin

but did not get any response. At 13.30 hrs. the West Cabin informed him that one BFR had rolled away towards Pundi. He said that he had received Out-report of No. 46 Down at 13.28 hrs. and he informed Control of the occurrence at 13.30 hrs.

He said that he had never seen the badges which were to be exchanged for shunting to be performed on line No. 1 or 2. He had only the Down side and the Up side badges to control shunting in Palasa yard. He was asked how he said he was relieved of duty at 14.00 hrs. when the Station Master reached the station only at 14.10 hrs. To this, he said his time was correct according to the memo (re: receipt of the Down badge by the Station Master—see paragraph 30 below).

14. *Shunting Jamadar Suryanarayana* of Palasa prefaced his statement by saying that he had been working there for 5 years but had never been taught special working rules and had never signed the assurance register. He said that on 19th August 1957 he was informed by the Supervising Jamadar B. H. Satyanarayana that No. 1221 Up was on line No. 3 and shunting had to be performed on it which meant attaching 1 wagon from there, remarshalling of the wagons for Vizagapattam in one hook and detaching one BFR at Palasa. The last movement he did was to place the loaded BFR on line No. 6 and then come back to the load of No. 1221 Up on line No. 3. He said that the BFR was not fly-shunted. He had himself pinned down the brake lever of the BFR after it was detached on line No. 6. This loaded BFR started rolling back. He shouted to the Cabinman to set the path to the dead-end. The points were set for the BFR to go on line No. 3 but the cross over road remained set for the Main Line.

He tried to check the movement of the BFR by placing bits of ballast on the rail but to no effect and the BFR rolled on. He asked the Cabinman to inform the ASM about the runaway vehicle. He along with the shunting porters went after the BFR to catch it but did not succeed and came back to the station.

He said he had full authority to perform shunting as he did because he had the necessary shunting authority badge with him. He did not hear the station bell when the line clear was given for No. 46 Down.

His statement that he had not signed the assurance register was questioned and he was shown his signatures therein. Then he owned having appended his signatures.

It was put to him that he did not perform the shunting as he said he did and the cause of the BFR rolling down was faulty shunting. To this he gave no reply.

15. *B. H. Satyanarayana*, Supervising Shunting Jamadar of Palasa, said that he gave instructions to Shunting Jamadar Suryanarayana to perform shunting on the load of 1221 Up. He gave details of this shunting.

When Shunting Jamadar had fly-shunted the BFR on line No. 6 and came back with the engine to line No. 3, the BFR started rolling back. It did not strike the luggage vans already standing on line No. 6. The movement of the BFR could not be checked. The Cabinman was asked to divert the BFR into the dead end siding but the Cabinman said that he could not change the points because locking bars had to be operated and there was no time to do so. He went to the Cabin and gave the information to the ASM on duty.

He said that the shunting badge for Down side was with the Shunter upto 14.15 hrs. At 14.10 hrs. the Assistant Station Master had taken his signature for reception of No. 521 Up on line No. 4, and the A.S.M. had obtained the badge from the Shunter then. The Shunting Authority Badge was with the Shunter at the time No. 325 Up was received from one side and No. 46 Down was to come from the other side.

16. *Driver Kanakarao* of No. 46 Down stated that after his train passed Bendikonda, passed the curve, and came on to the straight, from a distance he thought that some bullock cart was crossing the track. He dropped vacuum and on closer observation made out that it was a BFR on the track. He applied brakes but the collision could not be avoided. The speed of his train was about 45 m.p.h. The brake-power of his train was good and there was 20" vacuum on the engine.

He said he could not see properly ahead because of dark clouds and light rain. He admitted that visibility was clear for about half-a-mile. He was passed fit with glasses, which he was wearing at the time of the accident. This pair of spectacles fell off and was lost when he was hurt on his left ear.

17. *Fireman Apparao of No. 46 Down* said that when the train passed the bridge and came on the straight, he was closing the lubricator. When the driver applied vacuum, he looked forward but presently the collision took place. The train had almost come to a stop when it collided. It was raining lightly but visibility was good for a couple of miles when the train was on the straight.

18. *Guard Ranganaikulu of No. 46 Down* stated that as he had to complete the vehicle guidance and close the journal for the run from Waltair to Palasa, he was collecting all the papers. Suddenly he received a severe bump and peeped out of his window; but another severe jerk knocked him down. After a few seconds when the train came to a stop, he got up and alighted from the brakevan. It was at that time 13.40 hrs. He met the Station Master somewhere in the gap where the engine had parted from the train. He connected the field telephone to the wires and gave the information to the Controller at about 14.10 hrs. The Station Master in the meanwhile had carried 9 injured persons to Palasa. The speed of his train was about 50 m.p.h. He said that it was cloudy but *not raining*. Soon after the accident, it started drizzling and the visibility was good for more than a mile on the straight. He did not notice the driver checking the speed of the train.

19. *Brakesman K. Dalayya of No. 46 Down* said that after passing Bendikonda Halt, the driver sounded the whistle. He looked out from the right-hand side but could not see anything. He then tried to look from the left-hand side and found a loaded truck in front of the engine. He saw that the vacuum needle had dropped to 'O'. He tried to jump out but could not do so. The speed of his train was about 40 m.p.h. and it had reduced to almost dead-slow at the time of impact.

20. *D. Sanyasi, Cabin Leverman, Palasa*, was on duty in the West Cabin from 8 to 16 hours on 19th August 1957. After arrival of the Up Passenger Train, he enquired from the Station Master on duty if he should permit shunting on the Main Line and he permitted him to do so. In course of shunting, the loaded BFR was fly-shunted on to line No. 6 after which the engine with the remaining wagons came to line No. 3. In the meanwhile, the BFR rolled back. The Shunting Jamadar asked him to divert the BFR into the dead-end siding. So he set points No. 22 for its passage but could not change the setting of points No. 25 because the lock bar was not released, the wheels of the BFR having come over it. He said that the A.S.M. on duty had told him that the line clear for No. 46 Down had been given but he did not give the slot. He said he would have stopped shunting if he had received the slot. He, however, said that he had no proof of the statement that the A.S.M. on duty had permitted shunting. But he said that he could not disobey the A.S.M. on duty and the Shunting Jamadar who were both asking him for shunting to be carried out. It was slightly drizzling but visibility was good for about a mile. The Shunting Jamadar tried to stop the BFR by applying the brake; but to no effect. He said that the brakes were applied only when the BFR was rolling away and were not applied previously. The Shunting Jamadar and Pointsman on their own went chasing after the runaway BFR. He saw the engine go up to the Outer but did not know how far it went. Beyond that the BFR had been fly-shunted into line No. 6 but it went for about 2 wagon-lengths beyond the shunt signal and then it started rolling back. He, however, re-set the points No. 22 for allowing the engine and brake to go after the BFR.

21. *Assistant Station Master P. K. Rao* had gone off duty at 8.00 hrs. but was recalled at 14.00 hrs. by the Station Master. He took over charge from Assistant Station Master S. R. C. Rao at 14.20 hrs. At that time, the badge for the Down side was with S.R.C. Rao but the badge for the Up side was still with the Shunter. He sent for the Up side badge and obtained it from the Shunter at 14.30 hrs. He could not say when S. R. C. Rao handed over the Down side badge to the Station Master. S. R. C. Rao could not talk coherently when he was relieved by him. The witness said that in the Line Admission Book he had written certain timings just by guess because he felt confused. What he had used for shunting, were the badges authorising shunting upto Outer signal, viz., round badge for shunting upto Down Outer signal and the square badge upto the Up Outer signal. Other two badges for lines Nos. 1 and 2 had not been brought into use. They were withdrawn by the Station Master who told him that he had indented for all the badges. He said the new Working Rules had been brought into use on and from 7th June 1957.

22. *Shunter B. Jaggarao*, who was the driver of the shunting-engine on 19th August, 1957, said that from the time he came on duty from 8 o'clock that morning, he had in his possession the two badges for shunting upto Outer signals at either end and another

badge for shunting in the goods yard. After the Up Passenger Train was admitted, he was asked to perform shunting at Waltair-end. He fly-shunted the BFR on to line No. 6 under the orders from the Jamadar. This BFR cleared the fouling mark on line No. 3 and started rolling back. When his engine was coming on to line No. 3 after fly-shunting the BFR, he heard the shunting porters and the Jamadar shouting. He did not see anybody applying the brakes but he saw the shunting staff placing bits of ballast on the rails. He did not hear Jamadar shouting to the Cabin Leverman to divert the BFR into the dead-end. But the Jamadar went to him and asked him to go with the engine and bring back the runaway vehicle. The points were set for his engine to go. He went chasing the BFR upto the Outer signal but it could not be caught. He came back to the station and stabled his engine on line No. 3. Pointsman Apparao with another man came and asked for the badge for the Down side, which he gave to Apparao but it was snatched by the other man. He did not know this man but he could recognise him. The witness was asked to call that man and he brought one Mr. Asirvadam, the Trains Clerk. The latter denied all concern with the affair but the witness told him in the face that he was telling a lie. Apparao was also called and he also corroborated the statement of Shunter Jaggarao. He said that when he went chasing after the runaway wagon, firstly, he did not know that No. 46 Down was on line clear; and secondly, he had the badge of authority to shunt upto Down Outer signal. He did not hear the station bell; nor did anyone inform him about the line clear of No. 46 Down.

23. *G. Apparao, the Pointsman*, said that some time between 13.30 and 13.45 hours the A.S.M. S. R. C. Rao told him that a BFR had run away into the section and asked him to fetch the Down side badge from the Shunter. He went to fetch it but Asirvadam followed him. He asked the Shunter to give the badge for Down side. While this was being handed over to him, Asirvadam came along and snatched it away. Asirvadam ran back to the station. Apparao came back but did not know what happened to the badge afterwards.

24. *Trains Clerk G. D. Asirvadam* was questioned about the story of the badge; but he said that he did not know anything about Apparao or Jaggarao or about the badge. When he was further questioned that the 2 witnesses had told him in his face that what he was telling was not the truth, he had nothing to say. He had no quarrel with either of them. He was not a particular friend of A.S.M. S.R.C. Rao but said that they were colleagues.

25. *Section Controller C. C. Deva* said that he received the information of the accident from the Guard at site at 14.03 hrs. He said that at about 13.45 hrs., he rang for Palasa but got no response from there. There was heavy induction on the line and cross connections with the Branch Line circuit at the time. He said his successor had come on duty at 14.00 hrs. He had not yet made over charge when at 14.03 hrs. the clerk told him that somebody was speaking about the accident. The Guard did not tell him the time of the accident.

26. *Train Examiner Ch. Apparao* said that on arrival of No. 1221 Up Express Goods at Palasa, he examined the BFR. They were all in perfect condition and the brakes were in good order. He said he found the brake gear of that BFR in good condition.

27. *Deputy Chief Controller T. H. Lazar* said that the time of the accident was 13.40 hrs. according to the first information received by him on Deputy's line.

28. *Time of the accident*—The minimum running time for an Express train from Pundi to Palasa ( $7\frac{3}{4}$  miles) is 13 minutes. So, the running time alone upto the site of accident from Pundi (about  $5\frac{1}{4}$  miles) should be approximately a little over 9 minutes. Allowing 2 minutes for acceleration, the time of the accident theoretically works out to a little after 13.39 hrs. Therefore, the time of the accident may be taken as 13.40 hrs.

29. *Discussion*—The facts of the case were that No. 1221 Up Express Goods arrived at Palasa at 11.55 hrs. Shunting Jamadar Suryanarayana started performing shunting on that train at Pundi-end of the station yard so that about the time No. 46 Down Janata Express was on line clear shunting was still being performed. This shunting necessitated path to be set on to the Main Line in the absence of a shunting neck. The last two operations in the course of this shunting were fly-shunting of the BFR No. 18398/SE on to the line No. 6 and return of the shunting engine with remaining wagon to line No. 3. On conclusion of these operations, the Shunter heard the shunting staff shouting that the BFR was rolling away and looking back he saw them placing bits of ballast on rail to

arrest the motion of the BFR, but it could not be stopped and rolled away. Cabinman Sanyasi, Shunting Jamadar Suryanarayana and the Shunter Jaggarao, all admitted these facts except for a few details as discussed below.

(a) *Fly shunting of BFR*—Shunting Jamadar Suryanarayana stated that the BFR was not fly-shunted but it was detached on line No. 6 about 6 wagon lengths away from the fouling mark. The Cabinman, the Shunter and the Supervising Shunting Jamadar all stated that the BFR was fly-shunted and it stopped near the shunt signal for line No. 6. All these persons were near about and were responsible for the shunting operations in one way or the other. Shunting Jamadar Suryanarayana was actually directing the movements and is directly involved, so the statement of the other persons should be acceptable and it may be taken that the wagon was fly-shunted.

(b) *Application and pinning down the brakes of the BFR*—In trying to clear himself of any responsibility for this accident, Shunting Jamadar Suryanarayana stated that he himself applied and pinned down the brakes when the BFR was detached on line No. 6.

He said that when the BFR was moving he placed bits of ballast on the rails after applying brakes but when cross-questioned he corrected himself by saying that the brakes had been applied much earlier. The Shunter said that the Shunting Jamadar was with the engine when the BFR was fly-shunted. Cabinman Sanyasi stated that the brakes were applied only when the BFR was rolling away. From these statements it is clear that attempt was made to apply the brakes only when the BFR had picked up speed.

(c) *Effectiveness of brakes of BFR No. 18398/SE*—As regards the condition of brakes, it was not possible to judge it from personal inspection of the BFR concerned after the accident on account of the extensive damage to the brake gear at both ends. From an experiment carried out, it was found that a similar BFR rolling away near points No. 22 noticed by a porter from the place where shunting engine was reported to have stopped on line No. 3, could be stopped by that porter running, dropping and pinning the brake lever. When that experiment was carried out, it was immediately represented by the Jamadar that the brake gear of that BFR was adjusted only that day. This protest was relevant. On the BFR the brake lever was so adjusted that when dropped, it stopped at the upper 2nd hole for the pin. The protest of the Jamadar appeared justified.

The Train Examiner in his statement had stated that he had himself tested the brake gear of BFR on arrival of No. 1221 Up at Palasa. He dropped the lever and found the brake gear in good condition. As against this, it may be noted that there is evidence that brake was applied while the BFR was rolling away. The shunting staff must have tried their best to stop it. Had the brake gear been in perfectly adjusted condition, as it was with the experimental BFR, the BFR should not have rolled away.

As against all this, it is also on the evidence that the Shunting Jamadar at first asked for the BFR to be diverted into the dead-end. Cabinman Sanyasi did change the setting of the trailing points with line No. 3 but could not change the setting of the cross-over points from line No. 3 to the Main Line. He shouted back that he could not change those points. From this it may be visualized that the Shunting Jamadar hoped that the BFR would be diverted into the dead-end. When he was told that that could not be done, he ran after the BFR but by that time the BFR had gone on to the Main Line and there might have been a greater time lag than what was allowed in the experiment. I do not, however, consider the latter presumption strong enough to conclude that the brake gear of BFR 18398/SE was in perfect condition.

30. *Shunting in face of No. 46 Down*—It will be seen that shunting on No. 1221 Up was going on in face of approaching No. 46 Down. Assistant Station Master Ramachandra Rao disclaiming all responsibility for the shunting said that he had not permitted shunting because he had withdrawn the shunting badges from the Shunter at 12.55 hrs. He also said that he made over the shunting badge for Down side (Pundi side) to the Station Master at 14.00 hrs. and obtained a receipt therefor; the badge for Up side he left in the drawer. While giving evidence his halting manner and general demeanour indicated that he was still calculating the pros and cons of the various points he was making in self defence.

The statements of other witnesses on this point were—

Shunting Jamadar Suryanarayana said that the badges were with the Shunter long after the accident. Supervising Shunting Jamadar Satyanarayana said that the badge was with the Shunter upto 14.15 hrs. and that the Assistant Station Master

had obtained it to build up the defence. Shunter B. Jaggarao stated that he had the badges with him when he returned to line No. 3 after the chase after the runaway vehicle. He also described how the Down side badge had been handed over to Pointsman Apparao but was snatched away by Trains Clerk Asirvadam. Pointsman Apparao's corroboration of this, Trains Clerk Asirvadam's denial of all knowledge of the affair and how Asirvadam had nothing to say when, on being confronted, Pointsman Apparao and Shunter Jaggarao gave a lie to his version, are detailed in paras 22 and 24 (above). Assistant Station Master Ramachandra Rao stated that he had both the badges with him when line clear was given for No. 46 Down but his reliever P.K. Rao said that even though the badge for Down side was with Ramachandra Rao when he came on duty at 14.20 hrs., the Up side badge was still with the Shunter and was obtained by him at about 14.30 hrs. Station Master, who gave a certificate to A.S.M. Ramachandra Rao for the Down side badge, had worded the certificate as under—

“Received one Down shunting badge from the custody of A.S.M. Shri S.R.C. Rao on duty from 8.00 to 14.00 hrs”.

This does not indicate the time when he took possession of the Down side badge but the Station Master said he obtained it at 14.10 hrs. on return from the dispensary. The discrepancy about the timings apart, it is clear that the statement of A.S.M. Ramachandra Rao that he had withdrawn the badges from the shunting staff at 12.55 hrs. is incorrect. It will also be seen that the shunting staff were in possession of the shunting badges which enabled them to perform shunting at either end of Palasa yard when line clear had been granted for No. 46 Down to approach from Pundi. He failed to withdraw the badges and thereby stop shunting at Pundi end before he gave line clear for No. 46 Down and before permitting lowering of signals by pulling the slide for the Down Home signal. This failure of his was the primary cause of shunting.

He breached G.R. 257 and S.R. 257-A of the Railway.

*Record of A.S.M. S.R.C. Rao*—A.S.M., S. Ramachandra Rao was appointed on 29th April 1949 and has a record of 4 punishments against him which are for irregular working, irregular maintenance of line clear books and for recording wrong Private Number.

31. *Responsibility of Cabin Leverman*—Cabin Leverman Sanyasi of the West Cabin was asked why he permitted shunting to be carried out in the face of an approaching train and to this he replied that he had permission from A.S.M. to do so. But when cross-examined, he admitted that he had no proof thereof. A.S.M. Ramachandra Rao stated that he had given slot to West Cabin for the Home Signal to be lowered for No. 46 Down; the Station Master corroborated this by stating that he found the slide pulled when he went into the A.S.M.'s office. Cabin Leverman Sanyasi said that while he knew that No. 46 Dn. was on line clear, the slide for the Home Signal had not been given. A.S.M.'s statement was not likely to be incorrect for the simple reason that this statement goes against himself and he was not likely to tell a lie, damaging to himself. The Cabin Leverman, knowing that a train was on line clear for which he had been authorised to lower the Home Signal also, should not have permitted shunting over the Main Line as was done in this case. In this connection, it might be argued on behalf of Cabin Leverman that A.S.M. had given permission for shunting to be carried out. But it should be remembered that A.S.M. had also permitted lowering of the Home Signal. Whereas the permission for lowering the signal had been given to him, the permission for shunting was not given to him but to the shunting staff. It was the duty of the Cabin Leverman Sanyasi to have paid careful attention to the work of reception of the train. It was also his duty to have sought further clarification from the A.S.M. before overlooking the instruction which was given to him by the A.S.M. and to have acquiesced in the dangerous performance of shunting in the face of an approaching train merely because shunting staff had in their possession the shunting-authority-badge, a fact which Cabin Leverman Sanyasi was responsible directly to the A.S.M. and not to the Shunting Jamadar or Supervisory Shunting Jamadar. He should have at least reported the matter to the A.S.M. because it should have been clear to him that the A.S.M. had made a mistake in not withdrawing the shunting authority badge before giving Line Clear or permitting signals to be lowered for No. 46 Down. Cabin Leverman Sanyasi knew that he should have stopped shunting if he had received the slot which shows that he knew full well that by allowing shunting to be carried on when slot was given, he was doing something which was incorrect and obviously dangerous. The casualness with which he took his responsibilities is illustrated further from the fact that he also set the points and allowed engine and brake to go chasing after the fugitive BFR; he



saw the shunting engine go upto the Outer Signal whereafter, he stated, he did not know how far it went. A Cabin Leverman in the Cabin is the eyes and ears of an A.S.M. on duty regarding happenings in his side of the Station Yard and it behoves him promptly to bring to the notice of the A.S.M. any dangerous condition that comes to his notice. It has been shown above that there were a number of dangerous conditions created by others of which he was aware. He was no new come in the Railways. He was 52 years of age having put in 32 years of service. He should have been quite alive to the responsibilities. He contravened provisions of G.R. 163(a)(ii).

Cabin Leverman Sanyasi has 10 punishments recorded against him, for sleeping during duty hours, incorrect setting of points, irregular working, etc.

32. *Responsibility of shunting staff*—For performing shunting at Palasa, the following staff are provided—

- (i) Supervising Shunting Jamadar,
- (ii) Shunting Jamadar,
- (iii) Shunting Pointsman,
- (iv) Shunters.

Of these, the Supervising Shunting Jamadar conveys the orders regarding the shunting work to be performed. He signs a line reception book for goods lines Nos. 3, 4, 5 and 6.

The Shunting Jamadar carries out the shunting operation after receipt of the instructions from the Supervising Shunting Jamadar and is responsible for the safety. The Station Master on duty issues the shunting authority badges to the Shunting Jamadar who is deputed to conduct the shunting.

The Shunting Pointsmen are to work under the orders of the Shunting Jamadars.

The Shunter must receive the badge from the Jamadar and must keep it in his possession while shunting is going on. He should not shunt unless he has the proper Shunting Authority Badge in his possession.

As has been shown above, the Shunter did have the Shunting Authority Badges with him and, therefore, he had Station Master's authority to perform shunting at Pundi end of Palasa. The Shunting Porter said he did not know that No. 46 Down was on line clear. The Assistant Station Master did not even hint that he had informed the Shunting Jamadar about the line clear for No. 46 Down. The Cabinman knew that No. 46 Down was on line clear but there is no evidence to show that he informed the Shunting Jamadar about the line clear. The Station bell was rung when line clear was given but this could not be heard at the place where shunting operations were going on. I myself experimented at site and found that the Station bell rung at the station could not be heard in the area where shunting operations were going on. It may be taken that the Shunter and the Shunting Jamadar were not aware of the line clear of No. 46 Down while they carried out shunting operations.

S.R. 152A(5) prohibits fly-shunting of BFRs and reads as under—

S.R. 152-A(5)—“Fly shunting of KO, CHB, CMT, COT, LB types and all other bogie vehicles either singly or coupled to other vehicles is prohibited.

Open trucks loaded with rails, timber, and similar articles which are liable to shift in transit; motor vans, oil tanks, gas holders, cinema cars, store vans, acid tanks, creosote tanks, coal-tar tanks and wagons containing oil, petrol and fragile articles must not be fly shunted”.

Jamadar Suryanarayana and Shunter Jaggarao breached this rule by fly-shunting the BFR. Had it not been fly-shunted but taken with the engine to the sixth line and its brakes on both sides applied and pinned, the vehicle, in all probability, would not have rolled back. Even if there was any tendency of the BFR to roll back, it would have become apparent when it was uncoupled. Steps could have been taken to stop it with the engine still nearby or to divert it into the dead end siding. Having been fly-shunted on to line No. 6 and its brakes not having been applied and pinned rolling back of the BFR on the portion of track was made possible and this contributed to the occurrence of the accident. Jamadar Suryanarayana is, therefore, held guilty of breach of S.R. 152-A(5) and S.R. 154-B.

N.B.—S.R. 154-B—The hand brakes of all vehicles provided with them must be put on.

Shunting Jamadar S. Suryanarayana has put in 29 years of service and has had 14 punishments recorded against him, which are for incorrect setting of points, slack supervision, giving false evidence, absence within duty hours, obstructive and careless working, etc.

Shunter Jaggarao was also guilty of breach of S.R. 152-A(5) but it may be considered that he was acting directly under instructions of the Shunting Jamadar, and that the Shunters are not instructed about the special working orders of stations issued by the District Traffic Superintendent.

33. *Defective Station Working Rules*—The Station Working Rules that have been prescribed have been examined and it is found that they are defective as detailed below—

(i) Special line badges are prescribed for shunting to be carried out at Palasa on lines Nos. 1 and 2 which are platform lines and a second set of badges are prescribed for lines Nos. 3 to 6 which are also shown as running lines. The only other conditions that have been laid down about shunting are prohibition at Pundi end of hand shunting, fly-shunting and pushing of wagons towards Pundi. In other words, the shunting operations could be carried in face of approaching train upto the Advanced Starters at either end. G.R. 255 and S.R. No. 255A (4) read as under:—

G.R. 255—“OBSTRUCTION IN THE FACE OF AN APPROACHING TRAIN

—The line outside the Home signal in the direction of a train for which permission to approach has been given; shall only be obstructed when a Shunting Board or an Advanced Starter is provided in accordance with Rule 30, Clause (c) and under special instructions which take into consideration the speed, weight and brake power of trains, the gradients, the position of the Outer signal and the distance from which that signal can be seen by the Driver of an approaching train”.

S.R. 255A—

- “(1) .....  
 (2) .....  
 (3) .....  
 .....  
 (4) District Transportation Officers, before sanctioning shunting referred to in para 255A(1)(a), will take into consideration the gradients within station limits and leading out of station limits, but under no circumstances must such permission be granted where the following conditions exist—

- (a) If a falling grade within a station yard is steeper than 1 in 400 and is followed up to and beyond the station limits by a falling gradient steeper than 1 in 400.  
 (b) If a gradient in a station yard (whether falling or rising), is flatter than 1 in 400, and is followed by a falling grade of 1 in 260 or steeper starting from a point at a distance less than 800 feet from the limits of the station yard.

NOTE—For purposes of this rule a motor trolley should not be treated as a train.”

At Palasa the gradient is 1 in 150 falling towards Pundi from a point 50 yards away from the Down facing points. Shunting in face of an approaching train at Pundi end of Palasa station must not be permitted in terms of the rule quoted above. So the Station Working Rule contravenes the General and Subsidiary Rules applicable to the S.E. Railway (S. Rs. of the Ex: B. N. Railway).

(ii) In paragraph 17 of the Station Working Rules, it has been laid down that, for reception of trains on lines Nos. 3 to 6, the Assistant Station Master in charge must warn both the Cabins and obtain line clear badges for the lines concerned and the goods shunting badge from the Shunting Masters and also details are given as to how records of these should be maintained on Form T. 231. Similarly, in paragraph 18, it has been laid down that the Station Master should follow the procedure detailed in paragraph 17 while admitting a train on any of the lines Nos. 3 to 6. In none of these paragraphs has any mention been made of the withdrawal of badges while receiving trains on line No. 1 or 2. Whenever shunting has to be performed on lines Nos. 3 to 6 at Pundi end the Main Line has to be fouled because no shunting neck has been provided at that end. It will be clear, therefore, that for shunting at Pundi end not only the badges prescribed in paragraphs 15 and 16 should be given but also Badges prescribed in paragraphs 13 and 14. It follows, therefore, that when badges for shunting on lines Nos. 3 to 6 have to be



withdrawn from the shunting staff, the ones for lines Nos. 1 and 2 must also be exchanged. It is quite possible that in the absence of any such provision the Station Master may forget to exchange the badges for lines Nos. 1 and 2 but only follow the elaborate procedure laid down in paragraphs 17 and 18 and some obstruction may remain on lines Nos. 1 and 2. In that case, none of the requirements of the Station Working Rules will be infringed. This will, therefore, indicate that the Station Working Rules have not been properly drawn up and are faulty even if all the badges for admission of trains, particularly in lines Nos. 1 and 2, were available and were in use at this station. To the possible argument that in the absence of the new badges prescribed in Station Working Rules in force at Palasa, the staff should have followed the rules which were applicable to shunting authority badges as prescribed in S. R. 150-A, the fact is that the provision of S. R. 150-A have to be followed according to the peculiar conditions available at individual stations and according as shunting is *prohibited or permitted at that station in terms of G.Rs. 256 and 257 read with S. Rs. 255-A and 257-A*. Those special instructions must be detailed in the special working orders meant for individual stations. It is not safe for the rules to be silent on that point.

(iii) The Station Working Rules indicate 6 running lines at Palasa. In fact, there are only 5 running lines and line No. 6 is not a running line.

The results of these defects have been that—

(a) No staff can be found fault with for performing shunting in face of an approaching train provided the shunting operations are limited to the station section only. Yet this accident is the direct outcome of the shunting operations in face of No. 46 Down approaching from Pundi.

(b) The shunting staff cannot be found fault with for leaving an unsecured vehicle (BFR 18398/SE) on a running line (line No. 6) which is prohibited under S. R. 150-C which reads as under:—

S. R. 150 C.—“(1) Before “Permission to Approach” is given for any train, all running lines must be clear of all loose vehicles and must be kept clear until the train has arrived, or run through.

(2) Loose vehicles must not be kept on running lines at stations other than engine-changing stations except in accordance with the following instructions:—

NOTE—For the purpose of these instructions loose vehicles are vehicles not attached to engines. Trains from which engines are detached temporarily for such purposes as watering, shunting, etc., are not to be treated as loose vehicles.

(i) At stations on the single line where shunting from the goods or other sidings cannot easily be effected, a vehicle or vehicles may, when such procedure is specially authorised by the District Transportation Officer, be placed in readiness on a running line to be attached to a stopping train. Such vehicles must be adequately secured.

.....  
 .....

(ii) At stations provided with only a Loop Line, that is without any dead end sidings or goods accommodations, no vehicles may be detached except in case of emergency. When a vehicle is detached at such a station it must be adequately secured immediately.

No train may run through the station unless the line on which the vehicle is detached is isolated in accordance with G. R. I.90 (c).”

Besides the above major defects, there is a printing mistake: In paragraph 13 badges are prescribed for lines Nos. 1 to 6, whereas these should be for lines Nos. 1 and 2 only.

34. *S.R. 150-A of the late B. N. Railway*—I must here discuss the existing Subsidiary Rules 150-A, B & C. These rules lay down the details of the conditions under which a running line can be obstructed. The instructions regarding Shunting Authority Badges are given and it is prescribed that the Shunting Authority Badge is the authority to shunt upto the Outer Signals—Up or Down, as the case may be. In this particular rule, special reference has been made of G.R.90(c) and G.R.255 and S.Rs. 149B & C, 151A & B, and 255A. Yet no mention has been made of advanced starter or special stipulations in carrying out shunting between advanced starter and the Outer signal or beyond as prescribed by

G.Rs. 241, 246, 247, 251 and 257. These rules lay down special restrictions in blocking a block section in advance of the last stop signal of a station. It is in the fitness of things that reference should have been made to the restrictive aspect of shunting beyond the last stop signal, *in this rule mention should have been made of the last stop signal itself*. When special attention has to be drawn about prohibited practices, it is usual to show them as "Don'ts" and prominently to publicise them.

35. *Non-observance of Rules*—Besides these defects, the provisions of these working rules are not being followed and the responsibility of this has to be shared equally by the Administration and the staff. By the Administration in as much as they have not supplied all the various badges that have been prescribed in these rules and after withdrawing the old badges which now become redundant and obsolete as will be shown later. The staff working at this station are responsible for not reporting to the higher authorities that the rules are not workable in the conditions extant at Palasa.

In view of the fact that the present working rules were prescribed for Palasa by the District Officer without taking into account the non-availability of the various badges, the extent of the responsibility of the staff is reduced because, after all, they had to carry on the work and for that they used the only badges available with them previously. In this connection, I cannot help quoting the observation of Messrs. Latham and Isaacs:—

"1006. In most cases where Rules are regularly broken the staff have evolved from experience a procedure which they consider to be safe and workable. For instance, in some Yards, it is customary to take special care in shunting wagons containing live-stock, whereas this special attention is not given to Tank wagons. The staff, being unable to apply the Rule in full, have evolved for themselves a modified Rule which they apply. It is very difficult to blame the staff for this. The fault lies primarily with the Administration....."

36. *How could the BFR roll away*—Palasa yard has been recently remodelled and the Loop Lines have been lengthened; the extended yard at Pundi end should have been laid at a gradient of 1 in 400. On that grade a vehicle is not likely to roll down without some motive power. At first it was suspected that the BFR which was fly-shunted probably dashed into some other vehicles already stabled on line No. 6. It was found that the vehicles stabled on that line were about 400 yards away from its Pundi end. So, it was not possible for the fly-shunted BFR to impinge and, without making the impact felt on them, return to the points at Pundi end within the short interval of time available.

An experiment was conducted at Palasa with a similarly loaded BFR. This experiment was arranged by the S. E. Railway on 1st October 1957. The BFR was fly-shunted by the same shunter who performed shunting on 19th August 1957 and from the same place and it was found that it travelled a distance upto near the shunt signal No. 7 whereafter it rolled back and picked up momentum. The brakes were pinned after the wagon had rolled back for 275 ft. and came to a stop within 50 ft. Second time, the same wagon was similarly shunted and it reached about the same point and started rolling back and eventually dashed into the shunting engine which was stabled into the dead end. On the third occasion the same BFR was again shunted and it moved onward for a similar distance. A shunting porter was stationed along line No. 3 near the place where the shunting engine was said to have stopped on 19th August 1957. After the BFR had rolled back a distance of 150 ft. this man was asked to run and overtake the wagon. He reached it when the wagon had moved on for about 180 ft. The porter applied brakes and kept on hanging to it and stopped the BFR when it had rolled another 120 ft. In the fourth experiment the same wagon was fly-shunted and it reached about the same point. The brake lever was dropped but not pinned. This had no effect on checking the movement of the wagon which rolled on and eventually dashed into the engine standing on the dead-end siding.

The experiments showed that, if, instead of allowing the BFR to go into the dead end, the points were set for the Main Line, it would have gone on the Main Line where it would have rolled faster on a gradient of 1 in 150 in the same manner as the BFR No. 18398/SE.

The gradient of the sixth line was checked by me personally from points No. 18 for a distance of 310 feet and I found that near the fouling mark the gradient was as steep as 1 in 166.6. It was also found that the grades were all falling away towards Pundi till the grade of 1 in 150 beyond the Down facing points in the Main Line. On this gradient of 1 in 166.6, a vehicle must roll down unless braked hard. The cause of the rolling away of

the BFR is thus clear. The responsibility of this must be accepted by the Engineering Department through the officers who signed the safety certificate when handing over the remodelled yard traffic or who allowed the line to run down to this condition thereafter.

37. The remodelling work in Palasa yard has not been completed in all respects. The overrun siding isolating the Main Line from line No. 3 has not yet been completed. The sixth line is not yet ready as a running line for want of material; yet the remodelled yard has been given over for traffic working. The Transportation staff had to issue the working rules for a six-running-line-station when there were only five running lines ready.

In fairness to the Engineering and the Transportation staff who were responsible for the remodelling of Palasa yard and drawing up the special working rules for that station, attention must be drawn to the extremely trying circumstances in which they happen to be these days in respect of—

- (a) working under adverse conditions of supply of material and diluted cadres of all categories of executive staff and
- (b) having to keep to the various target dates for completion of work or looking after statistics regarding movements of traffic.

Any failure in either of the above brings forth immediate opprobrium, so greater attention is being paid to these than to the requirements of safety, the relegation of which is not always immediately felt.

It is essential that the safety bias in Railway working must be restored to its rightful place *vis-a-vis* the expediency bias.

38. In my discussion with the General Manager, I was told that the officers were never asked to sacrifice safety. That should be quite correct so far as he is concerned. But the unmistakable impression I have gathered in the course of my inspections and inquiries into accidents is as given above, otherwise it is not understood how the mistakes exist in working rules for Palasa or other undesirable conditions as have been reported by me from time to time.\*

39. *Speed of train and the BFR*—The BFR had travelled about  $2\frac{1}{4}$  miles in about 12 minutes. So its average speed works out to about  $12\frac{1}{2}$  miles per hour. It had rolled on a grade of 1/150 from mile 422/12 to 421/10 whereafter it met the easier grade of 1 in 670 upto mile 422/6 followed by a grade of 1 in 500 upto the site of collision. It will be reasonable to take it that the speed at mile 421/10 was higher and at the site of collision somewhat lower than  $12\frac{1}{2}$  m.p.h. Its speed may be taken to have been about 10 m.p.h. The evidence shows that the speed of No. 46 Down was not checked long before the point of collision. The Fireman and the Brakesman have stated that the train had almost stopped when the collision took place. That is not correct because after the collision the engine moved over 900 ft. pushing the BFR in front. According to the reading of the speedometer, the speed of the train was stated to be 45 m.p.h.

40. *Responsibility of the driver*—Before the collision, No. 46 Down was travelling over a curve from mile 423/18 to mile 423/8 T.P. After the curve the track was straight upto mile 420/20 T.P. The view was clear along the straight track. The driver said that at first he thought that the object in front was some bullock cart at the level crossing at mile 422/8 and he thought that the cart would clear the track. After some time he realised that the object was a BFR on the track but it was then too late. When the driver did notice the obstruction, the BFR should have been very near the level crossing. A BFR is a low built special type of rolling stock unlike the usual wagon. The errant BFR was in close proximity of the level crossing and the driver could mistake it to be a bullock cart. He should, however, have tried to check the speed of the train to avoid even a level crossing accident for which there was ample distance available. The braking distance at 45 m.p.h. for No. 46 Down with its available brake power was about 851 ft.

Driver Kanaka Rao was passed fit with glasses on 28th February 1957. He was hurt near his ear and his spectacles dropped off and were lost. The other pair of spectacles was examined by the District Medical Officer, Waltair, and was found to be of correct power required by Driver Kanaka Rao.

\* See the report on the collision between No. 304 Down and No. 414 Down near Tatanagar at mile 155/23 T.P. on 23rd July 1957.

### III. CONCLUSIONS

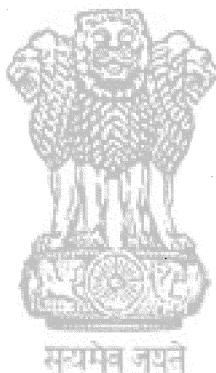
41. My conclusions, therefore, are that the accident was caused on account of the shunting being carried out at Pundi end of Palasa yard in face of No. 46 Down which was approaching from Pundi. Permission to shunt upto the Outer signal was given in the shape of shunting authority badge by ASM S.R.C. Rao to the Shunting Jamadar. In doing that, the ASM breached G. R. No. 257 and S.R. 257-A as also S.R. 150-A(7).

42. Shunting Jamadar Suryanarayana is responsible for having fly-shunted BFR No. 18398/SE on to line No. 6 which was strictly prohibited in accordance with S. R. 152 A(5). The fly-shunting of this vehicle caused it to roll back and thus Shunting Jamadar is also responsible for this accident.

43. Cabin Leverman Sanyasi knew that it was dangerous to permit shunting on the line in face of approaching train (No. 46 Dn.) for which slot had been given by the ASM. It was his duty to have at least reported the matter to his superior, viz., the ASM. Had he done so, the ASM might have stopped shunting in face of approaching No. 46 Down and the collision might have been averted.

He is, therefore, considered to have contributed towards the occurrence of the accident.

44. The arrangements made for rendering relief to the injured persons by Station Master T. Harikrishna was commendably prompt. Proper attention was given to the injured persons at the site of accident, in the Railway dispensary at Palasa and they were subsequently given proper medical attention in the Civil Hospital, Berhampur.



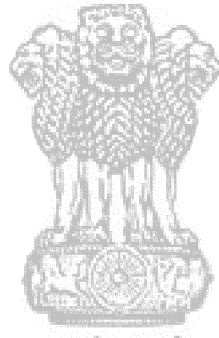
Yours faithfully,

CALCUTTA;

The 24th October, 1957

K. C. PATHAK

Government Inspector of Railways  
Calcutta.

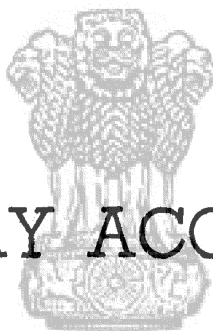


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GOVERNMENT OF INDIA  
MINISTRY OF TRANSPORT AND  
COMMUNICATIONS  
(RAILWAY INSPECTORATE)



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RAILWAY ACCIDENTS

REPORT

on

**COLLISION**

between

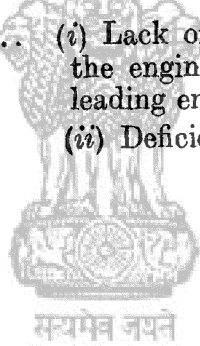
426 Up Passenger and 1580 Up Goods at Cuddapah  
(Southern Railway)

on

16th September 1957

## SUMMARY

Date	..	..	..	16th September 1957.
Time	..	..	..	06.07 hours.
Railway	..	..	..	Southern.
Location	..	..	..	Cuddapah Station.
Kind of accident	..	..	..	Collision.
Trains involved	..	..	..	No. 426 Up Passenger and No. 1580 Up Goods.
Engine Number	..	..	..	No. 426 Up Passenger: XB 205 (4-6-2); No. 1580 Up Goods: XD 6613 (2-8-2) and NS 534 (0-6-0).
Consist	..	..	..	No. 426 Up Passenger : Six 4-wheeler Parcel Vans and five bogie coaches. No. 1580 Up Goods : 42 wagons and one brake- van.
Operation	..	..	..	Absolute Block System.
Estimated speed	..	..	..	No. 426 Up Passenger : Stationary. No. 1580 Up Goods : About 5 m.p.h.
Track	..	..	..	5'—6" Gauge, Single, Level, Straight.
Weather	..	..	..	Clear.
Casualties	..	..	..	29 injured (28 slightly; 1 grievously).
Cause	..	..	..	(i) Lack of caution and injudicious handling of the engine on the part of the driver of the leading engine of No. 1580 Up Goods. (ii) Deficient brake power.



To

THE SECRETARY to the Government of India,  
Ministry of Transport and Communications,  
(Department of Communications),  
NEW DELHI.

THROUGH

The Chief Government Inspector of Railways,  
Ministry of Transport and Communications, Simla.

Sir,

*Reference to Orders*—In accordance with Rule No. 9 of the Railway Board's Notification No. 1926-T dated 19th March 1930, I have the honour to submit herewith the result of my inquiry into the collision between No. 1580 Up Goods and No. 426 Up Passenger which occurred at Cuddapah station on the North-West Main Line of the Southern Railway at about 06·07 hours on 16th September 1957.

2. *Inquiry held*—The site of the accident was inspected by me and the engines and rolling stock of the Goods Train examined on the evening of the 17th September 1957 in company of the Divisional Superintendent and the Deputy Chief Mechanical Engineer. Two in-patients in the Government District Hospital, Cuddapah, were seen and their evidence recorded the same evening, as they were to be discharged early next day.

The inquiry was commenced at Cuddapah on the 18th and was continued at Cuddapah on the 19th and at Guntakal on the 20th September 1957. In all 34 witnesses were examined.

(i) The following officers were present at the inquiry :—

Shri V.P. Ribeiro, Divisional Superintendent, Southern Railway, Guntakal—17th to 20th.

Shri V. S. Ramaswamy, Deputy Chief Mechanical Engineer, Southern Railway, Madras—17th, 18th and 19th.

The District Magistrate and the Police officials were intimated about the inquiry, but neither they nor their representatives were present.

(ii) The section between Cuddapah and Kanamalopalle was inspected by me by motor trolley on the 18th morning.

(iv) Visibility test was conducted by me on the 18th morning and it was found that during clear weather and day light hours a train approaching Cuddapah from Kanamalopalle was visible from a distance of more than 1½ miles from Cuddapah.

(v) Another test was conducted to find out whether it was possible to hear an engine whistle from the station when an engine was approaching from Kanamalopalle. During this season, the breeze in the morning was away from Cuddapah station and it was found that the engine whistle was not audible till the engine reached the Outer Signal.

3. *Description of accident*—No. 1580 Up Goods arrived at Cuddapah at 01·30 hours. It was detained at Cuddapah for want of a banking engine and for crossing other trains. It left Cuddapah at 04·50 hours. No. 426 Up Passenger left Krishnapuram at 05·55 hours and was entering Cuddapah station at about 06·05 hours. While No. 426 Up was proceeding on the platform line, the driver noticed a train coming from the opposite direction. He immediately brought his train to a stop as soon as he realised that the train was coming on to the same line on which his train was being received. This train was brought to a stop a little distance short of the water column where it would normally have stopped. A minute or two later the Goods Train No. 1580, which had rolled back, collided with the Passenger Train at a speed of about 5 miles per hour. Due to the impact, the Passenger Train was pushed back about 5 feet.

4. *Casualties*—The impact was light. 29 passengers including 6 Railway employees were injured as a result of the accident. Only one passenger sustained grievous hurt and that too was confined to dislocation of one tooth. Injuries of the other 28 were minor.



5. *Composition of the train*—(i) No. 1580 Up Goods Train was hauled by engine No. XD 6613 (2-8-2) and consisted of 43 goods wagons including the brakevan. The wagons were provided with central screw couplings and side buffers. 41 wagons including the brakevan had full vacuum brake equipment in working condition. One wagon was piped. The cylinder release valve of one wagon was dummied. The train engine was assisted by a banking engine No. NS534 (0-6-0). The brake power of the XD engine was 16·98 tons against the designed brake power of 86·06 tons. The brake power of the NS engine was 43·97 tons. The length of the train was 1207 feet. All the vehicles were steel bodied wagons excepting coach No. ERD 1162 which had a wooden body. The gross weight of the train was 1481 tons and the total available brake power of the train was 434 tons.

(ii) None of the vehicles except ERD 1162 was overdue P.O.H. A close inspection of these wagons did not reveal any defect.

(iii) No. 426 Up Passenger was hauled by engine No. XB 205 (4-6-2) and consisted of six 4-wheeled parcel vans and five bogie coaches. The train was fully vacuum braked. The total length of the train including engine was 599 feet. All the vehicles had standard central screw couplings and side buffers. The weight of the train was 339 tons.

(iv) The carrying capacity of the Passenger Train was 300. The number of passengers in the train at the time of the accident was estimated at 200.

#### 6. *Damage.*

(i) *No. 1580 Up Goods*—The banking engine No. NS 534 had its tender buffer beam bent, tender main frame front end and engine main frame rear end slightly bent. The tender stretcher beam was cracked and the body shifted forward. Rear brakevan No. ER XV 92242 had its rear door torn off the hinges. Wagon No. ER XC 58012, 7th wagon from the brakevan, had rear shackle pin on the left rear spring broken. Wagon No. CR KF 3324, 11th wagon from the brakevan, had the rear headstock cracked and sole bar bent. The axle guards of this wagon were thrown out of alignment.

(ii) *No. 426 Up Passenger*—TYRL 2586 had its rear coupling shackle broken. None of the other stock on this train suffered any damage.

(iii) There was no damage to the Permanent Way.

(iv) The cost of damage to the engine and rolling stock was estimated to be about Rs. 1,500.

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## II. RELIEF MEASURES

7. (i) The accident occurred at about 06·07 hours. The Assistant Station Master, Cuddapah, immediately sent word to the Railway Assistant Surgeon stationed at Cuddapah, and Government District Hospital, Cuddapah. He then intimated the Control at Guntakal. The Traffic Inspector and the Station Master arrived almost immediately and started rendering first-aid to the injured passengers. The first-aid box available in No. 426 Up Passenger was used. The Assistant Surgeon, Cuddapah, arrived at about 06·15 hours and took charge of the first-aid arrangements. He finished rendering first-aid to all the injured by about 07·15 hours. Six cases which he considered required further investigation, were sent to the Government District Hospital in a police jeep. The medical aid requested from the Government District Hospital did not arrive in spite of being reminded on phone by the Station Master at 07·00 hours. As all the injured were attended to by the Assistant Surgeon, Cuddapah, the requisition for the medical aid from the Government District Hospital was cancelled at 07·45 hours.

(ii) Guntakal Control received information of the accident at about 06·10 hours. At 06·16 hours, the Control ordered the Medical Relief Van and Breakdown Special from Gooty. The Medical Relief Van left Gooty at 06·50 hours and arrived at Cuddapah at 09·50 hours. The Divisional Superintendent, Divisional Medical Officer and other officers of the Division left Guntakal by Janata Express at 07·22 hours. Immediately on arrival the Divisional Medical Officer and the Divisional Superintendent proceeded to the Government District Hospital to examine the patients. At that time there were 8 patients in the Government District Hospital, six sent by the Assistant

Surgeon, Cuddapah, and two who had reported at the Hospital on their own. Four of these in-patients were Railway employees and it was decided to remove them to the Railway Hospital at Guntakal where they reached the same evening by No. 12 Up Bombay Express. The other four passengers were attended to in the Government District Hospital. All the patients have since been discharged.

8. *Restoration of traffic*—The permanent way was not damaged. Neither the Goods Train nor the Passenger Train had derailed. Examination of the Passenger Train by the Station Master, Traffic Inspector and the driver revealed that it was in a fit condition to proceed on its journey. The Goods Train was, therefore, drawn forward and shunted on to an adjacent line. TYRL 2586 was coupled by using the adjacent coupling and No. 426 Up left Cuddapah at 08.42 hours, *i.e.* after a detention of 137 minutes.

### III. DESCRIPTION

9. *Local conditions*—(i) The general direction of the main North-West Line of the Southern Railway is from North-West to South-East. The mileages of the various stations mentioned in the report are as under :—

Madras Central	..	..	0
Nandalur	..	..	137
Kanamalopalle	..	..	155
Summit of the Ghat	..	..	156
Train stalled	..	..	156/9-10 T. P.
'B' Class level crossing	..	..	156/10-11 T.P.
Train backed to and started rolling from	..	..	156/11-12-T.P.
Cuddapah	..	..	161½
Krishnapuram	..	..	166
Gooty	..	..	257½
Guntakal	..	..	275½

(ii) There are generally 24 telegraph posts per mile. There is a 'B' class double manned level crossing gate at mile 156/10-11 T.P. This gate is provided with gate signals and connected by bell communication to Kanamalopalle station.

(iii) The maximum permissible speed on this section is 50 miles per hour for HPS class engines and 45 miles per hour for XV and XD class engines. The speed of fully vacuumed Goods Trains is restricted to 20 miles per hour and all the non-vacuumed Goods Trains to 12 miles per hour while descending the ghats between miles 156/0 and 159/20. The speed of all trains is restricted to 10 miles per hour over the Main Line facing points of Cuddapah. There are no temporary speed restrictions in the section.

(iv) *Alignment and Gradient*—From Cuddapah up to mile 156/12, the alignment is practically straight except for two flat curves of more than 10,000 feet radius. From mile 156/12 to 156/4 the track is on a left handed curve, 2,900 feet radius.

Starting from Cuddapah up to the summit of the ghat, the track is continuously rising. The details of the grades are as below:—

- Centre line of booking office to mile 161/7—level.
- Mile 161/7 to 160/21-22—1 in 332 rising—length 2,238'.
- Mile 160/21-22 to 160/14-15—1 in 680 rising—length 1,516'.
- Mile 160/14-15 to 159/19-20—level—length ¾ mile.
- Mile 159/19-20 to 158/12-13—1 in 101 rising—length 6,994'.
- Mile 158/12-13 to 157/21-22—1 in 92 rising—length 3,103'.
- Mile 157/21-22 to 157/4—1 in 96 rising—length 4,006'.
- Mile 157/4 to 156/0—1 in 90 rising—length 6,138'.

The train stalled about 75 feet beyond the telegraph post 156/10. The track at this spot is on a curve of 2,900' radius and 1 in 90 rising gradient.

The reduced levels of Cuddapah, the point where the train stalled and the point from which it rolled back, are 448.26', 644.69' and 640.31' respectively.

Cuddapah is a Class 'B' station with Standard I signalling and is provided with two running lines, the Main Line being the platform line. The Madras end outermost facing points are 1 in  $8\frac{1}{2}$  symmetrical split. The site of the collision is at mile 161/8-9 on the platform line at Cuddapah at a distance of 507 feet from the centre of the Booking Office towards Kanamalopalle.

*Note*—The terms 'Right' and 'Left' have been used with reference to the direction of movement of the train.

#### IV. SUMMARY OF EVIDENCE

10. (i) *Shri B.G. Sundaram*, driver of leading engine of No. 1580 Up Goods, stated that he left Gooty at 15.30 hours and arrived at Cuddapah at 01.30 hours. He did not perform shunting en route or at Cuddapah. His train had to wait at Cuddapah till 04.50 hours for want of a banking engine and for crossing No. 10 Up Mail. He was given line clear at 04.20 hours and he started at 04.50 hours. He took extra time, as during his long wait at Cuddapah he had dull fire and therefore had to rake the fire and bring up the steam pressure. The driver felt resistance to movement of his train while starting from Cuddapah. When he reached mile 156/9-10, he found that his engine was unable to pull the train further. He tried to start three times but finding it impossible, backed the train to mile 156/12. He made another unsuccessful attempt to start. He then decided to release the vacuum brakes from the wagons and instructed his first fireman to release partially the vacuum brakes of half the number of wagons on the right hand side of the train. While the fireman was doing so, the train started to roll back. The driver immediately tried to create vacuum by the large ejector and again applied the vacuum brakes, but was unable to arrest the backward movement of the train. After rolling back about 6 telegraph posts, he called for assistance of brakes from the Guard and the driver of the banking engine, but the train continued to roll back. He then put the engine in the forward gear, again tried to create vacuum two or three times by the large ejector and applied the vacuum brakes. He also instructed the second fireman to apply the hand brakes. After this, he went on creating and destroying vacuum and also kept on blowing his whistle to warn the station staff at Cuddapah. When the train reached the flatter grades at the bottom of the ghats, it lost considerable amount of speed but even then it could not be brought to a stop before colliding with No. 426 Up Passenger which was standing on the platform line. He considered the speed of the train at the time of impact to be about 10 miles per hour. He stated that the steam pressure, when he received the line clear at Cuddapah, was 150 lbs. per sq. inch and about 170 lbs. per sq. inch before he left Cuddapah. The steam pressure when his engine stalled at mile 156/9-10 was about 150 lbs. per sq. inch. The load of his train was 43/1194 tons (this on subsequent verification was found to be 1,225 tons). His engine before leaving Gooty was booked for poor brake power. He had, therefore, ensured that the vacuum brakes were properly working before he left the shed but did not insist on getting tender hand brake rectified. In his opinion the train rolled back because the banking engine driver released the vacuum from the remaining wagons without his instructions or knowledge. The visibility at that time was quite good. It was dawn and slightly misty.

(ii) *Shri Rangaswamy*, first fireman of No. 1580 Up Goods, stated that when the engine stalled on the ghat, his driver instructed him to put some sand on the rails, but after two or three unsuccessful attempts to start the engine, the driver instructed him to release the vacuum on half the number of wagons on one side. While he was near the middle of the train, he saw the banking engine driver coming towards him releasing the vacuum from the rear end. He also met the Guard at that place. He asked the Guard to get back into the brakevan as the train was about to start. He also remonstrated with the banking engine driver for not giving proper assistance in pushing the train over the ghats. After this he found that the train had started rolling back and he could not get into the engine as it passed him at speed. He denied the driver having given him instructions to release the vacuum only partially.

(iii) *Shri K.A. Doraiswamy*, Guard of No. 1580 Up Goods, stated that after reaching mile 156/12, the train stopped and the driver pushed the train backwards two or three times in order to get over the summit, but he failed to do so. He saw both the firemen releasing the brakes from the wagons. When they released the brakes of about half

the wagons, the train started rolling back. When he noticed the engine passing the firemen without picking them up, he realised that the train was out of control. He, therefore, tried to apply the vacuum brake but realising that it had already been applied, applied the hand brake and exhibited the danger signal for the banking engine driver to take action. While the train was stopped at mile 156/12, the banking engine driver had come to the brakevan to ask him why the train had stopped. Immediately after enquiring, the banking engine driver returned to the banking engine. He did not notice the banking engine driver release any vacuum brakes. Just before the accident while the train was moving slowly, he jumped off his brakevan and sustained very trivial injury.

(iv) *Shri R. Govindaswamy*, banking engine driver, stated that he arrived at Cuddapah at 03.00 hours and after taking water, his engine was attached to No. 1580 Up Goods. The train left Cuddapah at 04.50 hours. At about 05.30 hours when the train reached mile 156/12, it stalled. The train was backed two or three times by the leading engine driver in an attempt to get over the summit. After waiting for 15 minutes after it finally stopped, he got down from the engine and went to the Guard to ask what the matter was. At that time he noticed the first fireman of the leading engine about 3 vehicles away coming towards the brakevan releasing the vacuum brakes. Realising that the train might roll back, he enquired as to why the fireman was releasing the vacuum and was told that it was done under the instructions of the leading engine driver. He immediately returned to his engine and the train started rolling back even before he got inside. After rolling back for about 7 telegraph posts, he applied the vacuum brake but could not control the train. When the train approached the Outer Signal, he put the engine in full fore-gear position and opened the regulator. He estimated the speed of the train at the time of the impact to be about 10 miles per hour. After the accident he met only the driver of the leading engine but did not see the firemen anywhere around. In his opinion the train rolled back due to mismanagement of fire and consequent drop in steam pressure in the leading engine. He did not put the engine in fore-gear and open the regulator earlier, as the speed of the train was high and he was afraid that the link motion of his engine might be damaged.

(v) *Shri P. Subbanna*, first fireman of the banking engine, stated that his driver got down from the engine and went towards the brakevan when the train had stopped at mile 156/12, but came back within about 2 or 3 minutes and informed him that the firemen of leading engine were releasing vacuum brakes. After the train started rolling back, he found vacuum guage showing 'O'. His driver asked him to apply hand brakes which he did. While passing the Outer Signal, he noticed his driver put the engine in full fore-gear position and open the regulator.

(vi) *Shri P. G. Rangaswamy*, driver of No. 426 Up Passenger, stated that he noticed, while entering Cuddapah station, a train moving on the other side of the station. He thought it was a train going away from Cuddapah. But while passing beyond the station building, he realised that the train was coming towards him on the same line and not moving away. He immediately brought his train to a stand by applying vacuum brake a few feet short of the water column where it would otherwise have been stopped. A minute or two afterwards, the banking engine of No. 1580 Up crashed into his engine. Due to this impact his train skidded backwards about 3 or 4 feet, as his brakes were on. He did not see the crew of the leading engine of the Goods Train, but he met only the driver about an hour after the accident. His engine or train did not suffer any damage except that a coupling of the under-guard's brakevan had broken.

(vii) *Shri M. Veeraswamy*, Fitter Mistry, stated that engine No. XD 6613 was booked for "Brakes to adjust, poor brake power". He adjusted the pull rod of the front bogie of the tender, put on the vacuum and found the brakes working satisfactorily. He examined the brakes of the rear bogie of the tender and found these in good order. He stated that the hand brake pull rod pin of the rear bogie was missing.

*Note*—The work he carried out, however, was far from satisfactory as was evident from the condition of the brake gear after the accident.

(viii) *Shri G. Gopalakrishna Chetty*, Train Examiner, Nandalur, stated that the Goods Train had 41 operative vacuum cylinders against 24 required for 1200 ton train and the rake was able to maintain 18" of vacuum.

(ix) *Shri M. Muthukrishnan*, District Fuel Inspector, Gooty, arrived at 09.50 hours and examined the engine No. XD 6613. He found that the steam brake of the engine was inoperative. The sand in the sanding gear was caked and the tender rear bogie pull rod was disconnected. In his opinion, the disconnection of the pull rod must have taken place some time ago, as dust had accumulated in the pin holes. He also stated that the booking in the Repair Book "Engine not creating steam and unable to move load" was not correct, as this had been proved false by the performance of this engine in pulling full load up to Cuddapah and later to Nandalur. In his opinion unless at least 75% of the wagon brakes had been released, the train could not have started rolling back.

(x) *Shri M. A. Uthappa*, Divisional Operating Superintendent, Guntakal, stated that vehicle guidance showed the tonnage of the train to be 1194, but on checking, it was found to be 1225. He also stated that immediately he arrived, the Traffic Inspector informed him that the first and second firemen of the leading engine were not on the engine when the train rolled back. Later, the same evening, when he questioned the Guard, the Guard also confirmed that these two firemen were left behind while they were releasing vacuum brakes from the train and that they were near his brakevan when the train started rolling down.

(xi) *Shri M. Abdul Khader*, Assistant Station Master, Cuddapah, stated that he handed over line clear to No. 1580 Up Goods at 04.15 hours and the train left at 04.50 hours. No. 426 Up Passenger arrived at his station and came to a stop at 06.05 hours. After two minutes No. 1580 rolled back and collided with No. 426. He immediately sent for the Assistant Surgeon, Cuddapah, and informed the Government District Hospital and the Control at Guntakal. He did not see or hear No. 1580 Up Goods rolling back.

(xii) *Shri K. Sankunni Menon*, Station Master, Cuddapah, stated that when the formation of No. 1580 Up Goods was backed on to the siding to clear the platform line for No. 426 Up Passenger to depart, he noticed that there were no firemen on the leading engine. He saw both the firemen of the leading engine coming from Kanamalopalle side at about 08.00 hours.

(xiii) *Shri N. B. Singh*, Traffic Inspector, Cuddapah, woke up on hearing the crash and immediately rushed to the station. He made necessary arrangements to render first-aid to the injured and kept the Control informed of the developments. At about 08.00 hours, he saw both the firemen of the leading engine of No. 1580 Up Goods walking into Cuddapah from Kanamalopalle side and, on questioning them, was told that they were left behind as the train rolled back and they could not get in.

(xiv) *Shri G. S. Vittal Rao*, Divisional Mechanical Engineer, Guntakal, stated that Engine No. XD 6613 was in good condition as had been proved by the fact that it had no difficulty in hauling full load from Gooty to Cuddapah without losing time. He found that the steam brake of the engine was inoperative and the pull rod of the rear bogie brake of the tender was disconnected. In his opinion, the examination of the steam brake shows that the engine has been running with inoperative steam brake for a considerable length of time. Similarly, the disconnection of the pull rod also shows that the engine has been running with the pull rod of the rear bogie disconnected for a considerable time. He considered the speed at the time of the impact to be about 5 miles per hour judging from the damage to the Goods Train and also from the fact that the Passenger Train was pushed back only about 5 feet. In his opinion, there must have been a considerable drop in the steam pressure of the engine when the train was stabled and the fire banked at Cuddapah from 01.30 to 04.50 hours. The extra load on the train of about 2%, in his opinion, had no effect either on the pulling capacity of the engine or on the train rolling back. He stated that the Guard had informed him that both the firemen of the leading engine had arrived near the brakevan releasing the vacuum on wagons when the train started rolling back. He stated that neither XD 6613 nor NS 534 was overdue P.O.H., boiler wash-out or any of the other schedules. He has also given the results of various tests conducted regarding the capacity of the engine to create vacuum. One of the tests showed that the leading engine of No. 1580, when attached to the formation and coupled to the banking engine, could create 13" of vacuum in two minutes with the steam pressure as low as 135 lbs. per sq. inch.

(xv) *Shri S. Chakravarti*, Chief Mechanical Engineer, has stated that the weight of XD and NS class engines in working order is 165.85 and 90.6 tons respectively. The total brake power available from the XD engine in good working order should be 52.088

tons from the engine steam brakes and 33·97 tons from the tender vacuum brakes. He has also stated that the brake power of the NS class engine in good working order should be 30·07 tons and that of the tender 17·86 tons. The brake block pressure of the brakevan according to him should be 10·56 tons. He considers that the driver must have been fully aware of the deficiencies in the brake power of the XD class engine, but does not consider that these deficiencies could prevent the driver from exercising effective control over the train, considering that this was a fully vacuumed train. According to him, the driver should not have released the vacuum brakes on a steep gradient and even if such a course was unavoidable, he should, before doing so, have taken the precaution of pinning down the hand brakes. He considers that the efficiency of the brake gear should be taken as 77 per cent. He considers that the vacuum, just before the train started rolling back, was even less than 15". The deficiency of the brake gear of the XD engine, in his opinion, was not a contributory cause of the accident since this was a fully vacuumed train and therefore the driver had adequate brake power for exercising effective control over its movement. In assessing the effective brake power available for controlling a train, he is of the opinion that the brake power of the whole train should be taken into consideration and not the brake power of individual units.

## V. DISCUSSION

11. The evidence is conflicting on the following important points bearing on the accident:—

- (i) How many firemen were deputed by the driver of the leading engine to release the brakes of the wagons.
- (ii) From how many wagons were the brakes released.
- (iii) Whether banking engine driver released the vacuum brakes of wagons.
- (iv) Where did the Guard see the firemen releasing the vacuum brakes of the wagon.

*Item (i)*—The driver of the leading engine and the first fireman have stated that only the first fireman was deputed to release the brakes. The second fireman has stated that he did not leave the engine at any time. Against this, the Guard is emphatic that he saw both the firemen releasing the brakes. The Traffic Inspector saw both the firemen coming towards Cuddaph at about 08·00 hours and stated that they informed him that they were left behind. The Station Master did not see any firemen on the engine when No. 1580 was being shunted on to Loop Line to clear the path for No. 426. I consider that both the firemen were deputed to release the brakes of the wagons and therefore reject the evidence of the driver and the first fireman.

*Item (ii)*—There were in all 41 operative vacuum cylinders on the train; 20 were on the right hand side of the train and 21 on the left hand side. According to the driver, he instructed only the first fireman to release partially the vacuum from the cylinders on one side up to half the length of the train. The first fireman said that he had no instructions regarding releasing the vacuum partially. The Guard had stated to the Divisional Officers that he saw both the firemen releasing the vacuum almost up to his brakevan. This he later denied. The banking engine driver stated that he saw the first fireman releasing the vacuum of the wagons about three wagons away from the brakevan and that the train started rolling almost immediately thereafter.

The number of wagons that should be braked to avoid rolling back for this train on this grade is as seen from the following calculations:—

The available brake power of the two engines and the brakevan was as under:—

XD Tender  $\frac{33\cdot97}{2} = 16\cdot98$  tons (Brakes on the engine were inoperative and the brakes of only one tender bogie were operative, hence only  $\frac{1}{2}$  brake power of the tender was taken into consideration).

NS Engine	= 30·07 tons
Tender	= 17·86 "
Brakevan	= 10·56 "

Total	.. 75·47 "
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∴ Retarding force was:

$$75.47 \times 0.77 \times \frac{14}{20} \times 0.22 = 8.95 \text{ tons;}$$

where 75.47 — available brake power,

0.77 — efficiency of brake gear,

$\frac{14}{20}$  — factor proportionate to the assumed 14" of vacuum against 20" at which the designed brake power is calculated; and

0.22 — coefficient of friction.

Taking the rolling resistance for the engines and wagons as 15 lbs. and 3.14 lbs. per ton respectively, the total rolling resistance was:—

$$\begin{array}{r} (165.85 + 90.6) \times 15 \\ \hline 2240 \end{array} + \begin{array}{r} 1225 \times 3.14 \\ \hline 2240 \end{array}$$

$$= 1.72 + 1.72 = 3.44 \text{ tons.}$$

∴ Total retarding force = 8.95 + 3.44 = 12.39 tons.

Total weight of the train including engines was

$$1225 + 165.85 + 90.60 \text{ tons} = 1481.45 \text{ tons, say } 1481 \text{ tons.}$$

∴ Downward pull due to the gradient of 1 in 90 was

$$\frac{1481}{90} = 16.46 \text{ tons.}$$

Taking into account the available retarding force, the net downward pull was:

$$16.46 - 12.39 = 4.07 \text{ tons.}$$

This net downward pull must be balanced by the retarding force of braked wagons to prevent the train from rolling back.

Taking the brake block pressure of each braked wagon as 9 tons, the retarding force of one braked wagon is

$$9 \times 0.77 \times 0.7 \times 0.22 = 1.07 \text{ tons.}$$

∴ Number of wagons that should remain braked to balance the net downward

$$\text{pull} = \frac{4.07}{1.07} = 3.80, \text{ say } 4.$$

i.e. brakes from at least 37 wagons must have been released before the train started rolling back.

As half the vacuum cylinders were situated on either side, it is evident that vacuum from both sides of the train must have been released and that too almost up to the brake-van. I, therefore, reject the evidence of the driver that he had instructed vacuum to be partially released from only half the length of the train and that he had deputed only one of his firemen to release the brakes.

*Item (iii)*—The leading engine driver of No. 1580 Up Goods has stated that he heard from his first fireman that the banking engine driver was coming towards the front releasing the vacuum brakes and that the first fireman met him near the middle of the train. The first fireman has stated that he met the Guard as well as the banking engine driver near the middle of the train and that the banking engine driver had come up releasing the vacuum brakes. The train started rolling back almost immediately. The first fireman could not get into the train, because it had gathered speed. If that is so, it would have been much more difficult for the banking engine driver and the Guard to go back to their positions in the direction of the motion of the train and get into it. First fireman of the banking engine has stated that his driver was not away from the engine for more than 2 or 3 minutes. Guard has stated that the banking engine driver came to his brake-van and returned back to the engine. He did not see the banking engine driver release the vacuum brakes. Knowing that the train would roll down and also not knowing that the wagon brakes were binding, I do not consider that the banking engine driver would have released the wagon brakes.

*Item (iv)*—The Guard stated he met the first fireman on the left hand side of the train near its middle. The first fireman has himself stated, and this has been supported by the evidence of both the leading and the banking engine drivers, that he was on the



right hand side of the train. The banking engine driver has stated that when he got down he saw the Guard in the brakevan and almost at the same time saw the first fireman releasing the brakes about three wagons away from the brakevan on the right hand side. I consider, therefore, that the Guard never left the brakevan. He probably observed both the firemen releasing the brakes from the brakevan without getting down when they came near the brakevan. I, therefore, reject the evidence that he met the first fireman on the left hand side of the train, and saw the second fireman on the right hand side near the middle of the train.

12. *Time of the accident*—The Guard of No. 426 Up Passenger had noted that his train came to a stop at Cuddapah at 06.05 hours. There is considerable evidence to show that after the train came to a stop, the accident occurred within a minute or two. I, therefore, consider that the accident occurred at 06.07 hours.

13. *Speed of the train*—(i) There is considerable evidence to show that No. 426 Up Passenger had come to a stop before the impact. In fact, one of the injured persons was actually in the act of getting into the train. The first fireman of No. 426 had jumped out of the train after it stopped. He sustained no injuries. I, therefore, consider that No. 426 Up was actually stationary at the time of impact.

(ii) After the impact, it was estimated by various witnesses that No. 426 Up Passenger was pushed back from 4 feet to 12 feet. The majority of the evidence, however, shows that it was pushed back between 5 and 6 feet. There was no damage to No. 426 Up Passenger. It left Cuddapah without any attention to either the engine or the stock. The damage to the rolling stock and engine of No. 1580 was slight. The impact was estimated by a number of witnesses to be similar in intensity to rough shunting. I, therefore, consider that the speed of No. 1580 Up Goods at the time of impact could not have been much more than about 5 miles per hour.

14. *Probable sequence of events*—It has been established from the evidence that the Goods Train No. 1580 Up stalled at mile 156/9-10 approximately half a mile from the summit of the ghat on a grade of 1 in 90. The driver made two or three attempts to get over the summit but found that he was unable to haul the load. He, therefore, backed his train to mile 156/12, brought it to a stop and again tried to start but still found it impossible to haul the load. At this stage, he decided to release the vacuum on the wagons. When the vacuum on the wagons was released, the train rolled back into Cuddapah station and collided with No. 426 Up Passenger. The factors to be considered, therefore, are:—

- (i) The cause of the stoppage of train near the summit of the ghat; and
- (ii) the inability of the crew to control its movement after it had started rolling down.

15. The cause of the train stalling near the summit of the ghat could be either;
- (i) overload,
  - (ii) insufficient hauling capacity; and
  - (iii) braking action.

16. *Overload*—The authorised load for an XD class engine assisted by a NS class banker for this portion of the line is 1200 tons. The actual load as verified after the accident was 1225 tons. This is only about 2% over the authorised load. This overload is negligible and the driver should have found no difficulty on that account either to haul or control the train.

17. *Insufficient hauling capacity*—The engine started from Gooty with full authorised load. It is deposed by the train crew that they were able to maintain good vacuum throughout the journey. It had no difficulty in hauling the load nor did it lose any time due to want of haulage capacity between Gooty and Cuddapah. On arrival at Cuddapah, the driver was informed by the Station Master that he would have to wait for the arrival of a banking engine from Nandalur and for crossing No. 10 Up Mail. The driver finding that he had a long wait of approximately three hours banked the fire. The banking engine arrived at Cuddapah at 03.00 hours. It cleaned the fire, took water and was attached on to the formation of No. 1580 Up at 03.35 hours. No. 1580 Up was given line clear for Kanamalopalle at 04.15 hours. At that time the banking engine having just arrived from Kanamalopalle down the ghat, probably had full steam pressure in the boiler. As has already been evident from the performance of the leading engine up to Cuddapah, if the leading engine also had full boiler pressure, the driver should have found no difficulty



on account of the lack of tractive force over the ghat. At the time he received the line clear, the driver has deposed, the steam pressure in the boiler was 150 lbs. per sq. inch. Actually, however, it might have been considerably less. On receipt of the line clear, the train crew must have hurriedly tried to create full steam pressure and having spent 35 minutes in doing so, the driver must have decided to start the train even without full boiler pressure hoping to pick up the pressure during the first two miles of his travel, which was on comparatively easier grades. The driver has stated that the full boiler pressure is anything between 150 and 180 lbs. per sq. inch. For this engine actually, 180 lbs. per sq. inch is the full boiler pressure. This lack of precise knowledge on the part of the driver may probably have influenced him to start from Cuddapah without full boiler pressure. As the engine did not have full boiler pressure when it left Cuddapah, the driver did not have the full haulage capacity of his engine at his command.

18. *Braking action*—The vacuum tests conducted by the Chief Mechanical Engineer and also by me showed that the conditions for creating and maintaining vacuum on the train with the banking engine attached were satisfactory. The condition of brake gear was examined by me and it was found that the steam brake of XD engine was not operative. The pull rod of the vacuum cylinder of the rear bogie of the XD tender was disconnected and the sand in the sanding gear had caked up. During the time No. 1580 Up Goods was waiting at Cuddapah, the wagon brakes must have started binding due to leakage in the vacuum cylinders. When No. 1580 Up Goods was given line clear, the pressure in the boiler of the leading engine was probably low. It appears that the train left Cuddapah with insufficient steam pressure. After it travelled up the grade up to mile 156/12, the steam pressure probably dropped considerably with consequent reduction in the vacuum. This caused the brakes to bind and the train stalled. The driver made two or three attempts to start the train each time backing it a little to take a swing. This must have caused further reduction in the steam pressure. Realising that his engine was unable to haul the load, the driver deputed his firemen to release the wagon brakes by working the levers. When the brakes were released, the train started rolling back. When it started rolling back, the driver created vacuum by using the large ejector and destroyed it in quick succession in order to control the backward movement of the train. Having failed in his attempt to control the train, he called for assistance from the Guard and the banking engine, but by that time the train had gained speed and could not be controlled.

19. When the train stalled and the driver of the leading engine found that he was unable to proceed, he decided to reduce the resistance to movement by releasing the wagon brakes. When the wagon brakes were released, the available retarding force on the train due to the brakes of the engines and the brakevan was 8.95 tons. The retarding force due to the rolling resistance of the engines and the wagons was 3.44 tons. Therefore the total retarding force available was 12.39 tons. Having released the wagon brakes, the brake power available to the driver was inadequate to prevent it from rolling back, as the total downward pull was 16.46 tons.

If the brake gear of the XD engine had been in good working order, the total brake power would have been

	86.06 tons (for XD Engine)
	47.93 tons (for NS Engine)
	10.56 tons (for Guard's Brakevan)
Total	.. 144.55 tons

This brake power would have provided a retarding force of

$$144.55 \times 0.77 \times 0.7 \times 0.22 = 17.1 \text{ tons.}$$

This would have been sufficient to arrest the downward movement of the train.

20. *Possibility of averting the accident*—Had the train started with full steam pressure from Cuddapah, it would not have stalled near the summit of the ghat. The failure to create full steam pressure before starting from Cuddapah may have been influenced by the long hours the crew had been on the foot plate. They had already completed nearly 16 hours of duty before the train left Cuddapah.

After the train started rolling back, the driver tried to control the train by creating vacuum by using the large ejector and destroying it in quick succession. From tests conducted, it is found that 13" of vacuum could be created in 2 minutes with 135 lbs. per inch steam pressure. Apparently, finding the train rolling back at a considerable speed, the driver seems to have lost his nerves and kept on creating and destroying vacuum hurriedly rendering the braking action ineffective.

21. In spite of the fact that the driver of the leading engine did not have full steam pressure and therefore could not create sufficient vacuum to control the train, the accident could have been avoided had the leading engine driver called for the assistance in controlling the train from the banking engine driver in time. The banking engine driver could not take any action on his own initiative as this would have been contrary to Rule 6(h) (ii) of the Rules for the use of the Automatic Vacuum Brake on Trains, which reads as under:—

"When an additional engine or engines are employed to push a train, the drivers thereof must not interfere with the working of the vacuum-brake which shall be under the control of the leading engine driver as laid down in (i) except in cases of a run back, when the rearmost assisting engine driver automatically becomes the leading driver."

It is the usual practice, when the train has stalled on a gradient, for the drivers to back the train a little and attempt to take a swing to get over the summit. In fact this is what the leading engine driver had attempted two or three times before actually the train started rolling back. When it actually started to roll back, the banking engine driver was under the impression that this was one more attempt on the part of the leading engine driver to back the train to take a swing to get over the summit. He, therefore, was not in a position to render any assistance immediately in stopping the train, more so as the leading engine driver had not called for it. By the time the banking engine driver and the Guard realised that the train was not being voluntarily backed but was moving out of control, it had already attained high speed and could therefore take no effective action.

22. Both the banking and the leading engines were whistling almost since the time the train started rolling back and if it could be heard at the station there was a possibility of the station staff being in a position to divert the train from the platform line and avoid the accident. Due to the prevailing breeze the whistle could not be heard till the train came near the Outer Signal and as No. 426 Up Passenger was at that time probably entering the station, the whistle did not attract the attention of any of the station staff. The station staff, therefore, could not be held responsible for being unable to avert the accident.

23. After the accident at Jhilmilli in May 1951, it was suggested by the Inspectorate that all stations approached by long and steep falling gradients should be provided with catch sidings to prevent run-away vehicles from entering the station section. It was also suggested that until the catch sidings were provided, instructions should be given for setting trailing points after a train has left in the direction of such gradients for a vacant line in the yard to prevent run-away vehicles from colliding with trains or vehicles standing at the station. It was agreed that catch sidings should be provided and also instructions be issued in the meanwhile to take the precautionary measures suggested by the Inspectorate. Later on, it was found that setting apart a line till a train had reached the next station curtailed the line capacity for traffic work, at the stations, considerably. The subject was, therefore, discussed by the General Manager with the Government Inspector and it was decided to withdraw the instructions regarding setting the trailing points for a vacant line till the train reached the next station, but action was to be taken to provide catch sidings on top priority. The question of provision of catch sidings and their interlocking is engaging the attention of the Railway Administration, the Railway Board and the Research Directorate for some time and it is a pity that no catch sidings have yet been provided. This accident is not due to a runaway vehicle, but if a catch siding had existed, it would not have occurred.

24. Since this accident, the Railway Administration has enforced the precaution suggested by the Inspectorate to keep the trailing points set for a vacant line or at least for a line occupied by goods vehicles only till a train leaving in the direction of long rising gradient reaches the next station. The Railway Administration has also decided on immediate provision of 600 feet long catch sidings at all stations approached by steep falling gradients pending final decision of the Research Directorate and the Railway Board regarding the length, interlocking, etc.

25. Engine No. XD 6613 was booked for poor brake power and had been attended to at the Gooty Shed. After it was attended to, it was sent out of the shed to work No. 1580 Up Goods Train. In spite of the booked repairs, it was noticed after the accident that the steam brake of the engine was inoperative as also the vacuum brakes of the rear bogie of the tender, due to one of the pull rods being disconnected. This materially reduced the brake power of the engine. The sanding gear of the engine was also not functioning as the sand had caked up.

Other engines on this section were examined by me on the run and it was found that in a number of cases, the engines had their steam brakes dummied and most of the engines also had the sanding gear inoperative. It is therefore evident that the maintenance of engines requires to be improved.

26. *Cause of the accident and responsibility*—(i) Having carefully considered the evidence, I have come to the conclusion that the collision between No. 1580 Up Goods Train and No. 426 Up Passenger Train was caused by starting No. 1580 Up Goods Train from Cuddapah without adequate steam pressure in the leading engine and by releasing of the wagon brakes at about the summit of the ghats by the driver of the leading engine.

(ii) The XD engine of the Goods Train had its brake gear defective. The defects in the brake gear reduced its brake power from 86.06 tons to 16.98 tons. I consider that if the brake gear of the XD engine had been in good working order, the driver would have had adequate brake power to prevent the rolling back of the train and the accident may not have occurred.

(iii) I therefore hold Shri B. G. Sundaram, the driver of the leading engine of No. 1580 Up Goods, responsible for the accident. He showed lack of caution and his handling of the engine was injudicious.

(iv) I also consider that the shed staff at Gooty are responsible for bad maintenance of the engine which resulted in deficient brake power.

27. Driver B. G. Sundaram is 37 years of age and has worked for 12 years. He has been a driver since June 1956. His service record is fairly good and shows only one punishment.

28. I do not hold either the Guard of No. 1580 Up Goods or the banking engine driver responsible for not being able to prevent the accident.

29. The action of the driver of No. 426 Up Passenger in being vigilant and bringing his train to a stop immediately he realised the danger, is commendable.

30. *Relief measures*—The relief measures were prompt and adequate.

31. The response from the Government District Hospital, however, was indifferent. The Government District Hospital was informed of the accident at about 06.15 hours but no medical aid from that Hospital arrived even up to 07.45 hours.

Yours faithfully,

BANGALORE:  
13th June 1958.

C. R. SULE  
Government Inspector of Railways



GOVERNMENT OF INDIA  
**MINISTRY OF COMMUNICATIONS**  
(RAILWAY INSPECTORATE)

# RAILWAY ACCIDENTS

## REPORT

on

HEAD-ON COLLISION

between

1 SF AND 2 TF PASSENGER TRAINS

at

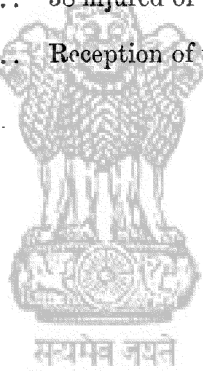
KOSMA (NORTHERN RAILWAY)

on

8th NOVEMBER 1957

## SUMMARY

Date	..	..	..	8th November, 1957.
Time	..	..	..	15.47 hours.
Railway	..	..	..	Northern.
Location	..	..	..	Kosma Station.
Nature of accident	..	..	..	Head-on collision.
Trains involved	..	..	..	(1) No. 1SF Passenger Train. (2) No. 2 TF Passenger Train.
Engines No.	..	..	..	(1) No. 2288/PC-1 (4—6—0). (2) No. 2335/PC-1 (4—6—0).
Estimated speed	..	..	..	(1) Stationary. (2) About 5 miles per hour.
Operation	..	..	..	Absolute Block System with paper line clear.
Track	..	..	..	5'—6" Gauge, straight and level.
Weather	..	..	..	Dry, clear with bright day light.
Casualties	..	..	..	38 injured of whom 4 were grievously hurt.
Cause	..	..	..	Reception of train on occupied line.



To

THE SECRETARY,

GOVERNMENT OF INDIA,

MINISTRY OF TRANSPORT AND COMMUNICATIONS,

(DEPARTMENTS OF COMMUNICATIONS & CIVIL AVIATION),

NEW DELHI

(Through the Chief Government Inspector of Railways)

SIR,

In accordance with rule 9 of Railway Board's Notification No. 1926-T dated the 19th March, 1930, I have the honour to submit herewith the result of my enquiry into the circumstances of the head-on collision between Passenger Trains No. 1 SF and 2 TF which occurred at Kosma station on the Shikohabad-Farukhabad section of Northern Railway at about 15.47 hours on 8th November, 1957.

2. *Inquiry Held*—(a) The inquiry into the accident was held at Kosma on 12th and was continued at Tundla on the 13th and 14th November, 1957. On 12th November I inspected the damaged engines and coaches at Shikohabad and also visited the site of the accident at Kosma in company with the Divisional Superintendent and other officers of Allahabad Division before commencing my inquiry. The following officers were present at the inquiry—

Shri V.T. Narayanan, Divisional Superintendent, Northern Railway, Allahabad.

Shri P.C. Shukla, Divisional Operating Superintendent, Northern Railway, Allahabad.

Shri D.S. Tomar, Divisional Engineer, Northern Railway, Allahabad.

Shri J.P. Gupta, Divisional Mechanical Engineer, Northern Railway, Allahabad.

Shri B.B. Naidu, Divisional Signal and Tele-communication Engineer, Northern Railway, Allahabad.

The District Magistrate and the Superintendent of Police were informed about the inquiry. The former was not represented while Shri Z.U. Ahmed, Deputy Superintendent of Police, Mainpuri saw me before commencement of the inquiry and left, keeping behind his staff in case they were required by me.

(b) The evidence of 36 witnesses was recorded in the course of the inquiry and I accepted some of the statements already obtained by the Railway Administration. I visited the District Civil Hospital, Mainpuri on 12th and the Railway Hospital at Tundla on 13th and I examined ten injured persons in these two hospitals and recorded the evidence of a few. I also visited on the 13th the S.N. Medical Hospital, Agra where one Railway Trolleyman, who was severely hurt in this mishap, was admitted. All the patients were progressing satisfactorily.

3. *Description of the accident*—On 8th November, 1957, Train No. 1 SF was received at 15.36 hours on the Loop Line of Kosma station. Train No. 2TF was admitted under clear signals and this train entered the same loop and collided head-on at 15.47 hours with Train No. 1 SF that was standing on that line.

4. *Casualties*—I regret to state that as a result of the accident 38 people were hurt of whom four were grievously injured.

5. *Composition of the trains*—(a) The composition of the two trains involved in this accident is given below with their marshalling order—

*No. 1 SF*

<i>Engine and Coach No.</i>	<i>Description</i>
Engine No. 2288	PC-1 class (4—6—0)
1. TLR 4913 .. ..	Third class and luggage Brakevan coach.
2. SYTY 2082 .. ..	Second class and Third class Ladies coach.
3. TPPQ 2352 .. ..	Third class Postal coach.
4. T 2482 .. ..	Third class coach.
5. TJ 2489 .. ..	Third class coach with ice compartment.
6. GT 3701 .. ..	Third class coach with electrical generator.
7. GT 2848 .. ..	Third class coach with electrical generator.
8. TLR 4937 .. ..	Third class and luggage Brakevan coach.
9. FS 478 .. ..	First and Second class coach.

## No. 2 TF

Engine and Coach No.	Description
Engine No. 2335	PC-1 class (4—6—0)
1. TPPQ 2330 .. ..	Third class Postal coach.
2. TJ 03611 .. ..	Third class coach with ice compartment.
3. TLR 4956 .. ..	Third class and luggage Brakevan coach.
4. GTY 4097 .. ..	Third class coach with electrical generator.
5. T 3386 .. ..	Third class coach.

(b) The total length, weight and brakepower of No. 1 SF including the engine were 688 feet, 454 tons and 344 tons respectively, while those of No. 2 TF were 402 feet, 287 tons and 186 tons respectively. Both the trains were fully vacuum braked.

6. *Construction of coaches*—The coaches of the above two trains had standard steel underframes over which wooden bodies, fitted with outside steel panelling, were mounted with the exception of coach No. 4097, of train No. 2 TF, which had an all-steel body of HAL type.

All the vehicles were fitted with standard double buffers and central steel screw couplings.

7. *Damage*—(a) The two trains, after the collision, were separated by a distance of 16 feet 7 inches. As a result of the impact the trailing pair of wheels of the tender of engine No. 2335 and the trailing pair of wheels of front end trolley of coach No. 2330 derailed towards the main line. None of the vehicles of train No. 1 SF was derailed.

(b) Of train No. 2TF, engine No. 2335 had its buffer bolts sheared off and the buffers had dropped on the ground. Its cow catcher was buckled and the main frame on both sides above the bogie was badly bent. The tender and engine drag boxes were damaged. The inter-buffers and the draw-bar were bent. The vacuum train pipe and the front swan neck were broken, besides other minor damage. Coach No. 2330 which was the first vehicle behind the engine was telescoped into by the tender with the result that a length of 4 feet of this coach was broken and its body was badly shaken up. The Shikohabad ends of the head-stocks of coaches No. 03611 and 4956 were bent. Coach No. 4097 had two of its door frames of the lavatory broken.

(c) Regarding train No. 1 SF, the front portion of its engine was badly damaged. The buffer beam of the engine and the platform plate were bent downwards. The cow catcher was buckled. The front vacuum train pipe and swan neck were broken. The engine and tender drag boxes were damaged and the inter-buffers and the draw-bar were bent. The main frame on both sides above the bogie and the gusset plates were bent. Coach No. TLR 4913 which was next to the engine had one of its doors broken. Coaches No. 2062 and 2352 had their headstocks bent, while coaches No. 2482, 3701, 2848 and 4937 suffered minor damage.

(d) The permanent way was not much affected and it remained fit for traffic ever after the mishap.

(e) The cost of damage to the railway property, arising out of this accident, has been estimated by the Railway Administration as below—

	Rs.
(i) Engines .. .. .	6,000
(ii) Rolling stock of two trains .. .. .	16,730
(iii) Permanent Way .. .. .	50
Total .. .. .	22,780

8. *Number of passengers travelling*—It has been estimated by the Railway Administration that train No. 1 SF, which was stationary at Kosma, carried about 508 passengers, some of whom detrained at that station, while train No. 2 TF that ran into the former carried about 400 passengers, at the time of the collision.

9. *Description of accident site*—(a) Kosma station is situated on the Shikohabad-Farukhabad branch line at mile 770/4, counting from Howrah via Shikohabad. The track here runs West to East. The Block Stations on the East and West of Kosma are Mainpuri and Shikohabad respectively. Kosma is not connected with the control, as the section is non-controlled. But it has communications with the Block Stations on either side through Morse Instruments. Paper line clear system, operated with the above instruments, is in force.

(b) Kosma is a two line 'B' class non-interlocked station. One of the lines is called the Main which is adjacent to the station building and the other one is called the Loop Line. This station is provided with one Home and one Outer Signal in either direction. These signals are operated from a 4-lever (Dutton type pull-over) signal frame, located in front of the Station Master's Office. The facing points T1 and T4 are fitted with double detector 'E' type locks and they are also provided with point indicators. The lock at each of the above points is provided with two keys, one of which remains locked in the lock, while the other one is kept in the personal custody of the Station Master. When the points are to be reversed from one line to the other, it is possible to do so only with the help of the key kept in the custody of the Station Master.

(c) There is also a cross-over between the Main and the Loop Lines for the shunting of the Goods trains. Besides, there is a goods siding taking off from the Main Line. There are two rail level platforms, one along the Main Line and the other along the Loop Line. The station yard is situated on a bank of about three feet height. The track is on a level gradient and its alignment is straight through the station yard and also for a considerable distance on either side.

(d) The mileages of the various stations mentioned in the report are given below—

Allahabad	..	..	512/21	Howrah-Delhi Main Line. 24 telegraph posts per mile.
Kanpur	..	..	633/15	
Etawah	..	..	718/18	
Shikohabad	..	..	753/2	
Tundla	..	..	775/19	
Delhi	..	..	902/15	Shikohabad-Farukhabad Section. 18 telegraph posts per mile.
Shikohabad	..	..	753/2	
Kosma	..	..	770/4	
Mainpuri	..	..	782/19	
Farukhabad	..	..	819/3	

(e) The Divisional Officers are stationed at Allahabad while an Assistant Operating Superintendent is headquartered at Tundla with a control office there. There is a Railway Hospital at Tundla in charge of an Assistant Medical Officer who is posted there. An Assistant Engineer is stationed at Etawah.

NOTE—The terms 'right' and 'left', 'front' and 'rear' used in this report refer to the direction of travel of the respective trains.

10. *Weather conditions*—The weather at the time of the mishap was dry and clear and there was bright day-light.

11. *Relief arrangements*—(a) The accident occurred at 15.47 hours on 8th November, 1957. Shortly thereafter the Station Master, Kosma transmitted the news of the mishap on Morse Instruments to Shikohabad and Mainpuri. The message was conveyed by the Deputy Controller at 16.10 hours to the Divisional Operating Superintendent, Allahabad and to other Divisional Officers. The Divisional Superintendent accompanied by the Divisional Mechanical Engineer, Divisional Engineer and Divisional Commercial Superintendent left Allahabad at 16.26 hours by 11 Up and arrived at Shikohabad at 02.05 hours on 9th.

(b) On receipt of the accident message a medical special, consisting of an Engine, a 3rd class coach and a goods brakevan, left Shikohabad at 16.50 hours, carrying one Assistant Surgeon with medical equipment, one Train Examiner, two Khalasis, two workers of St. John's Ambulance, Permanent Way Inspector, a Head Mistry, Signal Inspector and the Station Master of Shikohabad. The party also included 15 Mazdoors and Police staff. This train, which left Shikohabad with a Caution Order in the absence of Line Clear, arrived at Kosma at 17.50 hours, after a detention of 20 minutes at the Outer Signal, as the train had to be piloted due to both the lines of Kosma station having been blocked on account of collision. The doctor and the staff of the Medical Special on arrival at the site gave medical attention to the injured who previously got first-aid from the Railway staff. The injured were also served with tea and other refreshments which were brought by this Medical Special.

(c) The Railway Medical Van of Tundla left that station at 16.37 hours under the charge of the Assistant Medical Officer, Tundla. It arrived at Shikohabad at 17.21 hours and was amalgamated with the Relief Train which left Tundla at 16.55 hours on a Caution Order. The combined train left Shikohabad at 17.55 hours and reached Kosma at 18.57 hours. The Medical Van could not leave Shikohabad earlier as the block was not cleared by the preceding Medical Special. The Assistant Medical Officer, Tundla, was accompanied by two doctors and his medical staff from Tundla. They saw that the injured passengers had been attended to by the Assistant Surgeon who arrived earlier by the Medical Special. However, further medical attention was given by the Assistant Medical Officer and his party.

(d) There were four seriously injured cases, three of whom were sent under the charge of a Railway Doctor by the duplicate 1 SF which left Kosma at 21.17 hours and reached Mainpuri at 22.15 hours. From Mainpuri station these injured passengers were taken in a truck to the Civil Hospital, Mainpuri. The fourth seriously injured person, a trolleyman by name Janak Singh, along with six other minor cases of injury were brought to Tundla at 02.40 hours by the Assistant Medical Officer, Tundla in the duplicate 2 TF and they were admitted into the Railway Hospital at Tundla. The injured trolleyman was shifted at 05.00 hours of 9th in a Railway Ambulance Car to the S.N. Medical College Hospital, Agra where he was admitted as an indoor patient. The remaining injured and the stranded passengers were brought by duplicate 2 TF to Shikohabad where they were provided with ample refreshments, free of cost.

(e) The other passengers with minor injuries, after medical aid, were permitted to proceed to their destinations by the duplicate trains No. 1 SF and 2 TF along with the uninjured. Besides the three seriously injured passengers, seven cases of simple injuries were despatched by the duplicate 1 SF and admitted into the Civil Hospital, Mainpuri.



(f) The Station Master, Mainpuri, on receipt of the accident message at about 16.12 hours, informed the District Magistrate, the Superintendent of Police and the Civil Surgeon, Mainpuri at 16.25 hours about the mishap, requesting them for some road transport to enable him to proceed to the site with the necessary supplies. Having failed to get the transport from them, he hired a private truck and left Mainpuri in it at 18.25 hours and arrived at Kosma at 19.10 hours. He was accompanied by the Assistant Surgeon, Mainpuri, one tea vendor with eatables, four Mazdoors, 2 clerks and one Travelling Ticket Examiner. Tea and refreshments were given to the injured free of cost. The District Magistrate, the Superintendent of Police and the Deputy Superintendent of Police who were informed about the accident by the Station Master, Mainpuri, proceeded to the site and reached there in a jeep at 19.10 hours.

(g) As Kosma is a two-line station and as both the lines were obstructed due to the collision, trains had to be piloted and therefore there was some detention for the approaching trains to reach the site. It also presented a certain amount of difficulty and caused unavoidable delay in forming the duplicate trains which were marshalled and despatched in either direction, utilising the engines of the relief trains and the undamaged rolling stock of the affected trains.

(h) On receipt of the accident message at 16.50 hours, the Chief Operating Superintendent of the Northern Railway, accompanied by the Chief Medical Officer, left Delhi at 18.20 hours by 14 Down and reached Shikohabad at 00.02 hours on 9th November 1957 and they examined the injured passengers and gave necessary instructions for their treatment. Thereafter these officers reached the site of the accident at 02.23 hours, the same day. They then visited the injured passengers at the Civil Hospital, Mainpuri, Railway Hospital, Tundla and at the S.N. Medical College Hospital, Agra.

12. *Restoration*—(a) As soon as the fouling coaches of No. 2 TF were removed by hand shunting at 19.50 hours of 8th November 1957, the Main Line became available for through communication and the duplicate train, after its formation, passed through it. The track of the Loop Line was not affected much and it was fit for traffic even after the accident, except for the fact that it was not available for communication due to the damaged vehicles remaining on it.

(b) The two disabled engines of the two trains, 3 coaches of No. 1 SF and 1 coach of No. 2 TF were left on the Loop Line on account of the damage they had sustained. Re-railing operations could not be started earlier as the Station Officer, G.R.P., Tundla would not permit this work to be undertaken until a photographer arrived at the site. It was, therefore, only at 23.00 hours on 8th November 1957 that re-railing operations were commenced and completed at 06.30 hours on 9th November 1957. After that certain buckled plates of a carriage which infringed the moving dimensions had to be cut off. The above vehicles were then removed from Kosma at 08.20 hours on 10th November 1957.

#### SUMMARY OF EVIDENCE

13. Shri C.S. Jain, Station Master, Kosma, stated that on 8th November 1957 he granted line clear to Shikohabad for train No. 1 SF at 14.30 hours and to Mainpuri for 2 TF at 15.00 hours. Pointsman Jagdish was deputed to Shikohabad end points and Pointsman Aidel to Farukhabad end points with the instruction that No. 1 SF would be received on the Loop and then No. 2 TF on the Main Line. At 15.15 hours he got the Outer and the Home signals lowered in his presence for reception of 1 SF which train thereafter arrived complete. He then sent the Loop Line key through the Sweeper to the Pointsman at Shikohabad end to enable him to set the points for the Main Line. Having noticed red hand signal displayed by the Pointsman at Farukhabad end he ordered Porter Jahoor to lower signals for reception of 2TF and the signals were lowered. He then went inside to keep the Shikohabad end points key in the key case and thereafter locked the case. He then got busy in booking the passengers. After some time the Sweeper informed him that both the trains had been received on the same line. He immediately looked at the key case and found Farukhabad end points key for the Main Line missing. He then looked for the bunch of keys and found it hanging on the padlock of the ticket tube which he immediately closed and thereafter rushed to the site of the collision. Porter Jahoor was not found near the signal lever frame or in front of his office. No Pointsman was present at Farukhabad end points which on scrutiny were found to be set for the Loop Line. There was no trace of Pointsman Aidel. When the witness returned to his office he found near the station building Porter Jahoor from whom he took away the Loop Line key and questioned him as to why he had taken away the points key without his permission or knowledge. To this question Jahoor kept silent. Shortly thereafter he sent accident message to Shikohabad for Medical Van and Relief Train.

In reply to a question the Station Master said that the 'on' duty Pointsman (Jagdish) is usually sent to the Shikohabad end and the 'off' duty Pointsman (Aidel) who is called upon to render assistance at the time of crossing, is deputed to Farukhabad end and this procedure was followed on the day of the accident also. In reply to question he stated that the collision had occurred 7 or 8 minutes after lowering of the signals and during this period he was busy in booking passengers. When questioned as to how then the points were changed for the Loop, admitting No. 2 TF on it he said that he suspected that Shri Jahoor Ali took the Main Line key and reversed the points before arrival of the train. In support of this he said that he had found the Loop key in the hand of Jahoor and the Signal Mistry of Mainpuri also mentioned to him that Jahoor Ali had run away with the key. When it was suggested to the Station Master that the above contention was impossible in view of the fact that Pointsman Aidel was manning the points, he was unable to answer it and opined that Pointsman Aidel might have left his post and was not present at the points when these were reversed for the Loop. The Station Master never questioned Pointsman Aidel as to why he left his post or how the accident had happened.

14. *Shri Aidel*, the Pointsman, stated that he performed day duty on 4th and 5th and after 48 hours rest came on duty on 7th November at 18.00 hours and performed his duties upto 6.00 hours on 8th November 1957. He was sleeping in his quarters at the time of the accident and came to the station only after the mishap. As soon as he came to the station the Station Master asked as to where he was to which the Pointsman replied that he was sleeping in his quarters. He said that he was aware that the 'off' duty Pointsman had to come to assist in case of a crossing but he did not turn up for this crossing on 8th November, 1957 as he was sleeping and no one came to call him. He heard from others that Jahoor Ali was deputed to set the points and this probably caused the accident but he was not in a position to make a definite statement on the subject. Pointsman Aidel denied having been deputed by the Station Master to man Farukhabad end points.

15. *Shri Jahoor Ali*, Porter, stated that he was appointed as a Porter at Kosma where he reported for duty on 21st October 1957. On 8th November 1957 he was on duty from 6.00 hours to 18.00 hours. The Station Master ordered him to lower the signals for reception of 1 SF coming from Shikohabad and he complied with his instructions. The Station Master then went inside and got busy in booking passengers. A few minutes later the Station Master called him and handed over the Main Line key of Farukhabad end points ordering him to set the points at that end. The order was simply to set the points, i.e., 'Line Barao Ao'. The other Pointsman was in his quarters and therefore he took the key and was going to Farukhabad end points when train No. 1 SF arrived on the Loop Line. Jahoor Ali presumed that this train was to be despatched and that is why the Station Master had asked him to set the points. Jahoor Ali went and reversed the points, setting for the Loop Line and was returning to the station. When he was near the Goods Wharf he noticed that signals at Farukhabad end had been lowered and therefore he hurried to the station, but before he could reach the station the collision occurred. In reply to a question he stated that that was the first occasion on which the Station Master asked him to set the points. When questioned he said that he had no interest to take out the key and operate the points on his own. He stated that Pointsman Aidel was sleeping at the time of the crossing and saw him only after the accident. After reversing the points he displayed the green flag, given to him by the Station Master, towards the station to indicate that the points had been set. He was unable to say who lowered the signals for Farukhabad end. In reply to question he stated that train No. 2 TF was not visible when he had reversed the Farukhabad end points. When further interrogated, he said that certain gentlemen such as Rajindra Singh and others were invited by the Station Master on 12th November 1957 and refreshments given under a tarpaulin close to Station Master's quarters. It was understood by him that this party was given in an effort to have these gentlemen to stand security in case the Station Master was arrested and also to enable them to give favourable evidence in the Inquiry. Porter Jahoor Ali was called upon to clean the vessels in which the sweets were served. It was at that time that Jahoor Ali was shown by the Station Master to those gentlemen who then had a good look at him.

16. *Shri Jagdish*, Pointsman, stated that he set the Shikohabad end points for the Loop for reception of 1 SF and after extracting the Loop key he brought it back to the Station Master. Later on he went to the points with his flag and after examining the relevant points he showed red signal towards the station. After the signals for 1 SF were lowered, this train arrived complete. A few minutes later the Station Master sent him the Loop key, through Sweeper Ram Singh, with which he set the points for the Main Line and brought the Main key with him. While he was going back to the station from Shikohabad end points along with sweeper, the collision took place and he rushed to the station. He handed over the keys to the Station Master when he heard him shouting "Jahoor has killed me" (Jahoor ne Mardala). After that he saw Porter Jahoor who was blaming the Station Master for giving him the key and asking him to set the points which he had complied with. In reply to a question he stated that Pointsman Aidel should have gone for the crossing but he did not see him at all until after the accident. He said he was unable to say who manned the Farukhabad end points on the day of the accident for reception of train No. 2 TF nor could he say who lowered the signals.

17. *Shri Ram Singh*, Sweeper, said that after the arrival of No. 1 SF at Kosma, he was ordered by the Station Master to deliver one key to Pointsman Jagdish at Farukhabad end of the station which he complied with. This Pointsman after setting the points retained the released key in his custody and then both of them started for the station. Hardly had they advanced about 20 to 30 paces when they noticed that both the Passenger Trains had collided. They hastened to the station and informed the Station Master about the mishap. Ram Singh did not notice Pointsman Aidel to come for the crossing of the two trains. He noticed Jahoor Ali going towards Farukhabad end but could not say what duty was allotted to him. Later, when he informed the Station Master about the accident, Jahoor Ali was present near the station building. He did not lower signals for any train, and signal for 1 SF was lowered before he came to the station. After the collision he saw Pointsman Aidel coming to the station from the side of his quarters.

18. *Shri Manhey*, Waterman, stated that he had been working as Waterman at Kosma from 25th October 1957 and his duty was to supply drinking water to the public. On 8th November 1957 he was very busy due to the heavy rush of passengers. Even when the collision took place he was surrounded by a large number of passengers. He did not see the collision himself but only heard about it. He did not get time even to go to the site of the occurrence. He had no idea as to how the accident had taken place. He did not see Pointsman Aidel at all that day nor did he see any member of the station staff during his 12 hours duty.

19. *Driver Baboo Khan* of train No. 2 TF stated that he shut off the steam regulator of his engine about 300 yards outside the Outer signal as there was a down grade from there to Kosma station. According to him one man was standing in blue Korta with a green flag in his hand near the Farukhabad end points and this man disappeared when his engine was near the points. Immediately he noticed that his engine was taking a turn towards the loop, he applied his vacuum brakes fully when his train was moving at 10 miles an hour. When questioned as to why his train did not stop within 400 feet that intervened between the facing points and engine of 1 SF he said that he had fully destroyed vacuum and also reversed his gear and he was unable to say at what speed his train collided and there was also a down grade from the facing points towards the station. He said that his brakepower was fully effective and there was no defect in his engine. According to him his eye sight was last tested in April, 1957 and he uses spectacles. He had 20 inches of vacuum on his engine and his steam pressure was between 150 and 180 lbs. per square inch. The weather was good and the visibility was clear as it was daylight.

20. *Shri Ram Swarup*, the First Fireman of 2 TF Down said that on 8th November 1957 when his train was approaching Kosma station he observed both the Home and the Outer signals lowered for his train. When his train was midway between the Home and the Outer signals, he noticed a man with green signal standing near the point indicator. After a while he and his driver noticed the unfavourable aspect of the point indicator and both of them shouted simultaneously raising an alarm and the driver applied vacuum brakes immediately. As he was reversing the lever his train engine collided with that of No. 1 SF. He stated that the brakepower of his engine was satisfactory and the speed at the time of collision was about 10 miles an hour. There was 20 inches of vacuum on his engine and the steam pressure was about 165 lbs.

21. *Shri Bikram Singh*, 2nd Fireman of No. 2 TF stated that his train left Farukhabad right time on 8th November, 1957. He was all along on the tender breaking coal and was perplexed to hear the alarm raised by his Leading Fireman. Before he could get out of his tender the collision occurred. He could not say what was the speed of his train at the time of the collision.

22. *Shri Govind Ram*, Guard of No. 2 TF stated that his train left Farukhabad on 8th November 1957 at 13.20 hours and on arriving Mainpuri at 15.08 hours left that station at 15.13 hours. When his train was approaching Kosma he felt a jerk and on looking out through the door he found that the train had entered into the loop which was unusual, since it is normally received on the Main Line. According to him the speed on entering the loop was about 10 miles per hour. He had 18 inches of vacuum in his brakevan. He did not see any Pointsman near the facing points of Kosma.

23. *Shri Kunwar Singh*, Driver of 1 SF, stated that his train left Shikohabad on 8th November 1957 at 14.55 hours and arrived on the Loop Line of Kosma as usual at 15.36 hours on time. He got down and was examining the axle boxes etc. of his engine when he saw from a distance of half a bogie length that the Down train entered the Loop and collided with his. According to him the speed of the collision was 10 or 11 miles an hour. After the collision he checked up the time by his watch when it was 15.50 hours.

24. *Shri Sarman Singh*, 2nd Fireman of 1 SF, stated that his train arrived at Kosma on time on 8th November 1957. After about 4 or 5 minutes he started breaking coal on the engine. His Driver raised alarm about danger but before he could get down from the tender the accident had taken place.

25. *Shri Shiv Shankar Lal*, Leading Fireman of 1 SF, stated that his train arrived at Kosma at 15.38 hours on 8th November 1957. After that the Driver was oiling the engine and he was checking the lubricator. After a short while the Driver raised alarm. He immediately looked out and found that the accident had taken place. According to him the collision took place about 10 or 12 minutes after his train arrived there. He did not hear any whistle before the collision. In fact he said that he did not see train No. 2 TF at all and he was unable to state the speed at the time of the collision.

26. *Shri Rajindra Singh* stated that on 8th November 1957 the Station Master kindly agreed to issue him a ticket from inside his office for which purpose he was standing behind the Station Master in his room. After a while he noticed a man, whose name was unknown to him, in blue uniform, who came from outside and took the bunch of the keys which was hanging on the left side of the Station Master on the ticket tube. This man applied the key from the above bunch to another small case and took out one big key. This man again put back the bunch of keys on the ticket tube in its old position and then went out of the station building. After purchasing a ticket thereafter he came out on the platform and saw a train approaching from Mainpuri. He also noticed a man in blue uniform bent on the track and doing something at a distance of about 100 to 150 paces from the station name board at Mainpuri end. After 2 or 3 minutes the train came and collided with the train standing on the loop. The man who came to take the big key appeared to him to be a railway man and on an identification parade he recognised him (the man concerned was Porter Jahoor Ali).

27. *Shri Thakur Suraj Singh*, Zamindar of Nagla Bariar, stated that he arrived at Kosma station at 15.00 hours on 8th November 1957 in order to book a consignment of seeds. He sat on a stool in the room of the Station Master. He noticed one Khalasi entering the Station Master's Office and taking out a bunch of keys which was hanging on the door of the ticket tube. With that key he opened a key box and took out another key. The bunch of keys was again put back on to the lock in its previous position. After a little while there were shouts that a train had come on the same line and on this the Station Master asked him as to what had happened to the key in the key box. On being told that the key had been taken out by one of Station Staff, the Station Master rushed out. By that time the accident had happened.

## DISCUSSION

28. *Method of working of points and signals at Kosma*—Each of the facing points of Kosma is provided with two 'E' type key locks called 'Up Loop', 'Up Main' and 'Down Loop' and 'Down Main'. The normal setting of the points is for the Main Line in which case the Up Main and Down Main keys are kept in the custody of the Station Master while the Up Loop and Down Loop keys are locked in the respective Up and Down facing points locks. When an Up train is to be received on the Loop Line, the Station Master sends his Up Main key to the facing points which is inserted in the facing points lock, turned, the points reversed for the Loop and the Up Loop key is extracted. This key is then kept in the personal custody of the Station Master ensuring that the Up facing points have been set and locked for the Loop. Before reversing the points it is also necessary to release the arc lever near the facing points which is kept locked by means of a padlock; or in other words in order to reverse these points it is necessary to get one of the points keys and also the padlock key that keeps the arc lever in one of the two positions. The facing points thus being set and the Station Master, being assured of it in addition to the respective aspect indicated by the point indicator and also the waving of red flag by the Pointsman, lowers the Home and Outer Signals by pulling over the Home and then Outer signal levers housed in the lever frame situated in front of his office. Even to pull over these levers a padlock has to be opened by means of a key kept in the personal custody of the Station Master. Unless this padlock is opened none of the four levers in this frame can be operated. The signals are so arranged that conflicting Home signals at either end cannot be lowered at the same time.

29. *Station Working Rules*—There are no specific rules for the procedure to be observed for crossing of trains at Kosma. The trains are received in accordance with Subsidiary Rules No. 48(a) (vii) and (viii) and No. 237(b)(i) to (vii) of ex East Indian Railway applicable to the section and the Station Working Rules framed for Kosma. The last named rules amongst other stipulations enjoin that after the facing points have been set and locked for a line, the Pointsman will show Hand Signals from the points after which the Station Signals will be lowered to receive the train. The Pointsman shall not leave the points until the incoming train on its arrival has been clear of the fouling points and the Station Master advised by display of Hand Signal about the complete arrival of the train. Appendix 'C' to the Working Rules indicates the working of the points at Kosma. In para 5 of the said Appendix it has been laid down that when a train has to be received on the Main Line, both the Up and Down Main Line keys, the siding keys, and keys of the padlocks of the Arc Levers must be in possession of the Station Master on duty before signals are lowered for the train. There is a similar rule for reception of trains on the Loop Line enjoining that appropriate keys should be in possession of the Station Master before the signals are taken off.

30. *Time of accident and Position of the Yard*—(a) Guard Sharma of 1 SF opined that the accident took place between 15.45 and 15.50 hours. Since he was injured he could not give the correct time and this was also the case with the Guard of 2 TF. According to the Station Master of Kosma the collision occurred at 15.47 or 15.48 hours. The Divisional Operating Superintendent furnished the time as 15.47 hours. In view of the above I consider that the collision occurred at 15.47 hours.

(b) At the time of the accident train No. 1 SF was standing on the Loop Line of Kosma while the Main Line was unoccupied and train No. 2 TF was to be received on it.

31. *Conflicting evidence*—(a) Station Master C. S. Jain stated that Pointsman Jagdish was deputed to Shikohabad end points and Pointsman Aidel to Farukhabad end points with the advice that No. 1 SF would be received on the Loop and then No. 2 TF on the Main Line. Having noticed red hand signal displayed by the Pointsman at Farukhabad end, the Station Master got the signals lowered for reception of 2TF. The Station Master was emphatic that Pointsman Aidel had come for duty for the crossing and that Aidel was at Farukhabad end points when signals for 2 TF were lowered. After the accident, however, Aidel was not found at the points and Shri Jain was unable to explain the absence of the Pointsman.

(b) On the other hand Pointsman Aidel stated that on completion of night duty he went away for rest after 6.00 hours on 8th November 1957 and did not come to the station until after the accident. He added that he was sleeping in his quarters at the time of the accident and did not turn up for crossing of the trains since no one called him. Porter Jahoor Ali said that Aidel was in his quarters at the time of the crossing and that is why he was deputed to act for the Pointsman. Pointsman Jagdish saw Pointsman Aidel only after the collision when Aidel admitted to Jagdish having been asleep in his quarters at the time of the mishap. Sweeper Ram Singh saw Aidel coming to the station from the side of Aidel's quarters after the accident. The Railway Employee in blue uniform who was seen operating the points by some and was also seen by the Station Master waving signal was Porter Jahoor Ali himself according to latter's admission. I am, therefore, inclined to believe that the statement of the Station Master to the effect that Aidel turned up for duty and that he was deputed to man the Farukhabad end points is incorrect and such deposition must have been made only in self defence. I believe that Pointsman Aidel did not turn up at all for duty for the crossing.

32. *Comments on Station Master's evidence*—(a) The Station Master made abortive effort to establish that he sent Pointsman Aidel to man the Farukhabad end points. He tried to make out that Porter Jahoor Ali surreptitiously took away the points key and reversed the points for the loop which brought about the disaster. This surmise has been upheld by two independent witnesses Sarvasri Rajindra Singh and Thakur Suraj Singh who noticed one Railway Employee, dressed in blue uniform, entering the Station Master's Office. This man, according to them, then took the Station Master's key provided in the bunch, opened the key case and removed the points key from it, etc.

(b) In reviewing the case it has to be noticed that Porter Jahoor Ali was a new man at Kosma where he reported for duty on 21st October 1957, about 17 days before the incident. He was never called upon to take out keys and set any points at Kosma previously and had no experience in their operation. As such, his picking up of the unknown key from the key bunch, opening the key box, removing the unfamiliar points key, closing the key box, replacing the key bunch with the particular key inserted in the padlock of ticket tube—all in the presence of, but unnoticed by, the Station Master—is very much in question. Jahoor Ali gave his statement in a very straight forward manner in which he said that the Station Master had taken out the key from the key box and handed over the same to him with the advice only to set the points 'LINE BANAO' without any detailed instructions. He is an innocent looking man and there is no past incident to induce him to deliberately reverse the points unless ordered by the Station Master.

(c) According to his own statement the Station Master got the signals lowered for No. 2 TF by Porter Jahoor Ali and the collision occurred 7 or 8 minutes after that. This time interval appears correct as No. 1 SF arrived at 15.36 hours and after certain formalities signals for 2 TF were lowered and the accident occurred at 15.47 hours. After the collision Jahoor was found near the station, but according to him he was nearing the station on his return trip from the points when the mishap took place. The Farukhabad facing points being 1,280 feet from the station, it means Jahoor Ali walked 2,560 feet ( $2 \times 1280$ ) before the occurrence. So within 7 or 8 minutes Jahoor is suspected to have done the following:

- (i) lay his hand on the key bunch,
- (ii) pick up the correct key which was unknown to him previously,
- (iii) open the key box,
- (iv) remove the unfamiliar points key,
- (v) close the key box again and
- (vi) thereafter put the key bunch with the particular key inserted into the padlock, hooked on the ticket tube by the side of the Station Master,
- (vii) walk 1,280 feet to the points,
- (viii) reverse the points by operating the locks,
- (ix) walk back 1,280 feet.

I consider that it is impossible to carry out those operations within 7 or 8 minutes, particularly for such a new, simple and innocent looking man.

(d) Regarding the evidence tendered by the two members of the public, mentioned earlier in respect of their having seen (and identified by Shri Rajindra Singh before me) the Railway Employee (Jahoor Ali) having stealthily removed the points key, it has to be observed at the outset that a Station Master usually gets into touch with the important men of his locality during the course of his daily duties. In the case under reference the Station Master, C. S. Jain has been working at Kosma for the last  $4\frac{1}{2}$  years and I understand that for certain reasons he has got quite a good few friends and supporters in the locality. It will, therefore, not be unnatural for those locally influential men to tender evidence in his favour, at this grave hour.

(e) According to the uncorroborated statement of Porter Jahoor Ali, the Station Master invited the above Rajindra Singh and a few others at a tea party in order to get support from them. Porter Jahoor Ali was called upon to come and wash the utensils after the function was over and it was at that time that Jahoor Ali was shown to the invitees and this was probably the reason how Jahoor Ali could be recognised by Rajindra Singh in an identification parade. This function of tea party could not have escaped the notice of the other station staff, but all pleaded ignorance for the obvious reason. A large number of witnesses stated that they had seen a man in blue uniform going towards the Farukhabad end points, reversing the points or even returning from Farukhabad end with a points key. This is true as Jahoor Ali himself admitted that the points key was handed over to him by the Station Master and under his instructions he had gone and set the points. From the above and from his unembroidered evidence I believe that Porter Jahoor Ali could not have surreptitiously removed the points key and reversed the points as alleged by the Station Master.

33. *Why the Station Master ordered Jahoor Ali to set the points—*(a) The evidence bears out that Pointsman Aidel who was required to man the Farukhabad end points did not turn up for the crossing nor was he sent for. It was, therefore, necessary to send somebody at that end to man the points. But as the reception of train No. 2 TF on the Main Line did not require reversal of points which were already set for the Main Line, the question arose as to why the Station Master should ask Porter Jahoor Ali to set the points. According to Porter Jahoor Ali, no detailed instructions were given regarding the line for which the points should be set. From the Station Master's incomplete instructions, Porter Jahoor Ali thought that the intention of the Station Master was to despatch train No. 1 SF towards Farukhabad end and therefore he reversed the points to enable train No. 1 SF to proceed to Farukhabad. The Station Master had in his mind something different, and the first stage of it was to receive No. 2 TF on the Main Line but clear instructions to this effect were not given to Porter Jahoor Ali.

(b) It may be mentioned that in order to receive train No. 2 TF on Main Line and to despatch 1 SF from the Loop, three independent sets of operations are required as per Rules. Firstly a Pointsman has to go and man the facing points in order to receive train No. 2 TF on the Main Line. This Pointsman has then to return to the Station and obtain the points key and on arrival at the Farukhabad end points, he has to reverse the points for despatch of 1 SF and return the key to the Station Master. Lastly on departure of 1 SF he has to go to the Station Master, bring the points key and set the facing points for the Main Line, which is their normal position. But walking up and down between the points and the station three times can be saved if by contravening the rules a man with the Main Line points key is sent with the instructions to receive train No. 2 TF on Main and then on reversing the points for the Loop despatch No. 1 SF and thereafter change the points for the Main. I believe that to save labour the Station Master resorted to the method adopted by him. But clear instructions in this respect also were not given. The Porter being new he did not understand what the Station Master had in his mind.

34. *Braking distance trials*—Under my instructions braking distance trials were carried out by the Railway Administration on the approach to Kosma from Farukhabad and with the same load and type of engine which No. 2 TF had on the fateful day. The trial train consisted of five coaches and one PC/s class engine and the conditions of the unfortunate train was simulated on the same gradient. At speed of 10, 15, 20 and 30 miles per hour the trial train could be stopped at 166, 264, 326 and 677 feet respectively including a distance of 60 feet calculated for Driver's reaction time.

35. *Brakepower and speed of No. 2 TF*—(a) The Driver as well as the Fireman of No. 2 TF stated that the brakepower of their engine was satisfactory and that there was no trouble with the braking system of the train.

(b) The speed of No. 2 TF, while taking the turnout for the Loop was given by Driver Baboo Khan, his First Fireman and also by Guard Govind Ram, as 10 miles per hour, while the 2nd Fireman could give no idea about it. Driver Kunwar Singh of 1 SF stated that the speed at the time of collision was 10 to 15 miles per hour. From the facing points at Farukhabad end to the point of collision there was an intervening distance of 402 feet. There is no doubt that at the facing points turnout the Driver realised, by the unusual jolt, that he was going on a wrong line, occupied by a train. If he was going even at 20 miles per hour he could have stopped the train within 326 feet, as indicated by the braking distance trial referred to in the previous paragraph. It is, therefore, clear that he took the turnout at over 20 miles per hour.

(c) The Driver no doubt closed his steam regulator and applied vacuum brakes which reduced his speed. Judging from the wreckage it is considered that at the time of collision the train was moving at about 5 miles per hour. The reason why the Driver could not be more prompt in applying his brakes so as to stop the train within the normal braking distance to avert the collision is not very clear. It is possible that the braking system of No. 2 TF was not as efficient as that of the trial special. In addition the unfortunate Driver must have been unnerved especially due to the violent jolt at the turnout and the confusion which occurred on entering the loop.

36. *Rules contravened*—(a) According to Subsidiary Rule 48(i), the Railway Servant authorised to set and lock points is the station Pointsman or any other duly qualified person appointed by the Divisional Superintendent to carry out these duties. The Station Master unfortunately violated this rule by ordering an unauthorised and untrained person, a Porter, to operate the points. He also violated General Rule 37 which enjoins that the Station Master shall not give permission to take signals off and admit a train until all facing points over which the train will pass are set and locked.

(b) Para 5 to Appendix 'C' of Station Working Rules has laid down that when a train has to be received on the Main Line, both Up and Down Main Line keys etc. must be in possession of the Station Master on duty before the signals are lowered. But the Station Master failed to comply with this rule.

37. *Service Records of Station Master and Driver*—(a) Shri C. S. Jain, Station Master, Kosma, aged 39 years, joined the Railway Service as Probationary Assistant Station Master in January, 1939. He was confirmed as Assistant Station Master in 1940 and was promoted as Station Master in 1953. For causing detention to trains he was fined twice and given black mark once. He was censured in 1949 for not being able to produce the time variation register before the Government Inspector of Railways and was finally warned in 1950 for his failure to ensure proper lowering of signal which resulted in detention to trains. In 1956 his passes and P. T.Os. were stopped for one year for recording wrong timings in connection with train operation.

(b) Shri Baboo Khan, Driver, aged 53, joined the Railway Service as Cleaner in January, 1927. He was promoted as Shunter in 1947 and as Driver in 1948. His increment was withheld in 1948 for failure of an engine and in 1951 he was fined for causing a derailment to a Rest Van. In 1957 his increment was withheld for one year for his failure to watch the water level which caused fusion to lead plugs.

38. *Comments on Working Rules*—It has to be mentioned that there are no clear Working Rules to be observed at the time of crossing of trains at the station nor such procedure is covered under the Subsidiary Rules of the Railway. The normal rules enjoin that at the time of crossing of two trains the Station Master should call the Pointsmen relating to the two sides and instruct them in the presence and within the hearing of each other regarding the line on which each of the trains is to be received. If this rule existed at this station then it would have been incumbent on the Station Master to call



... and give him instructions in the presence of Jagdish who could have otherwise insisted on it according to the rules. And in that case the misunderstanding due to which the collision occurred could have been obviated. Directive in respect of such Working Rules has already been given by the Railway Board in their letter No. 1452-TG/55 of 10th August 1956 which covers key locked stations also. The Subsidiary Rule No. 37/3 of ex North Western Railway now applicable to ex Eastern Punjab portion of Northern Railway is relevant.

### CONCLUSIONS

After due investigation I have come to the conclusion that the head-on collision between ... and No. 2 TF which occurred at Kosma station on 8th November 1957 was caused ... clear signals, of train No. 2 TF on the Loop Line which was already occupied ... consider the Station Master, Shri C. S. Jain, has to be held responsible for the ... violated ... Appendix 'C' of the Station Working Rules and contravened Subsidiary Rule No. ... General Rule 37.

(b) The Driver, Baboo Khan, of No. 2 TF breached General Rule 90(a) by exceeding the speed limit of 10 miles per hour prescribed for the facing points of the non-interlocked stations.

(c) The relief arrangements were prompt and satisfactory.

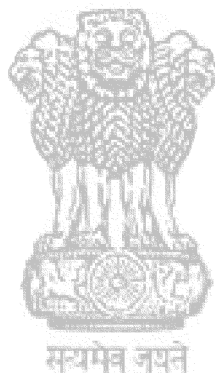
Yours faithfully,

A. K. GUPTA,

Government Inspector of Railways.

CALCUTTA:

The 28th January 1958.





GOVERNMENT OF INDIA  
**MINISTRY OF COMMUNICATIONS**  
(RAILWAY INSPECTORATE)

# RAILWAY ACCIDENTS

## REPORT

on  
HEAD-ON COLLISION

between

No. 48 UP PURI-HYDERABAD PASSENGER  
AND  
No. 10 DOWN HYDERABAD-HOWRAH  
JANATA EXPRESS TRAINS  
AT  
NARASIMHAPURA  
ON  
23-1-1958 AT ABOUT 21.37 HOURS.



## SUMMARY

Date	..	..	..	23rd January 1958.
Time	..	..	..	21.37 hours.
Railway	..	..	..	South Eastern Railway.
Location	..	..	..	Narasimhapura station.
Kind of accident	..	..	..	Head-on collision.
Trains involved	..	..	..	(a) Express passenger train. (b) Passenger train.
Train Numbers	..	..	..	(a) No. 10 Down. (b) No. 48 UP.
Engine Numbers	..	..	..	(a) No. 7354/WP. (b) No. 9412/WG.
Consist	..	..	..	(a) 11 bogie coaches. (b) 8 bogie coaches and 1 4-wheeler.
Estimated speed	..	..	..	(a) 10 M.P.H. (b) Stationary.
Operation	..	..	..	Absolute Block System (Neale's Ball Token Instruments).
Track	..	..	..	5'-6" Gauge, Curve, 1 in 3000 gradient (falling for Down trains).
Weather	..	..	..	Clear.
Casualties	..	..	..	Killed—3 Injured { grievous—4. { simple—16.
Cause	..	..	..	Admission of No. 10 Down on the line occupied by No. 48 Up.

To

The Secretary to the Government of India,  
Ministry of Transport and Communications,  
NEW DELHI.

(Through: The Chief Government Inspector of Railways, Simla-3).

Sir,

In accordance with paragraph 9 of the Railway Board's Notification No. 1926-T, dated 19th March, 1930, I submit my report on the Head-on collision between No. 48 Up Puri-Hyderabad Passenger and No. 10 Down Hyderabad-Howrah Janata Express trains at Narasimhapura on 23rd January 1958 at about 21·37 hours.

2. *Inquiry*—The information of the accident was conveyed to me by telephone a little before midnight of 23rd January 1958. I started by a special train at 2 o'clock the same night and held my inquiry at Berhampur station on 24th and 25th January, 1958. The site of the accident was inspected by me on both days.

The following officers attended the inquiry:—

- (1) Shri A. K. Basu, General Manager, S. E. Railway (on the 24th January).
- (2) Shri J. S. Mathur, Chief Operating Superintendent, South Eastern Railway (on 24th January).
- (3) Dr. A. S. Arora, Chief Medical Officer, South Eastern Railway (on 24th January).
- (4) Shri P. S. Venkataraman, Chief Mechanical Engineer, South Eastern Railway (on 24th and 25th January).
- (5) Shri G. S. Khosla, Deputy Chief Operating Superintendent, South Eastern Railway (on 25th January).
- (6) Shri H. P. Singles, District Superintendent of Police, Ganjam District.
- (7) Shri A. I. Roy, Inspector, Railway Police, Khurda Road (on 25th January).

In all, 14 witnesses were examined.

The District Magistrate, Ganjam District, was informed of my inquiry and Shri Khan, Sub-Collector of Berhampur, attended the inquiry for a brief period on 25th January 1958.

3. *Description of the accident*—No. 48 Up Puri-Hyderabad Passenger was first admitted on the main line of Narasimhapura station at about 21·31 hours. No. 10 Down Janata Express, coming from the opposite direction, was also admitted on the same line. The result was a head-on collision between the two trains at about 21·37 hours. Signals were correctly lowered for either of the two trains. After the accident, the two trains moved—No. 10 Down by about 36 ft., No. 48 Up a little farther back, stopping with a gap of 16 ft. between the two trains. The front end of the 4th coach of No. 48 Up telescoped into the trailing end of the 3rd coach demolishing that end of that coach.

*N.B.*—The words "Right", "Left", "ahead", "rear", etc., wherever used, are with reference to the direction of movement of the train concerned.

Trains coming from Khurda Road side are Up trains and those coming from Berhampur side are Down trains.

4. *Casualties*—The last compartment of the 3rd coach was reserved for ladies and most casualties were amongst the passengers of that compartment.

3 women passengers died and 20 passengers were injured, of whom 4 received grievous hurt.

5. *Relief*—The information of the accident was given to the Control by the Station Master, Narasimhapura at 21·44 hours. Loco. sheds, Khurda Road and Palasa, were asked to turn out Relief trains at 21·50 hours and 21·55 hours respectively. Other officers were informed between 21·47 and 22·40 hours. Ambulance Special from Khurda

Road started at 22.30 hours and reached the site of accident at 1.58 hours on 24th January 1958. The information was also sent to the District Magistrate, Ganjam, whose headquarters are at Chatrapur, and to the Civil doctors at Berhampur.

The Guards of the two trains and the Station staff available, rendered First-Aid at Narasimhapura station with the equipment available in the two Guards' First-Aid boxes.

The District Magistrate and Superintendent of Police arrived at Narasimhapura by about 23.00 hours and the injured persons were removed to the ambulance cars. By the time, the railway ambulance van from Palasa reached the site of accident, all the serious cases had been removed to the ambulance cars which were standing at some distance from Narasimhapura station and the Railway doctors could attend to a few injured persons and the injured railway staff at that place.

In all, 11 patients had been admitted in Berhampur Hospital and of these, all but four were discharged on 24th January 1958. When I visited them in the hospital on 25th January 1958, the remaining patients were found taken good care of.

As the facing points at Berhampur end of Narasimhapura were fouled by the rake of No. 10 Down Express, the main line was blocked. The rake could not be moved until the District Magistrate and the Police permitted. This was done in the early hours on the morning of 24th January 1958 and the rake of No. 10 Down was pulled back into Berhampur. Through traffic was restored by about 6.37 hours.

6. *Composition of trains*—No. 10 Down was hauled by engine No. 7354/WP and in order from engine its composition was as under:—

Sl. No. from engine	No. of vehicle	Description
1	3400/TYLR	.. Bogie Third, Luggage & Brakevan.
2	721/T	.. Bogie Third.
3	4557/GTY	.. Bogie Third.
4	2000/GTY	.. Bogie Third.
5	1736/T	.. Bogie Third.
6	1801/GTY	.. Bogie Third.
7	1734/GT	.. Bogie Third.
8	1365/T	.. Bogie Third.
9	1657/T	.. Bogie Third.
10	6097/TP	.. Bogie Third & Postal Van.
11	1448/TLR	.. Bogie Third & Brakevan.

The train was fully automatic vacuum braked. Its length, weight and brake-power were 849 ft., 649½ tons and 443½ tons respectively.

No. 48 Up was hauled by engine No. 9412/WG and in order from engine its composition was as under:—

Sl. No. from engine	No. of vehicle	Description
1	1456/T	.. Bogie Third.
2	4519/LR	.. Bogie Third & Brakevan.
3	1489/TY	.. Bogie Third.
4	1357/GY	.. Bogie Third.
5	406/FT	.. Bogie First & Third.
6	247/GST	.. Bogie Second & Third.
7	1677/T	.. Bogie Third.
8	2655/TLR	.. Bogie Third & Brakevan.
9	32114/CG	.. 4-Wheeler.

This train was fully automatic vacuum-braked and its length and weight were 721 ft. and 549 tons respectively. This train had its brakes released at the time of collision.

The seating capacity of the trains and approximate number of passengers in them were as follows:—

	Seating capacity	No. of passengers
No. 10 Down .. .. .	820	550
No. 48 Up .. .. .	601	(approx.) 337

7. *Nature of construction*—The coaches on the trains had steel underframes with wooden framework in the superstructure. The bodies of the coaches were provided with steel panelling in the exterior. All coaches had central screw couplings of I. R. S. type and side buffers. The buffers of all the coaches were of cylindrical type (I. R. S. standard) but the 3rd coach of No. 48 Up had old B.N.R. type buffers with solid buffer spindle and conical cast iron casing for the spindles.

8. *Damage*—The damage was as under:—

*No. 10 Down*—Engine No. 7354/WP had the front buffer beam broken at about 1'—7" from the right hand end, the right hand buffer and buffer lights had dropped off. The channel of the main frame of the tender had been bent on the right hand side.

The front head stock of coach No. T/721 was slightly bent.

*No. 48 Up*—Engine No. 9412/WG—The right hand side front buffer face and its spindle were bent inwards.

The 1st and 2nd coaches behind the engine had minor damage, such as, slight bending of the longitudinal member of the frame and jamming of doors.

The 3rd coach No. SE/1489 had its trailing end demolished for a length of about 9 ft. Its trailing buffer spindles had bent downwards and conical spindle casings were broken. The trailing bogie of this coach had shifted by about 5ft., the central pivoting arrangement having completely broken. There was extensive damage to brake gear and the trailing vacuum cylinder had broken and dropped.

The 4th coach No. SE/1357 had its leading panel and side panels broken. Its leading buffer sockets and plungers and head stock were bent and damaged. The inside body holding down brackets were damaged.

Other coaches were undamaged.

The cost of damage to the railway property is as under:—

	Rs.
Locomotive .. .. .	2,000
Rolling Stock .. .. .	12,000
Permanent-Way .. .. .	Nil
Total .. .. .	14,000

9. *Local conditions*—The site of this accident is Narasimhapura station yard.

Narasimhapura, situated between Chatrapur and Jagannathapur stations on the East Coast Main Line of the South Eastern Railway, has been opened to divide a long block section of about 8 miles into two. On account of the interlocking materials not being readily available, it has been opened in the first stage as a 'B' Class non-interlocked station with an Outer and a Home signal at either end. The loop line is the platform line. This station has been opened as a two-line crossing station only on 26th October 1957 and has not yet been opened for passenger booking. The loop line is numbered line No. 1 and the main line is numbered line No. 2. Signals are lowered from a lever frame situated in front of the station office.

The points and crossings at either end are of 1 in 12 angle and are laid with new 90 lb. R.B.S. materials to Railway Board's standard. The points are provided with point indicators. The points are padlocked. The Down point indicator could not be seen from the station while No. 48 Up was standing on line No. 2.

The station yard is on a curve of 2° (2865' radius). This curve extends from mileage 364·371 to mileage 364·681. The track is straight beyond the curve on either side for about a mile. The approach to the station from Howrah side is on a level upto point 832 feet from the centre of the station building. It is then on a grade of 1 in 3000 rising towards Waltair for a distance of 2214 feet, beyond which it is followed by a level stretch. The collision took place on the stretch on a gradient of 1 in 3000.

The mileages of various stations mentioned in the report are as under:—

Howrah .. .. .	0 mile.
Cuttack .. .. .	254 miles.
Khurda Road .. .. .	283 "
Chatrapur .. .. .	361 "
Narasimhapura .. .. .	364 "
Jagannathapur .. .. .	368½ "
Berhampur .. .. .	374 "
Palasa .. .. .	420 "

Both No. 48 Up and No 10 Down are non-stopping trains at Narasimhapura but as they had to cross at that station, one had necessarily to be stopped to allow the other one to run through.

10. *Procedure for reception of trains*—For reception of passenger trains, the Station Master is personally responsible for locking of facing points. According to the Working Time Table in force, no passenger train is to stop here. Goods trains also stop here when 2 trains are to cross at this station. For reception of goods trains, 'Line Label and Badge' system is in force. This is to enable the Station Master to assure himself by exchange of badges that the points are properly set and locked before he permits the signals to be lowered. It has, however, been unequivocally laid down in Rule 11 of the Station Working Rules that this procedure of exchange of badges does not apply to passenger trains.

11. *Weather conditions*—The weather was clear and in the darkness of the night the back lights of signals were clearly visible from the station and the signal lights were clearly visible from an adequate distance for approaching trains.

## II. EVIDENCE

12. *Shri S. Kalidas*—Assistant Station Master on 8 hours' duty from 16·00 hours on 23rd January 1958, said that there was no clock supplied at his station; so he could not give the exact timings. He said that the timings of trains he recorded, were those obtained either from station on either side, from guards of trains or from the Control.

He said that Pointsman Ramanayya who should have come on duty at 19·00 hours appeared half an hour too late. No. 10 Down Janata Express was on line clear at 20·53 hours and he was informed by Control that No. 10 Down and No. 48 Up were to cross at Narasimhapura. No. 48 Up was on line clear at 20·57 hours.

Pointsmen Satyanarayana was in the station office and the A.S.M. had Pointsman Ramanayya called up. He had an argument with Ramanayya. He gave the Line Label for Down facing points to Pointsman Satyanarayana to go to the Down facing points and told him that he himself would follow. He asked Pointsman Ramanayya to hand back the Line Label for the Up facing points because he said that Ramanayya was smelling of liquor. He had an argument with Ramanayya but got back the Line Label. He went to the Down facing points and saw them properly set, clamped and padlocked for line No. 1. He took the key of the points from Satyanarayana and came back to the station. He instructed Pointsman Balaji to go to set the Up facing points for line No. 2. He said that Pointsman Ramanayya threatened Balaji. The A.S.M. reassured Balaji and sent him to the Up facing points but he himself (the A.S.M.) did not go to the Up facing

points for fear of violence. He saw the Up side point indicator showing white for line No. 2 and he exchanged signals with Balaji. The signals were lowered for No. 48 Up which was received on line No. 2, Jamadar Moharam Khan was sent to obtain Guard's signature regarding in-report of No. 48 Up. After the Jamadar came back with the in-report, the A.S.M. obtained the line clear for No. 10 Down and gave it to Jamadar to hand over to the Driver of that train. The A.S.M. then had the signals lowered for No. 10 Down as he had in his coat pocket the key of the Down facing points. He searched for his coat, enquired from Jamadar Moharam Khan but did not find it. He said that Moharam Khan told him not to mind about his coat but to concern himself about passing trains first.

He came out of the office and heard the sound of the collision and became unconscious. When he regained consciousness he found himself on a bench in the waiting hall.

*N.B.*—Jamadar Moharam Khan, on being confronted with him, contradicted the A.S.M. saying that the enquiry about the coat was made about half an hour after the accident.

When questioned why he had taken off his coat in the night time in cold weather, he said that this was done due to the fact that he had become heated up in the argument with Ramanayya and had said to the latter "Matha garam hota hai." He said that he had intended to receive No. 10 Down on the loop line and to pass No. 48 Up on the main line. He received the out-report of No. 48 Up first but did not change his orders as that would have meant detention.

13. *Pointsman C. Satyanarayana* said that on 23rd January, 1958, he came on duty on Down facing points at 19.00 hours and received the Station Master's Line Label for line No. 2 and Pointsman's Badge for line No. 1 from the Pointsman whom he had relieved. Down facing points were then set, clamped and locked for line No. 2 as No. 513-A Up Goods had been allowed to run through over that line.

After passage of that train the A.S.M. told him that No. 48 Up was to be received on the loop line and No. 10 Down was to run through over the main line, but the A.S.M. did not give any instructions to the other Pointsman at that time. The A.S.M. had given him the key of the Down facing points and had told him that after No. 10 Down had passed, the points were to be re-set for line No. 1 for the passage of No. 48 Up. He went to the Down facing points with H. S. lamp. No. 48 up arrived, but he said that due to curvature he could not make out on which line it had been received. The headlight of its engine was lit up bright. Signals were lowered for No. 10 Down; it passed the facing points at about 10 m.p.h. and collided with No. 48 Up.

He said that Ramanayya was smelling liquor when he was at the station before he went to the points.

After the accident when he was returning to the station he met the Assistant Station Master and gave him the Label and the Badge. He met the Station Master who asked him for the keys of the Down facing points and he gave those to him.

The Assistant Station Master never went to the facing points to verify the setting thereof. He said that there was no change of orders and the orders given to him were to let No. 10 Down pass over line No. 2.

14. *Moharam Khan, Jamadar*, said that he came on duty some time after the goods trains had passed Narasimhapura. The Assistant Station Master told him that No. 10 Down was on line clear and would cross No. 48 Up at that station. When No. 48 Up was on line clear he reminded the A.S.M. regarding sending Pointsman to the facing points. The A.S.M. asked him to call the Pointsmen. He called Ramanayya whom the Assistant Station Master gave the Line Label. He also instructed Ramanayya to go to the Up facing points to receive No. 48 Up on line No. 2.

Thereafter there was an argument between the Assistant Station Master and Pointsman Ramanayya. The witness gave the details of how the A.S.M. demanded back the Line Label and Badge from Ramanayya while the latter at first refused to do so, went to the Station Master, came back and then handed over the same to the Assistant Station Master. He also gave details of how Ramanayya threatened Pointsman Balaji, how the Assistant Station Master prepared to accompany Balaji and how, eventually, Balaji went to the Up facing points alone.

While this quarrel was going on, the A.S.M. instructed Pointsman Satyanarayana to go to the Down facing points to pass No. 10 Down over the loop line. Satyanarayana left for the points even before No. 49 Up left the last station.

On receiving instructions from the A.S.M., he lowered the signals for No. 48 Up. The A.S.M. then said he (the A.S.M.) would go to the Down facing points and went towards them. He could not say how far he went but came back after arrival of No. 48 Up. The Assistant Station Master told him to obtain the in-report of that train from the Guard and to inspect the Up facing points. While he was in course of doing these things, the A.S.M. called him. He shouted back to the A.S.M. that he was not to worry, as the witness would lower the signal for No. 10 Down on return. When he returned, however, the signals for No. 10 Down were already lowered and presently there was the collision. He asked the A.S.M. how the collision took place when the Down facing points were inspected by himself, the A.S.M. could not give any answer. After that, the A.S.M. disappeared and came back after about half an hour and enquired about his coat. There was no fog and the speed of No. 10 Down was about 10 m.p.h.

15. *Pointsman M. Ramanayya* said that on 23rd January 1958 he should have come on duty for manning up the Up facing points at 19.00 hours but arrived a few minutes late. He passed an Up goods train over the main line and came back to the station. When the 1st of the two trains was on line clear, the A.S.M. consulted the Control and told him that No. 10 Down and No. 48 Up were to cross. He instructed Satyanarayana to go to the Down facing points and admit No. 10 Down on the loop line. When Satyanarayana had gone some distance, the A.S.M. shouted to him that the facing points were to be set for the main line. The witness told the A.S.M. that Satyanarayana was a new man and was likely to be confused by this change of orders. On this, the A.S.M. asked him to shut up and go off duty, which he refused to do without a written order. He gave details of the argument leading to his going to Station Master and on his advice handing the badges to the A.S.M. When the passenger train had arrived, he went back to the Station Master and reported to him having handed over the badges to A.S.M. The Station Master said he would himself go to the station; he was getting ready to do so when the collision took place.

He was questioned why he did not ask the A.S.M. to change his instructions regarding the Up facing points also when he changed the orders for the Down facing points, he simply said that the Assistant Station Master had already told him not to speak.

16. *Pointsman Balaji* said that Ramanayya was late in arriving for duty on 23rd January 1958. On this score there was some argument between him and the A.S.M. The latter asked Ramanayya to hand back the badges and keys but Ramanayya did not comply and went to the Station Master's house. In the meanwhile, No. 10 Down Express was on line clear. The A.S.M. asked him to call the Station Master. While he was on his way to the Station Master's house, Ramanayya came back and handed back the badge and keys to the A.S.M. The witness then did not proceed further. Ramanayya threatened him but the A.S.M. told him that he (the A.S.M.) would accompany him if necessary. No. 48 Up was then on line clear. At that time, Satyanarayana was not in office and Balaji took it that he must have gone to the Down facing points. The Assistant Station Master said that the train of which the out-report would be received first, would be taken on the main line and the other train would be passed through over the loop line. When out-report of No. 48 Up was received, the A.S.M. instructed him to receive that train on line No. 2. Jamadar lowered the signals for that train and then Balaji left for the Up facing points. The train (No. 48 Up) was admitted on the main line. Thereafter the Pointsman re-set the Up facing points for the loop line. Jamadar enquired from the end of the platform about the correct re-setting of the Up facing points which the Pointsman confirmed. About five minutes thereafter, the collision took place.

He was questioned if the A.S.M. gave any instructions to Pointsman Satyanarayana but Balaji said that he did not know what instructions were given to Pointsman Satyanarayana, but when the A.S.M. instructed Balaji to receive No. 48 Up on the main line, he was told that after its arrival the Up facing points were to be re-set for the loop line, at that time Satyanarayana was not in the office.

17. *Shri G. K.V. Rau*, Station Master of Narasimhapura, said that on 23rd January 1958 at about 21.15 hours, Ramanayya went to him and reported to him about the A.S.M. putting him off duty. He advised Ramanayya to do what the A.S.M. ordered and Ramanayya went away. He was afraid that the quarrel might increase so he kept awake. A short time after the arrival of No. 48 Up, he heard a report. He got ready and proceeded

towards the station and met Ramanayya on the way, who said that something had happened. He sent Ramanayya to call the other Assistant Station Master and himself proceeded to the station. He did not find anyone in the office and found that the two trains had collided on the main line. After giving the information to the Control, he helped the injured. About half an hour thereafter, he saw Moharam Khan and Ramanayya. Then he looked out for the Pointsman on duty and Balaji appeared, followed by Satyanarayana. From Balaji he took over Station Master's Line Label for line No. 1 and Pointsman's Badge for line No. 2 and keys of Up facing points but from Satyanarayana he took only the keys of the Down facing points because Satyanarayana had told him that he (Satyanarayana) had handed over the badge and the label to the A.S.M. He enquired about the A.S.M. but could not find him. Balaji and Moharam Khan said that instructions were given to admit No. 48 Up on the main line and No. 10 Down was to be passed over the loop line. Pointsman Satyanarayana said that he was instructed to pass No. 10 Down on the main line. The Assistant Station Master saw the witness at about 23.00 hrs. and said he had asked Satyanarayana to pass No. 10 Down over the loop line. The A.S.M. was greatly perplexed at that time and appeared to him the most guilty person. The A.S.M. informed the S.M. about the loss of his coat only at about 5.00 hours next day. He said Ramanayya did not appear drunk but that A.S.M. Kalidas and Ramanayya often argued unnecessarily.

18. *Driver Janaki Rao of No. 48 Up* said that after arriving at Narasimhapura, he did not notice the point indicator at the Down facing points. He said that he only noticed that the Down Home was properly lowered while No. 10 Down was approaching. He had given the repair book to the Fuel Inspector who was inspecting it and the witness looked on. He saw a Pointsman going towards the Down facing points who had informed the witness that the stoppage of No. 48 Up was for crossing No. 10 Down at Narasimhapura.

19. *Driver A. Venkata Rao of No. 10 Down Express* had appeared for duty at 11.00 hours on 23rd January 1958 after having had a rest of 20 hours. After passing Jagannathapur he saw from a distance the Outer and Home signals of Narasimhapura at danger but they were presently taken off. He reduced the speed of his train to 10 m.p.h. A man was showing green light from the points and he could make out from the white light of the point indicator that the points were set for the main line. Due to curve he could not make out the line on which the passenger train was standing because the headlight of his engine was showing tangentially. The headlight of the other was full on. He made out from about 25 yards that his train was going on the same line as the other train. He applied vacuum brakes and asked the fireman to apply hand brakes but the train could not be stopped. The weather was clear and signal lights were visible from a distance of one mile. After the accident he went to the station office but found that the A.S.M. had disappeared. The Pointsman could also not be found.

20. *Shri Simhachalam, District Fuel Inspector, Waltair*, who was travelling on the engine of No. 48 Up, got down, when the train stopped on the station side to examine the piston glands. One man was going to the Down facing points and on enquiry he said "Janta ata hai sab". From this he made out that he was a Pointsman. He did not see the Assistant Station Master going to the Down facing points.

### III. DISCUSSION

21. *Train timings*—Narasimhapura station was opened on 26th October 1957 as a two-line non-interlocked crossing station to divide the long block section between Chatrapur and Jagannathapur. The station was not supplied with any clock when it was opened. A clock is reported to have been supplied on 31st October 1957 but that went out of order within a few days and the station remained without a clock upto the time the accident took place on 23rd January 1958. Not only that: Even the timings of the various scheduled trains passing this station were not supplied to this station. As regards the timings recorded in the various registers at this station, the Assistant Station Master, when questioned, stated that he obtained the timings either from the station on either side or from the Control. The timings recorded in the trains register could, therefore, not be entirely relied upon.



The time of the accident, as given by the various persons was:—

Asstt. Station Master on duty did not record—

Driver of No. 10 Down	21·37 hours.
Guard of No. 48 Up	21·37 hours.
Guard of No. 10 Down	21·37 hours.
Driver of No. 48 Up	Between 21·35 and 21·37 hours.

It may be taken that the collision took place at about 21·37 hours.

22. *Assistant Station Master's story*—On the 24th January when I was recording his statement, the Assistant Station Master, S. Kalidas made a mention of the quarrel he had with Pointsman Ramanayya and that he asked Pointsman Satyanarayana to go to the Down facing points and set those points for the loop line. Thereafter he refused to say anything further that day because, he said, he did not want to give one statement to me that day and then to give a different statement to some one else another day. On the 25th January, he gave his evidence which, from his demeanour, I suspect was inspired. Some one had obviously tutored him. He said that he personally went to the Down facing points and saw those properly set, clamped and locked. He brought back the key of the points with himself. On return from the Down facing points, he took the badges from Ramanayya as he did not trust him. He gave them to Balaji asking him to go to the Up facing points and he himself was going to accompany him ostensibly to protect Balaji from likely attack from Ramanayya. He, however, dropped the idea of going to the Up facing points himself on advice of Moharam Khan and contented himself by noting from the white light of the Up-point indicator, the setting of the points for the main-line for reception of No. 48 Up on that line. He let the key of the Up facing points remain with Pointsman Balaji. After reception of No. 48 Up he had the Up facing points checked through Jamadar Moharam Khan. He said that as he himself had the key of the Down facing points, he lowered the signals for No. 10 Down. After that, he searched for his coat but did not find it and enquired from the Jamadar who advised him to look after train working first. Thereafter, the collision took place.

It is not understood why the A.S.M. went to see the setting of the Down facing points when the Up train was to arrive first. He should have normally verified the setting of the Up facing points first. It is also not understandable why he allowed the Pointsman at the Up facing points to retain the keys of those facing points while, he said, he took back the keys of the Down facing points from Pointsman Satyanarayana. The keys of the Down facing points were, after all, found by the S. M. with Pointsman Satyanarayana after the accident. The A.S.M.'s suggestion that he lost the keys, along with his coat, cannot be accepted because of the following—

- (a) It is not usual for a normal person to take off his coat at the cold part of night in cold November month.
- (b) The A.S.M. said he pointed out the loss of the coat to Moharam Khan before the accident while Moharam Khan maintained that this was done long after the accident when the A.S.M. returned to the station having disappeared from there after the accident.
- (c) He also did not report the matter to his Station Master until 5·00 hours next day, nor did he report the matter to the Police.
- (d) His story that he took off the coat when he got heated up in the course of his argument with Ramanayya, is not understandable because after the argument he went to the Down facing points and should have put on his coat to keep the keys in his pocket and if he did not have his coat on while going to the points, the keys should have been kept by him elsewhere than in his coat pocket.

To the possible suggestion that some evilly inclined person might have somehow taken the key to the points and changed the points in the face of approaching train (No. 10 Down), the answer is that this was not possible without Pointsman Satyanarayana being in the conspiracy against the A.S.M. Even though the A.S.M. had a lot to say against Ramanayya, he had nothing to say against Satyanarayana who had come to Narasimhapura only on the 18th January 1958. It is not easy to believe that Satyanarayana would make two trains collide merely to satisfy the ill will of Pointsman Ramanayya against the Assistant Station Master when he actually said that Ramanayya was smelling of liquor before the witness went to the Down facing points.

23. *A.S.M.'s instructions to Pointsman*—The evidence regarding the sequence of instructions and the details thereof is conflicting. Satyanarayana said he was instructed to receive No. 10 Down on line No. 2 and Balaji said he was asked to go to the Up facing points with instructions to receive No. 48 Up on main line and both of them said that the A.S.M. did not give any instructions to the other in his presence.

Jamadar Moharam Khan said that, at first, Pointsman Balaji was sent to the Up facing points and then Satyanarayana was asked to go to Down facing points and this was before No. 48 Up left Chatrapur. He also said that the A.S.M. had asked Pointsman Satyanarayana to pass No. 10 Down over the loop line and he (the A.S.M.) went towards the Down facing points but could not say how far he went.

Pointsman Ramanayya said that the Assistant Station Master at first told Satyanarayana to receive No. 10 Down on the loop line and then shouted to him that it was to be received on the main line. When he drew the A.S.M.'s attention to the likely confusion which was to be caused to Satyanarayana who was a new man, the quarrel started. It appears plausible that the Assistant Station Master felt piqued at a mere Pointsman pointing out his lapse.

Pointsman Satyanarayana said that before he left the station, there was exchange of words between the A.S.M. and Ramanayya but he did not know why. This indicates that Satyanarayana probably did not leave the station immediately he received orders. Being a recent arrival at Narasimhapura, he was living in a portion of the station building so it is understandable that he did not immediately go to the Down facing points which, he knew, were already set and locked for line No. 2. He, however, denied any change of orders and also said that the A.S.M. never went to the points to verify the setting thereof.

24. *Defence of the Asstt. Station Master on duty*—Assistant Station Master Kalidas stated that it was his intention to receive the first arriving train on the loop line. He expected No. 10 Down to arrive first so he intended to let that train come on the loop line and let No. 48 Up run through. He had written the out-report of No. 48 Up as 21.16 hrs. and said he remembered that he received the out-report of No. 10 Down only at 21.28 hrs. (He did not record this timing). The Controller stated that at about 20.55 hrs. Narasimhapura had enquired about the trains. He informed Narasimhapura that the two trains would cross at that station and that No. 48 Up would reach there first. He had no reason to expect No. 10 Down to arrive first.

Therefore, according to his intention, he should have arranged to receive No. 48 Up on the loop line (line No. 1). In that case, he should have instructed Pointsman Satyanarayana to set the Down facing points for the main line (line No. 2) to allow No. 10 Down to run through.

It is quite possible that the Assistant Station Master Kalidas gave an order to Pointsman Satyanarayana and then lost temper with Ramanayya. He got so excited that he told Ramanayya "Matha garam hota hai". In this fit of anger, he probably lost sight of the orders he had given earlier and instructed Balaji also to receive No. 48 on the main line.

A.S.M. Kalidas, in his statement mentioned about having handed over badges to Pointsman Satyanarayana but Pointsman Satyanarayana said that he already had in his possession the badges from the time he had come on duty. Balaji said "As a matter of fact, the Pointsman is always given the S. M.'s line label for line No. 2 and Pointsman's badge for line No. 1". It appears that at the time the line label and badges

were with the Pointsman more or less as a token of their being on duty and cannot be accepted to have any definite relationship with the order given by the A.S.M. for the reception of either of the two trains on any particular line. The fact that A.S.M. Kalidas withdrew those label and badges from Pointsman Ramanayya when he did not want Ramanayya to go to the Up facing points, is also indicative of the same. The stress laid by the A.S.M. regarding handing over the line labels and badges to the Pointsman concerned or withdrawing the same from him has no relevance in respect of the A.S.M.'s duties for the reception of passenger trains. Shri Kalidas admitted that he was personally responsible for seeing that the facing points were clamped and locked for the reception of passenger trains and admitted that he failed to carry out his duties for reception of No. 48 Up (See para 2 *infra*). In paragraph 22 above, it has been shown that the story given out by A.S.M. Kalidas in his defence, *viz.*, having had the keys of Down facing points in his possession, his having taken off the coat in the coldest hour of the night, alleged loss of the coat and along with that the loss of keys and the allegation about the points having been re-set by some evilly inclined person, is completely uncorroborated and in all probability being inspired is unworthy of credence.

25. *Breach of Rules by the A.S.M.*—According to rules, when two trains have to cross at a non-interlocked station, the facing points at either end have to be set for the respective lines so that even in case one train overshoots the mark, that train would be led on to a line other than the line on which the opposing train is coming. According to special working rules for Narasimhapura for reception and dispatch of passenger trains, it was the personal responsibility of the Assistant Station Master S. Kalidas to have gone to the points to verify the correct setting, clamping and locking thereof. In this connection, a question was put to A.S.M. Kalidas and he said, "The question of label and badges does not arise for reception and despatch of passenger trains and I am personally responsible for seeing that facing points are properly clamped and locked." He admitted that he did not carry out his duties for reception of No. 48 Up Passenger. His story about having carried out these duties for the reception of No. 10 Down Express and subsequent loss of the key of the Down facing points has already been shown to be unbelievable. After the points were set and locked the keys of the points should have been with the Assistant Station Master. He did not have these keys along with him. He has clearly breached General Rule No. 37, Subsidiary Rule No. 37(P) and Rule No. 11 of the Working Rules of Narasimhapura station issued as Notice No. 4 dated 21-9-57 of Khargpur Transportation District. Had he carried out his duties correctly, he would not have allowed the Down facing points to be set for the main line on which No. 48 Up had been received. सत्यमेव जयते

26. *Service record of the Asstt. Station Master*—Assistant Station Master Sunkari Kalidas, who is about 24 years old, was appointed as a probationary Assistant Station Master at Khurda Road on 14-1-55 and was given training in Traffic School, Sealdah and given independent charge as Assistant Station Master grade E on 23-5-55. His designation became relieving Asstt. Station Master on and from 23-5-56 and he was transferred to Bhubaneswar. On 15-7-57 he was examined in rules for Neales Bloc Working and was posted as A.S.M. at Narasimhapura on 27-11-57. There is no punishment recorded against him.

27. *Pointsman's responsibility*—Satyanarayana said that when No. 48 Up arrived, due to curvature he could not make out the line on which it had stopped. He admitted that headlight of No. 48 Up was lit up bright. I myself went to Narasimhapura on the night of 25th January and found that from the Down facing points, a train standing on the main line could easily be made out because the headlight whether bright or dim was reflected from the running edge of the outer rail of that line, but if the train were standing on the loop line, which was the outer track on the curve, the running edge of the outer rail of the main line would not be reflecting any light. Therefore, Satyanarayana could have easily made out that the train was standing on the main line and not on the loop line.

There is the evidence of Fuel Inspector Simhachalam and Driver Janaki Rao that after No. 48 Up arrived, a Pointsman was seen going to the points. It appears that Satyanarayana went to the points after arrival of No. 48 Up. In that case, he should have known that No. 48 Up was standing on the main line and not on the loop line.

Even if the Assistant Station Master asked him to admit No. 10 Down on the main line, Pointsman Satyanarayana should have known that No. 48 Up was standing on the main line. He should have immediately taken steps to avert the disaster by setting the Down facing points for the loop line and to have reported the matter to the Station Master or at least informed the Driver of No. 48 Up, who was not far away from him.

Pointsman Satyanarayana had been given the competency certificate by T. I. 'C' Khurda Road on 21-6-57 for working as a Pointsman. As a qualified Pointsman and a reasonable human being, he should have been able to understand that while No. 48 Up was standing on line No. 2 and the Down facing points were set for the same line, the conditions for a collision were created. His illiteracy or even his seeming simplicity cannot be taken to exonerate him from his responsibility in not having taken any steps to avert that accident.

28. *Service Record of Pointsman*—Cirigudi Satyanarayana joined service as a leave reserve peon on 1-10-56 and obtained competency certificate on 21-6-57 after which he was a relieving Pointsman at Khurda Road and Palasa. He came on transfer to Narasimhapura on 18-1-58. There is no punishment recorded against him prior to this accident.

29. *Driver of No. 10 Down not to blame*—Pointsman Satyanarayana said that No. 10 Down passed the Down facing points at about 10 m.p.h. Driver of that train estimated his speed while passing the Down facing points at Narasimhapura to have been about 10 m.p.h. This was also the speed according to Jamadar Moharam Khan of Narasimhapura and Guard Miller of No. 10 Down. It is, therefore, clear that Driver of No. 10 Down was taking the facing points at not more than 10 m.p.h. He said he could not make out that his train was being received on a blocked line. There is some truth in it. While a Pointsman standing at the points could easily make out that No. 48 Up was standing on the main line but while No. 10 Down was moving on a curve and the beam of the headlight was showing at the tangent the Driver of that train could not make out that his train was being admitted on an occupied line. Moreover, he had signals lowered for his train to be admitted. There was nothing to show that he was not vigilant.

30. *Training of A.S.Ms.*—It will be seen that Sunkari Kalidas was considered fit to work independently as Assistant Station Master grade E on 28-5-55. Without casting any aspersions on the persons who examined Shri Kalidas, it is considered that the period of training in an Arca School is not enough to entitle a raw young man to qualify to work independently as an Assistant Station Master and much less to qualify him to work as an Assistant Station Master at a wayside non-interlocked station like Narasimhapura where experience counts more than any theoretical training. On some Railways, the Assistant Station Masters were drawn from the signallers who qualified in examinations after having gained experience in Railway working as signallers. I doubt not that the Railway Administration will look into the matter of prescribing some minimum length of service before allowing men to work independently as Assistant Station Masters at wayside stations.

31. *Supply of Clocks*—In my report on the collision between Adityapur and Tatanagar stations on 23-7-57, I had to comment on the unsatisfactory state of affairs regarding supply of clocks at stations. This accident has again brought out that unfortunate state of affairs in bold relief. This new station was opened without a clock. According to the details supplied to me by the Railway Administration this station has functioned without a clock since 31-10-57 except a few days.

This station had also not been supplied with the timings at which various trains were supposed to pass this station. Even though this station was not shown in the Working Time Table which was in force from 1-10-57, no correction slip had been issued to the station timings of various trains to tell the Station Masters of the timings of various trains through that station. The least that can be said is that this state of affairs is least conducive to efficient working of any crossing station and much less a station where the Assistant Station Master's standing in the Railway is 3 years and that of the Pointsman less than 1½ years.

#### IV. CONCLUSIONS.

32. Considering the evidence at my disposal, I come to the conclusion that No. 10 Down Janata Express coming from Jagannathapur was admitted on the main line (line No. 2) of Narasimhapura station which was occupied by No. 48 Up Passenger and this resulted in the collision of the two trains.

33. Assistant Station Master Sunkari Kalidas failed to verify personally that the facing points were correctly set and locked before signals were lowered for the reception of the trains. He breached the General Rule 37 and Subsidiary Rule No. 37P(2). I consider that he is primarily responsible for the accident.

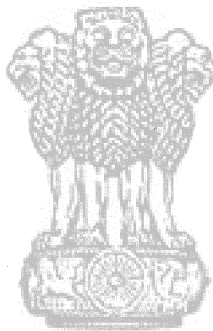
34. Shri Cirigudi Satyanarayana, Pointsman, should have known that No. 48 Up was standing on the main line and he should have taken immediate steps to set the Down facing points for the loop line to admit No. 10 Down and avoid collision. He failed in this elementary duty of a Railway employee to take steps to avert this accident.

35. Injured persons were given prompt attention at Narasimhapura by the train staff and Station Master. They were later on taken to the Berhampur Civil Hospital where they were given adequate medical attention.

Yours faithfully,

K. C. PATHAK

*Government Inspector of Railways*



CALCUTTA,

*The 23rd February, 1958*

**NOTE**—The Assistant Station Master, Shri S. Kalidas was convicted and sentenced to six months' rigorous imprisonment and to pay a fine of Rs. 200 or in default, one months' rigorous imprisonment.

Pointsman Shri C. Satyanarayana was also convicted and sentenced to three months' imprisonment and to pay a fine of Rs. 200 or in default, one month's rigorous imprisonment.



GOVERNMENT OF INDIA  
**MINISTRY OF COMMUNICATIONS**  
(RAILWAY INSPECTORATE)

# RAILWAY ACCIDENTS

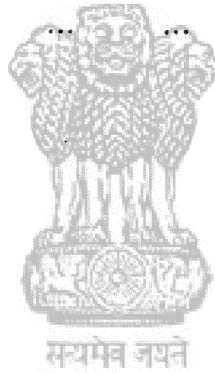
## REPORT

on

**DERAILMENT**  
**of**  
**7 UP NAINITAL EXPRESS**  
**between**  
**SHAHGARH AND PURANPUR STATIONS**  
**(NORTH EASTERN RAILWAY)**  
**ON**  
**17th AUGUST 1958**

## SUMMARY

Date	...	...	...	...	17th August, 1958.
Time	...	...	...	...	01.12 hours.
Railway	...	...	...	...	North Eastern.
Kind of Accident	...	...	...	...	Derailment.
Train involved	...	...	...	...	Nainital Express.
Train No.	...	...	...	...	7 Up.
Engine No.	...	...	...	...	1008 YB (4-6-2).
Consisting of	...	...	...	...	10 bogie coaches.
Estimated Speed	...	...	...	...	27 miles per hour.
Operation	...	...	...	...	Absolute Block System.
Track	...	...	...	...	3'—3½" gauge, single, straight and level.
Weather	...	...	...	...	Clear.
Casualties	...	...	...	...	Nine slightly injured.
Cause	...	...	...	...	Sabotage.



To

THE SECRETARY,  
GOVERNMENT OF INDIA,  
MINISTRY OF TRANSPORT AND COMMUNICATIONS,  
(DEPARTMENT OF COMMUNICATIONS),  
NEW DELHI.

(Through the Chief Govt. Inspector of Railways, Simla)

SIR,

In accordance with Rule 9 of Railway Board's Notification No. 1926-T, dated the 19th March, 1930, I have the honour to submit the result of my Inquiry into the circumstances of the derailment of 7 Up Nainital Express which occurred between Shahgarh and Puranpur stations of North Eastern Railway at about 01.12 hours on 17th August, 1958.

2. *Inquiry held*—(a) The Inquiry into the above accident was held by me at Shahgarh on 20th August, 1958 and it was continued at Pilibhit on 21st. Before commencement of the inquiry, I inspected the site, the derailed coaches and the engine on 20th in company with the Engineer-in-Chief, North Eastern Railway, Gorakhpur and other officials. The following officers were present at my inquiry:

Shri T. V. S. Ayyar, Engineer-in-Chief, North Eastern Railway, Gorakhpur.  
Shri C. D. Mirchandaney, Deputy Chief Mechanical Engineer, North Eastern Railway, Gorakhpur.  
Shri Inder Singh, Deputy Chief Engineer, North Eastern Railway, Gorakhpur.  
Shri C. L. Sarpal, District Engineer, North Eastern Railway, Izatnagar.  
Shri I. V. P. Albuquerque, District Traffic Superintendent, North Eastern Railway, Izatnagar.  
Shri H. Fanthome, District Mechanical Engineer, North Eastern Railway, Izatnagar.  
Shri K. N. Misra, Deputy Superintendent of Police, Pilibhit (in the afternoons only).  
Shri G. P. Govil, Station Officer, Government Railway Police, Pilibhit.

(b) The District Magistrate was informed about the inquiry, but he was not represented.

(c) The evidence of 31 witnesses was recorded during the course of the inquiry and the written statements of a few others were obtained.

3. *Description of the accident*—On 17th August, 1958, while 7 Up Nainital Express was running between Shahgarh and Puranpur stations, it became derailed at about 01.12 hours at mile 144/10-9. The engine with its tender derailed, to the left, of all the wheels. Coach No. LR 5611 which was next to the engine also derailed of all wheels and tilted to the left. Coach No. GST 2828 which was the second vehicle from the engine capsized to the left and lay across the track making an angle of about 30° with it. The third coach No. TPPH 5843 derailed to the left. All other coaches remained on the rails.

4. *Casualties*—I regret to report that as a result of the derailment nine persons received simple injuries.

5. *Composition of the train*—(a) The train consisted of 10 bogie coaches hauled by one YB Class locomotive. It was marshalled in the following order:

Engine No. 1008 YB (4-6-2).  
Composite Luggage-Brakevan coach No. 5611.  
Third class coach No. 2828.  
Composite Third-Postal-van coach No. 5843.  
Third class coach No. 4530.  
Composite Third class Gents & Ladies coach No. 7701.  
Composite Third class Gents & Ladies coach No. 7702.  
Composite First-Third class coach No. 2111.  
Third class coach No. 2827.  
Third class coach No. 4536.  
Composite Luggage-Brakevan coach No. 5614.

(b) The length of the train inclusive of the engine was 666 feet and its weight was 431 tons. The train was fully vacuum-braked and its brake-power was 230 tons. The coaches were fitted with central buffer-couplers of ABC type.



6. *Damage*—(a) The track for a length of about 220 feet was completely torn up. The first 43 feet of the line, immediately ahead of the first joint from which fish plates were found missing, was without any rail or sleeper. These components had been swept clean off their positions and were found scattered ahead.

(b) Engine No. 1008 YB had its cow-catcher damaged. Its left rear bogie stay plate stud and the ash pan damper flap door were broken. The Draw Bar main shaft and Tender Buffer were bent, besides other items of damage.

(c) Coach No. 5611 had one of its vacuum cylinders, two of its battery boxes and one safety bracket broken. Its rear and buffer shaft was also severed.

(d) Coach No. 2828 had its leading buffer shank broken and the trailing one cracked. The body panels at both the ends were bashed in.

(e) Coach No. 5843 had its leading and buffer shank broken. The inter-communication pipe was severed.

(f) The total cost of damage to Railway property has been estimated as below:—

(i) Permanent Way	...	...	...	Rs. 1,900
(ii) Locomotive	...	...	...	Rs. 300
(iii) Coaches	...	...	...	Rs. 10,400
Total				Rs. 12,600

7. *Construction of the coaches*—The coaches were built on steel underframes of I.R.S. type. They had wooden bodies with outside steel panelling, except that coaches No. 2828, 4530 and 2827 were of all-steel construction.

8. *Number of Passengers*—The total number of passengers travelling by the train at the time of accident has been estimated at 343.

9. *Description of the site*—(a) The derailment occurred between the stations Shahgarh and Puranpur and the line here runs approximately West to East. The surrounding area generally consists of agricultural land. The track at the spot is straight and level laid on a clayey bank of 5'—6" in height. Before approaching the site an up train negotiates a straight alignment for nearly 2 miles.

(b) There are no well-defined roads by which the site can be reached by a conveyance. There is one village called Parsadpur on the right side within half a mile of the spot. Another village called Mahadia is situated close to the Railway line at mile 143/3-4.

(c) The track at the place of occurrence consists of 50 lbs. N.S. rails, 40 feet long, fastened by bar-type four-holed fish plates, measuring 18 inches in length and weighing 17 lbs. per pair. Four fish bolts with washers have been used at each joint, and each bolt is  $\frac{3}{4}$ " in diameter and weighs about a pound. Sal sleepers of standard size with an average age of 12 years have been laid without any bearing plates under the rails to the density of N+3. Two dog spikes have been used at each rail seat. Ballast consists of a mixture of stone, brick and Kankar and its average depth is 6" below sleepers.

(d) The District Officers of the section are stationed at Izatnagar and the Control Office is also located there. One Assistant Engineer and one Assistant Surgeon are posted at Pilibhit.

(e) The mileages of the various locations mentioned in the report are furnished below:—

Bareilly City	...	...	...	...	197/4
Izatnagar	...	...	...	...	194/8
Bhojeeपुर Junction	...	...	...	...	186/15
Pilibhit Junction	...	...	...	...	162/10
Shahgarh	...	...	...	...	147/11
Site of accident	...	...	...	...	144/10-9
Puranpur	...	...	...	...	140/15
Mailani Junction	...	...	...	...	120/14

(f) The terms 'right' & 'left', 'front' & 'rear' etc. have been used in this report with reference to the direction of the travel of the train. There are 18 telegraph posts per mile in the section. The stations on this line are connected by telephone with the Control Office at Izatnagar.

10. *Weather conditions*—The weather at the time of the accident was cloudy, but dry and the visibility was clear.

11. *Maximum sectional speed*—The maximum permissible speed on the section is 35 miles for YB engines and there was no local speed restriction at the site.

12. *Relief arrangements*—(a) The derailment occurred at 01.12 hours. The Guard of the train fitted up the portable telephone to the Control wires and advised the Control Office. at Izatnagar at 01.32 hours about the mishap. The District Officers at Izatnagar were informed about the accident at 01.50 hours by the Control. Meanwhile the Guard of the train handed over his First Aid Box to the Travelling Ticket Examiner to render First Aid to those who needed it, while the Guard himself went to protect the train in the rear.

(b) On receipt of the advice from the Control at 01.34 hours, the Medical Relief Train of Pilibhit left that station at 2.25 hours with the Assistant Engineer, the Assistant Surgeon, the Permanent Way Inspector, the Station Officer, Government Railway Police, the Sub-Inspector, Railway Protection Force and eight Water Mazdoors with water. This train arrived at the site at 03.55 hours. The Assistant Surgeon on arrival attended to the injured and advised the Control at 04.15 hours that all the cases suffered only from minor injuries and no one would require detention for treatment.

(c) In compliance with the instructions from the Control at 02.12 hours to the Assistant Station Master, Puranpur to arrange for a local Medical Practitioner to go to the site, the Medical Officer-in-Charge of Puranpur Dispensary and the Section Officer, Puranpur Police, proceeded to the site of the accident at 04.50 hours.

(d) The Bareilly City Relief Train with Medical Van was ordered at 01.34 hours and it left that station at 02.30 hours. The District Officers and a team of Medical Staff joined the train at Izatnagar and proceeded to the place of occurrence. The train reached the site at 07.00 hours. Refreshments like tea, biscuits and water were brought by the train along with the vendors and were served free to those who needed the same.

(e) The passengers of coaches No. 2828 and 5843 of 7 Up were transferred to the rear seven carriages which were then hauled to Shahgarh by the Bareilly City Relief Train, leaving the site at 08.06 hours and reaching Shahgarh at 08.30 hours. Then the passengers were transhipped into the rake of 61 Up. This rake, carrying the passengers of 61 Up and 7 Up left Shahgarh at 8.42 hours and reached the site at 09.15 hours. These passengers were then transhipped at site into the rake of 62 Down by 10.05 hours and the rake left at 10.14 hours, working as 61 Up and carried the passengers to their destinations. The above procedure was adopted to save the passengers from a possible drenching, as the weather was cloudy and rain was apprehended.

13. *Restoration of Communications*—A diversion was laid at site, collecting materials from various places, and it was opened to traffic at 14.00 hours on 18th August, 1958 by the District Engineer, Izatnagar. After a complete survey of the dislodged materials at site was made in presence of the Police Officials and a sketch prepared, the work of clearing debris and restoring the Main line was commenced on 24th morning and it was completed at 16.45 hours on 25th August 1958, when the diversion was abandoned.

14. *Inspection of the site*—(a) I inspected the site on 20th August, 1958 on trolly. Approaching from Shahgarh end, which is to the West of the site, the first rail joint, that was found bereft of the fish plates and fish bolts, lay at a distance of 813 ft. to the East of the East abutment of Bridge No. 248. The successive rails to the East of this joint are called R-6, R-5, R-4 etc. on the right-hand side and L-6, L-5, L-4 etc. on the left-hand side. Similarly, the successive rails to the West of the joint are called R-7, R-8 etc. on the right, and L-7, L-8 etc. on the left. Joint L-6, L-7 thus signifies the joint which connects the rails L-6 and L-7. The engine derailed and stopped shortly after passing joints L-1-L-2 and R-1-R-2.

(b) As already stated, there were no rails and sleepers for the first 43 ft. to the East of rail joints R7-R6 and L7-L6. Rail R-6 and L-6 were found dislodged and shifted from their original positions and they lay twisted under coach No. 5611 LR. Rail R-5 was found alongside coach No. 2828 GST, while rail L-5 was found entangled under the Engine. Rail R-4 lay bent partially under coaches No. 2828 GST and 5611 L.R. while rail L-4 was broken. Rail R-3 penetrated through the battery box of coach No. 5611 LR, with the result that joint L4-L3 was found in the above battery box. Rail L-3 was found twisted partly under coach 5611 LR and partly under the tender of the Engine. Rails R-2 and L-2 were under the engine, while rails R-1 and L-1 remained partly under the engine and partly beyond and they were practically unaffected.

(c) (i) Joints R1-R2, R2-R3 and R4-R5 were intact but each was held by 3 fish bolts only, while the 4th bolt was missing. Joint R3-R4 remained fastened by 2 fish plates and 2 fish bolts—one bolt on each of the rails—but it was found in the battery box of coach 5611 due to the penetration of the box by the 2 rails.

(ii) Joints L1-L2 and L2-L3 were intact. Joints L3-L4 remained fastened by 2 fish plates and one bolt only. The other 3 fish bolts were broken and lying by the side.

(iii) Joint R5-R6 was open. At this joint rail R5 had no bolt or fish plate, but rail R6 had both the fish plates held by one bolt only. Other 3 bolts were missing.

(iv) Joints L4-L5, L5-L6, L6-L7 and R6-R7 had no fish plate or fish bolt.

(d) When I arrived at the site, the wreckage was still there with various dislodged components of permanent way and rolling stock strewn all over. I was told that the components were practically in their original positions, as found after the accident, except that some of them, such as, fish plates and fish bolts were disturbed a little for the inspection of the Police and other officials. But they were put back to their approximate original positions for my inspection.

(e) The significant items that were noticed at the site were the following:—

- (i) There was no fish plate or fish bolt at joints R6-R7 and L6-L7.
- (ii) Two undamaged fish plates were lying loose on the left of joint L6-L7.
- (iii) Between the two rails near joints R6-R7 and L6-L7, there were one undamaged fish plate and seven undamaged bolts lying loose of which three bolts had nuts on.
- (iv) Two old track sleepers lay across the line at an angle, but they remained entangled with the cow-catcher of the engine, as if, they were pushed forward on the rails by the engine for some distance. The nearer one had two dog-spikes affixed on the inside holes, but there was no other dog spike in these sleepers and the spike holes were open and bare. Two transverse marks were found across each of the sleepers.

#### SUMMARY OF EVIDENCE

15. *Shri Lalta Prasad*, Driver of 7 Up said that he passed through Shahgarh at 01.00 hours on 17th August, 1958 right time. After observing speed restriction over Bridge No. 250A at mile 146/11-12, when his train was passing through mile 144/11-9, he felt a sudden jerk and lurch of his engine whereupon he brought his train to a halt by application of his vacuum brakes, and the time was then 01.12 hours by his watch. On examination of the rake he found 2 bogie coaches had capsized and one derailed and his engine itself was also derailed. In order to find out the cause of the accident he and the Guard started inspection. He discovered, with his torch light at the joints under the Mail Van, five to seven fish bolts with nuts and washer lying loose between the two rails. One fish plate was also lying between the two rails and another on the left of the line. The track ahead of the above mentioned joints was completely destroyed. He stated that the speed of his train was 20 miles per hour at the time of the accident and he had no trouble with his engine or the brakes. He did not see any obstruction on the line. The running on the track upto the point of derailment was normal and there was nothing wrong with it. In reply to questions he stated that the accident was caused by opening of fish plates by some persons. In support of this conclusion, he stated that if the accident was not caused due to the above reason the fish bolts and the fish plates should have been damaged and broken into pieces. But in this case the bolts and fish plates were undamaged and in good order. He stated that after the accident the Guard asked the Railway Protection Force Personnel at the site to protect all the fittings and not to allow anybody to disturb them till the officers arrived. After that the above personnel posted themselves around the dislodged fittings and this, according to him, was done at about 01.45 hours. He did not see any person loitering about in front of his train at the site of the accident.

16. *Shri A. K. Chatterjee*, Guard of 7 Up, stated that after passing through Shahgarh at 01.00 hours on 17th August, 1958 and observing the speed restriction over Bridge No. 250A his train picked up speed. All of a sudden his train stopped with a jerk and his hand signal lamp dropped and got extinguished and the time by his watch was 01.12 hours. He relighted his hand signal lamp and on going round saw that the engine and the next three coaches had derailed. He returned to his Brakevan, collected the portable telephone, connected it with the Control wires and spoke at 01.32 hours to Izatnagar Control, furnishing the details of the accident. Meanwhile, he handed over his First Aid box to the Travelling Ticket Examiner to render First-Aid to those who required the same. While he was going towards the engine, he met the Railway Protection Force Havildar near Coach No. 5843 TPPH. Both of them went towards the engine and returned inspecting the coaches. He noticed bolts, nuts and fish plates lying loose under carriage No. 5843. He thereafter informed at 02.00 hours the Control, the District Engineer and the Assistant Traffic Superintendent, Izatnagar that the cause of the accident was opening of the fish plates and bolts of the track. The Assistant Traffic Superintendent ordered him to guard the affected coaches and not to allow anybody to interfere with anyone of them and these orders were conveyed to the Havildar of the Railway Protection Force at site. The first Relief Train arrived at site at about 3.25 hours from Pilibhit with the Assistant Engineer, the Doctor and the Permanent Way Inspector. The Assistant Engineer was shown the dislodged fish plates and fish bolts with the torch of the Driver. In reply to questions he stated that the speed of the train at the time of the accident was about 20 miles per hour and that the engine Headlight was burning even after the accident.

17. *Shri Hamid Hussain*, First Fireman of 7 Up, generally corroborated the statement of his Driver. He stated that after the accident he went back to see things for himself. He was able to see under the third coach some of the fish plates and fish bolts lying loose and the Railway Protection Force Sub-Inspector was guarding these and this was about 40 or 45 minutes after the mishap. Two men of the Railway Protection Force were on either side

and they were preventing the people from coming near the derailed coaches. He said that even after the accident his engine headlight was burning brightly. He did not see any man moving about at the site of the accident as his engine was approaching the site. According to him the speed of the train was about 20 miles per hour and there was no trouble with the engine or its brakes.

18. *Shri Ram Chandra*, Conductor on 7 Up stated that after passing the canal bridge by about 1½ miles, he felt a jerk and his train stopped. He along with his Guard went forward and saw that the engine and the three coaches behind were derailed. Then about two minutes after the accident he noticed, with his hand signal lamp, one bolt fitted with a nut lying loose between the two rails under the Mail Van and also one fish plate lying there. He did not remember the details of other fish bolts and fish plates which he noticed after the day-break except that he observed one bent fish plate opposite to LR 5611. Shortly after the arrival of the Relief Train, he noticed one trolley being carried on the shoulders of certain men and being taken from Shahgarh side towards Puranpur by the right of the derailed train.

19. *Shri Suraj Bhan*, Sub-Inspector, Railway Protection Force, Armed Branch, Izatnagar, stated that he along with five of his Sainiks got into 7 Up Express at Bhojpur occupying the leading compartment of coach No. 4530 which was next to the RMS van. He was awakened from his sleep by the jerks, and realising that an accident had occurred, he went out asking his men to remain inside. He returned shortly and posted one man on the right and one man on the left side of the RMS van and also of the luggage van, as they contained valuable and important articles. He ordered his Sainiks not to permit anybody to go near these coaches nor permit anybody to touch any components of Permanent Way or the coaches which had broken as a result of the accident. Then he started patrolling along the derailed coaches. About 30 or 35 minutes after the accident the Guard and the Driver came with an oil-torch light and when they reached close to the RMS van they found that there was no fish plate at the joint and there was no sleeper and no rail under this coach. He also saw it along with them. He noticed that a few fish plates and fish bolts were dislodged from the track and were lying loose under the RMS van. The Guard ordered him to see that nobody should touch these fish plates and fish bolts and accordingly specific orders were issued to his Sainiks. At about 06.30 hours one Police Sub-Inspector came from Puranpur side and certain Railway Officials came from Pilibhit side. The bolts and the fish plates lying loose under the RMS van were examined and counted by the Deputy Superintendent of Police, the Engineer-in-Chief and the other officials. According to their count, three fish plates and seven fish bolts, of which three had nuts on and four without nuts, were found. There were also two loose nuts lying separately and one washer. In reply to questions he stated that it was not possible for anybody to interfere with these fish plates and fish bolts since he had posted his men around them to guard and his men would not permit it. In reply to another question regarding the possibility of anybody bringing these bolts and fish plates from outside and dumping them there, he said that it was not possible since the Sainiks had been there.

20. *Shri Lal Bachan Prasad*, Sainik, Railway Protection Force, Izatnagar, stated that he travelled by 7 Up Express from Bhojpur and was proceeding to Lucknow along with his Sub-Inspector and four Sainiks. After the train met with the accident his Sub-Inspector went out and returned within five or seven minutes and informed him and other Sainiks about the accident. The witness was posted on the right side of the RMS coach by his Sub-Inspector with the order that no member of the public should be permitted to come near the coach. About half an hour thereafter the Guard, the Driver and his Sub-Inspector along with some passengers came inspecting with a burning torch or Mosal. When they reached near the RMS coach, the Guard showed them a few loose fish plates and fish bolts. In reply to a suggestion that these bolts and fish plates could be thrown at site by some body from outside, he replied that it was not possible because they were on duty at the spot. He stated that he had seen a trolley being carried on the shoulders of certain men on the right side of the derailed train taken from Shahgarh to Puranpur side, and this was about 4 hours after he had seen the dislodged fish plates and fish bolts.

21. *Shri Sesh Narain Sharma*, Sainik, Railway Protection Force, Izatnagar more or less corroborated the statement of Sainik Lal Bachan Prasad. He was posted by his Sub-Inspector on the left side of the RMS van. According to him, about half an hour after the accident the Guard, the Driver and his Sub-Inspector noticed that two fish plates were lying on the sleepers on the left side and a few bolts and one fish plate were lying between the two rails under the RMS coach, and he saw these with the above officials. He stated that the bolts and fish plates seen were not broken and they were in full length. He added that one or two bolts had their nuts on. In reply to questions he said that it was not possible for anybody to dump these bolts and fish plates under the RMS van since he was posted there.

22. *Shri Ram Deo Prasad*, Sub-Permanent Way Inspector, Puranpur said that on 16th August 1958, he left Puranpur at about 19.15 hours by trolley and reached bridge No. 250A and supervised the work during the night. At about 03.30 hours or 04.00 hours on 17th August 1958, a Relief Train passed over bridge No. 250A. The Permanent Way Inspector who was on the engine of this train, ordered him to follow his Relief Train on trolley to the accident site bringing lights and labour and he complied with these instructions. At

the site the Permanent Way Inspector ordered him at about 05.00 hours to go to Puranpur and load up all the materials which he had there. He asked his men to lift the trolley and take it along the side of the derailed train towards Puranpur end which was done and then he went to Puranpur on trolley. When questioned, he said, he had trolled over the affected length on the morning of 16th August 1958, and again in the evening and found nothing abnormal with the track. No note was issued to the gang to attend to that mileage. According to him no gangman had been recently punished by discharge or otherwise. He stated that there was no feeling of discontentment or dissatisfaction amongst his staff. He, however, mentioned that about 2½ months ago there was an altercation at Shahgarh between the local people and his gangmen of gang No. 42, whose length extended from mile 145 to mile 149—outside the mileage of the accident. In reply to question he said that he did not have any bar-type fish plates in his stock, because no spares of these were available on his section. Instead, club-footed fish plates, which were stocked by him, were being used for renewals. Each gang had got in its stock one pair of such fish plates with four fish bolts for renewal.

23. *Shri Mohd. Hanif*, Sub-Inspector, Kotwali, Puranpur, stated that at about 04.00 hours on 17th August 1958 he along with his men and the Doctor-in-Charge, Puranpur Hospital proceeded to the site of the accident on foot. On the way, he met the Sub-Permanent Way Inspector coming from the site of the accident in a trolley and he learnt from him that nobody was seriously injured. At about 05.15 hours he reached the scene of the accident and saw the engine and a few coaches derailed and some Railway Protection Force men were standing in front and on the right side of the engine. At the site, the Assistant Engineer showed him the fish plates and bolts lying under the RMS coach. Shri Hanif saw two fish plates outside the track and probably two fish plates between the rails. Seven fish bolts were also lying between the rails. He examined the fish plates and the fish bolts without touching them and noticed that three bolts had their nuts on, while four bolts were without any nuts. The threads of the bolts had oil and grease. These bolts were neither broken nor damaged. Two fish plates were bright and free from rust. Then he went round the train and posted his men round the wreckage.

24. *Shri G. P. Govil*, Station Officer, Government Railway Police, Pilibhit, stated that he reached the site of the accident by a light engine along with the Engineer-in-Chief. He met there Shri Hanif, Sub-Inspector, Puranpur, Shri Misra, Station Officer, Puranpur and Shri Raina, Sub-Inspector II, Kotwali Police Station, Pilibhit. He took over charge from Shri Misra, Sub-Inspector. He was investigating the case of the accident and was unable to express an opinion about its cause till he completed his investigation.

25. *Shri K. N. Misra*, Deputy Superintendent of Police, Pilibhit, stated that he reached the site of the accident at about 07.30 hours on 17th August 1958. There Mr. Albuquerque and the Engineer-in-Chief took him round and furnished him with the details. He was not able to determine the cause of the accident as he was a non-technical man. He, however, raised a few points which appeared to him to be suspicious. In reply to questions he stated that to his knowledge there were no subversive elements in the locality of the accident or in its vicinity. In reply to another question he stated that he examined the dislodged fish bolts and fish plates and on count he found 7 bolts, at the joints between rails L6 and L7, of which three had nuts on, and these were in good condition. He did not particularly notice the condition of the remaining 4 bolts.

26. *Shri T. V. Iyyar*, Engineer-in-Chief, North Eastern Railway, Gorakhpur, stated that he reached the site of the accident at 07.25 hours by a light engine along with Traffic Inspector, Mailani and Sub-Inspector, Gorakhpur. He met at site the District Officers. At about 07.45 hours the Deputy Superintendent of Police arrived at the site by Motor Trolley. The District Magistrate and the Superintendent of Police, Pilibhit arrived there by Motor Trolley and they were accompanied by Shri Mohan Swaroop, Member of the Parliament. They were shown round the site of the accident and all the material evidence available there. The reasons why he concluded that the cause of the accident was sabotage were fully explained to them. A diversion was laid at the site which was opened to traffic at 13.00 hours on 18th August 1958. Questions relating to the items about which the Deputy Superintendent of Police had suspicions were put to him and he explained these.

## DISCUSSION

### 27. Probable causes.

The derailment of a train in the mid section can occur due to one of the following causes or a combination thereof:—

- (a) Defective track.
- (b) Defective Locomotive.
- (c) Defective coaches.
- (d) High Speed.
- (e) Tampering with the track or obstruction on line.

These are discussed seriatim in the paragraphs below:

28. *Track*—(a) The track was carefully examined by me for about quarter of a mile on either side of the point of derailment. Cross levels and gauge were checked and they were generally found correct, but in places variation upto a maximum of  $1/16''$  was noticed. The surface levels of the rails were found to be generally satisfactory and the alignment was also well maintained. On excavating the bank it was found that about 6" of ballast existed under the sleepers. About 3" of creep was noticed in the vicinity. There were 6 Fair 'V' rail anchors inserted per rail panel. The rails had lost 6 per cent of their weight due to wear.

(b) The bank on which the track runs is old and well consolidated. There was scanty rain during the preceding 3 days, as recorded at Puranpur,  $3\frac{1}{4}$  miles from the site. The rainfall figures furnished were .06", 0" and .06" on 15th, 16th and 17th August, 1958 respectively, according to the reading taken at 8 hours of the day concerned. It will, thus, be seen that the rainfall had been quite negligible. There was no evidence of any subsidence of bank having taken place and no speed restriction was considered necessary to be imposed on the section.

(c) On this railway, renewal of sleepers is not carried out in continuous lengths on a programme basis, but spot renewals are carried out, as and when required. Considering the dates of renewals of sleepers in the adjoining lengths, it was estimated that the average age of the sleepers in the affected portion would be about 12 years. This method was adopted as the dates of renewals of all the sleepers of the affected length were not available as many of them were smashed. 18 per cent of the sleepers in the vicinity were classified as un-serviceable, but the spikes generally held firmly on to the sleepers. There were, however, a few isolated sleepers which were older and the spikes in them were not tight. On the whole, the condition of the sleepers was considered safe for the sectional speed.

(d) The track behind the point of derailment was inspected and it did not reveal any sign of distortion or any unusual movement of the rail in relation to the sleepers. The Driver of 54 Down, which was the last train to pass over the site, prior to the accident, about 3 hours earlier, said that the running between Puranpur and Shahgarh was normal and he did not experience anything unusual in running over the section. Gangmate Behari stated that mile 144 did not require frequent attention and this was confirmed by the gang chart. According to the Assistant Engineer the running of the track over mile 144 was satisfactory. He inspected this track on 12th August 1958, 25th July and 7th July 1958, by trolley, brakevan and light engine respectively, but he found nothing abnormal with the track. The Permanent Way Inspector of the section inspected the section by Engine on 7th and 12th August 1958, but he did not find anything unusual with the track. The Sub-Permanent Way Inspector, Puranpur trolled over the affected length even in the morning and also in the evening of 16th August 1958, but he did not notice anything wrong with the line. The Driver and the Fireman of the ill-fated train also stated that they experienced no rough running. In view of these, I do not consider that there was any defect in the track which could have caused the derailment.

29. *The Locomotive*—(a) The locomotive No. 1008, which hauled the ill-fated train, was of 'YB' class (4-6-2), having maximum axle load of 9.85 tons and a total weight of 92.15 tons in working order. It was manufactured in 1934 and put in service in 1935 and no modification was carried out to it. The last monthly and quarterly examinations to this locomotive were carried out on 8th of July and 8th of August 1958 respectively and no repair schedule was over-due. The last periodical overhaul was given to it in February 1958 and this engine had, since then, run 13,615 miles. The Engine Repair Book did not reveal any serious defect having developed, and the booked repairs were carried out regularly.

(b) After the accident, the wheels, flanges and the side play of the axle boxes were checked and they were found to be within the permissible limits. The wheel-tyres, gauge, axle boxes, brasses, axles, bearing springs and the suspension system were found in good condition. The District Mechanical Engineer, Izatnagar certified that on rerailment of the engine he gave thorough examination to it but found nothing abnormal. The Driver of this engine stated that neither his engine nor its brakes gave any trouble. The Loco Foreman, Bareilly City, under whose charge this engine is maintained, stated that it was one of his best locomotives running on the Express Links and it never gave any trouble or unsatisfactory running. He further added that Drivers, usually, made up time, while using this engine. With the above evidence, I consider that there was nothing wrong with the engine which could contribute to a derailment.

30. *Condition of Coaches*—The coaches of 7 Up had received their Periodical Overhaul on due dates and none was overdue. Before commencement of the journey from Kathgodam, the rake of this train was examined by Train Examiner, Kathgodam and he found it in good order. After the derailment, Train Examiner, Pilibhit made a visual examination of the derailed coaches but no defect came to his notice. In my examination also nothing abnormal was found. After rerailment, the District Mechanical Engineer, Izatnagar examined the three derailed coaches thoroughly but no defect came to light and he had certified that, in his opinion, there was no defect which could have contributed to the accident and I agree with his views.



31. *Speed of Train*—(a) The Driver, as well as his Fireman, and also the Guard, stated that the speed of the train, at the time of the accident, was about 20 miles per hour. The engine was not fitted with a speedometer, and the above figure was just their estimate. According to the Guard and the Driver the train passed through Shahgarh at 01.00 hour and the derailment occurred at 01.12 hours *i.e.* the accident occurred about 12 minutes after passing through Shahgarh, covering a distance of about three miles. It may be mentioned that the train stopped at Bridge No. 250A at mile 146/11-12 and proceeded at 5 miles per hour over it. In spite of this restriction, the train covered a distance of three miles in 12 minutes *i.e.* at the average speed of 15 miles per hour and it was considered desirable to verify this by watching the running time of the normal trains.

(b) Instructions were issued to ascertain the time taken by the regular trains to travel from Shahgarh up to the site of accident after duly observing the speed restriction over bridge No. 250A and also to see what speed was normally attained at the accident site. Trials by a number of trains were carried out by the Assistant Engineer, Pilibhit and the District Mechanical Engineer, Izatnagar from the train carriages without prewarning the train crew, and certain variations were observed. But it was found that 7 Up of 23rd September 1958 with an YB engine and 10 bogie coaches covered the distance between Shahgarh and the accident spot in 12 minutes, attaining a speed of 27 miles per hour at the site. The load and the engine of this train were similar to those of the train involved in the accident. The time taken was also the same. I am, therefore, of the opinion that the speed of the ill-fated train at the time of accident was around 27 miles per hour. Since the permissible speed of the section is 35 miles per hour for YB Locomotive, it was not excessive.

32. *Material evidence at site*—(a) As mentioned earlier, two undamaged fish plates were found lying loose on the left of joint L6—L7, and one such fish plate was found between the two rails close to the same joint. Again 7 undamaged bolts were found lying loose between the two rails near the above joint, and three of these bolts had nuts on. Two sleepers were found lying across the line at an angle, but they remained entangled with the cow-catcher of the engine. These two sleepers gave the impression that they had been pushed forward by the engine on the rails for some distance. The spike holes in a large number of sleepers at site were found to be clean and square, indicating that the spikes had been removed by some tools. If the spikes were forced out as a result of the derailment, the holes would have been elongated and distorted.

(b) The East ends of rails No. L7 and R7 were rounded off a bit at the rail head, suggesting that the wheels passing over them from the west side (*i.e.* Shahgarh) had dropped down at that end without getting support from the next rail and this is considered the first point of derailment. There were dent marks over the sectional area at the west end of rails No. L6, L5, L4, R6 and R5 signifying that the ends were struck by some hard materials travelling from Shahgarh side. The rail joints L7—L6, L6—L5, L5—L4 and R7—R6 were found open, and were without any fish plates and fish bolts. Under these circumstances and with the above dent marks it makes the case clear that the above joints were open before the arrival of the train and the running wheels had impinged upon the rail ends. The rail R6 was found shifted from its position, exposing the west end of rail R5 which was, thus, hit and dented.

(c) The undamaged fish plates and fish bolts and particularly those with nuts on, clearly indicated that they had been removed prior to the arrival of the train. If they were dislodged as a result of the derailment, they would have suffered from some dent, deformation or breakage. The undamaged dislodged fish plates and fish bolts were seen at the site by witnesses at different times commencing from about 2 minutes after the accident. These were guarded by the personnel of the Railway Protection Force within about 5 to 7 minutes of the derailment. So any suggestion, as advanced by the Police, that these components were thrown there deliberately by an interested railway personnel, after the mishap, is untenable. Another significant feature is that at the time of rerailing operations, in the presence of the Station Officer, Government Railway Police, Pilibhit, 4 undamaged fish bolts—3 fitted with nuts—were found under the ballast or debris. These locations were inaccessible to anybody from outside and so any question that those materials were placed there after the accident cannot arise. Further, the undamaged fish plates found dislodged at site were of bar type and they are not available on the section as spares and they belonged to the track at the site. With the above material evidence, I formed the opinion that it was a case of sabotage by tampering with the track.

33. *Tampering of the track*—(a) The question is who tampered with the track. The way in which tampering of track has been done gives one the impression that the miscreants had the knowledge of the permanent way and also of the region where they were working. The site of the accident is approximately 3 miles from Shahgarh and  $3\frac{1}{4}$  miles from Puranpur. The Block Section between Shahgarh and Puranpur is  $6\frac{3}{4}$  miles and in comparison with other Block Sections, although it is not the longest, it is considered to be comparatively long in this region. The last train that passed over the site prior to the accident was 54 Down at about 22.00 hours *i.e.* about 3 hours earlier. Therefore, there was enough time to open the rail joints and remove the rails. The site being nearly mid-way between the two stations also ensured the offenders longer time to carry out their evil design. From other considerations,

however, this may not be an ideal place of sabotage, as the track is straight for nearly 2 miles on either side and there are also two villages not very far from the track. Further, there are no well-defined roads to approach the spot, although the site can be reached through fields by bullock carts or on foot.

(b) In connection with the derailment of 71 Up Allahabad Express which was caused by tampering of track on 28th September 1952 between Kidihdapur and Indara stations of this Railway, an experiment was carried out under my orders to ascertain the time taken in removing rails. The permanent way there was of the same section and type as in the present case. It was found by a trial, at that time, that two men with two crow bars and two spanners could unbolt and unspike and also shift one rail of 50 lb. section 40' long in 12 minutes. By increasing the men, it was found that four men with two spanners and two crow bars were able to remove and displace one rail of same section and length in 5 minutes. The time interval of 3 hours available in this case was, therefore, quite ample to carry out the mischievous plan without any undue rush. In these experiments it was also found that with the engine headlight it was not possible to detect the discontinuity of the track, caused by shifting of a track rail and placing it inwards, from a reasonable distance to enable the Driver to stop the train and avert a mishap under normal running conditions.

(c) The evidence of Assistant Engineer, Pilibhit, Sub-Permanent Way Inspector, Puranpur and the Gangmate of the section indicates that there was no feeling of discontentment or dissatisfaction amongst the gangmen. The gang tools, which were kept with the Mate in his village, were checked by the Permanent Way Inspector at 08.30 hours on 17th August 1958, but no deficiency was found. The Sub-Permanent Way Inspector, however, stated that there was an altercation at Shahgarh some 2½ months ago with regard to the loaded carts coming to cross the line which were prevented by the Permanent Way men. I understand that there was also some other misunderstanding amongst the Railway Officials located at Pilibhit. According to the evidence of the Deputy Superintendent of Police, there are no subversive elements in the locality. It is difficult to say who would have committed this crime and out of what motive. It is for the Police to investigate into the case and find out the culprits.

34. *Views of the Police Officials*—Shri K. N. Misra, Deputy Superintendent of Police, Pilibhit stated that he was unable to determine the cause of the accident, being a non-technical man. But he expressed suspicion on a few points which are discussed below:

- (a) He considered that in any case the bolts were not taken out by a person who was not in the habit of placing the nuts on immediately they were taken out. There is force in the argument of Shri Misra but it is for the Police to detect the offenders and find out what experience they pre-possessed. It has to be mentioned that in another sabotage case which occurred near Samastipur on 13th July 1958 on this Railway, it was found that the nuts had been put on after removal of the bolts. The *modus operandi* adopted in both the accidents and its background should certainly engage the attention of the Police.
- (b) The three bolts found near joint L6-L7 were properly oiled, but on his check, Shri Misra found a few bolts and two fish plates opened from elsewhere were not at all oiled. The cause of this variation was explained by the Engineer-in-Chief, who said that it was due to the standard of oiling, carried out by the different gangmen varying. He said that it could also be due to the difference in the degree of tightness between the fish plates and the rails and the discrepancy found was, thus, possible. I agree with this view.
- (c) Two fish plates found at Joint L6-L7 appeared to the Deputy Superintendent as comparatively new, as against those which were affixed on the line. The Engineer-in-Chief pointed out in his statement that these fish plates, as well as those used on the line, were old ones being manufactured sometime in 1908 and they could not be new and I agree with his views.
- (d) Shri Misra was unable to understand how one bolt at joint L3-L4 could break, as according to him no pressure was exerted on it. The Engineer-in-Chief said that the breakage was accidental and the exact circumstances of each breakage could not be explained.
- (e) The bolts which were broken appeared to the Deputy Superintendent to be worn out and very rusty. In clarification, the Engineer-in-Chief said that no special wear, other than that in service, was noticed by him. He explained that the bolts became rusty due to the exposure to the acid fumes emanating from the broken battery boxes of a derailed coach. I agree with the explanation offered.
- (f) According to Shri Misra, if it was a case of sabotage, the person doing it was extremely unintelligent, because, other better spots, achieving deadly results, were available close-by, such as bridge, culvert, etc. While Shri Misra's comment on this point is very reasonable it has to be pointed out that in a few cases of sabotage which occurred on this Railway, the site was not necessarily near the bridges or culverts. The reason for the choice of such a locality by the miscreants can best be ascertained on investigation by the Police.



- (g) The Deputy Superintendent also felt suspicious about the Sub-Permanent Way Inspector's going to Puranpur at an unusual hour to fetch 500 sleepers and the reason for such movement was not convincing to him. He indirectly hinted that the Railway Official might have thrown the fish plates and bolts at site after the accident to cover his own fault in respect of track defects. It may be seen from the evidence of the Sub-Permanent Way Inspector that, he, along with others, was on night duty and was carrying out repairs of Bridge No. 250A. On receipt of instructions from his Inspector at the bridge, he proceeded on trolley to the site and then to Puranpur to load up all the materials which were available there. His evidence regarding his movements including carrying his trolley on shoulders of his men at the site has been corroborated by other witnesses. This is the usual manner in which the Railway Officials of the Engineering Department act in the event of an accident and I find nothing unusual in it. Further, the Sub-Permanent Way Inspector arrived at the site some 4 hours after the dislodged fish plates and fish bolts were noticed.

### CONCLUSIONS

35. From the evidence available before me, I have come to the conclusion that the derailment of 7 Up Nainital Express which occurred at mile 144/10-9 between Shahgarh and Puranpur on 17th August 1958 was caused by tampering with track by some unknown person or persons. All the fish plates and fish bolts were removed from 4 joints which were thus left open and at least 2 rails were shifted from their original positions prior to the arrival of the train. The joints opened were L7—L6, L6—L5, L5—L4 and R7—R6 and the rails shifted were L6 and L5 as described in the report.

36. I am of the opinion that it was not possible for the Driver of 7 Up, under normal running conditions, to notice from any reasonable distance the discontinuity in the track at this locality where the rail joints were opened and the rails were shifted. I, therefore, do not hold him responsible for not stopping the train in time to avert the derailment.

37. Immediately after the accident, First Aid to the injured was rendered by the train crew. Further medical attention was given on arrival of the Railway Doctors by the Relief Train. I consider that the relief arrangements were satisfactory.



Yours faithfully,

A. K. GUPTA

*Government Inspector of Railways  
Lucknow (at Calcutta)*

CALCUTTA-1;

The 29th September 1958.



GOVERNMENT OF INDIA  
**MINISTRY OF COMMUNICATIONS**  
(RAILWAY INSPECTORATE)

# RAILWAY ACCIDENTS

## REPORT

on  
**DERAILMENT**

of

No. 261 UP MASULIPATAM-DONAKONDA PASENGER

at

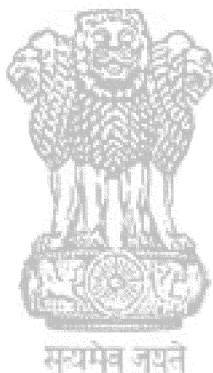
TARIGOPPULA STATION  
(SOUTHERN RAILWAY)

on

22nd AUGUST 1958

## SUMMARY

Date	.	.	.	.	.	22nd August 1958.
Time	.	.	.	.	.	13.00 hours.
Railway	.	.	.	.	.	Southern.
Location	.	.	.	.	.	Tarigoppula Station.
Kind of accident	.	.	.	.	.	Derailment.
Train involved	.	.	.	.	.	No. 261 Up Masulipatam-Donakonda Passenger.
Engine Number	.	.	.	.	.	YL 2840 (2-6-2).
Consist	.	.	.	.	.	Seven bogie coaches.
Operation	.	.	.	.	.	Absolute Block System.
Estimated speed	.	.	.	.	.	20 m.p.h.
Track	.	.	.	.	.	3'-3 $\frac{3}{4}$ " Gauge, Single, Rising gradient of 1 in 2000, Straight.
Weather	.	.	.	.	.	Clear.
Casualties	.	.	.	.	.	26 injured (25 slightly; 1 grievously).
Cause	.	.	.	.	.	Due to the leading left wheel of the rear bogie of the fourth coach coming into contact with an obstruction on the rail table.



To

The Secretary to the Government of India,  
Ministry of Transport and Communications,  
New Delhi.

Through

The Chief Government Inspector of Railways,  
Ministry of Transport and Communications,  
Simla-3.

Sir,

In accordance with Rule 9 of the Railway Board's Notification No. 1926-T, dated 19th March 1930, I have the honour to submit herewith the result of my inquiry into the circumstances of the accident to No. 261 Up Passenger which took place at Tarigoppula station on the Vijayawada-Masulipatam Metre Gauge Branch of the Southern Railway at 13.00 hours on 22nd August 1958.

2. *Inquiry*—The inquiry was held by me on 25th and 26th August at Tarigoppula and continued on 27th and 28th August at Vijayawada. The site of the accident and the damaged rolling stock were inspected by me on the 25th prior to the commencement of the inquiry and again on the 26th and the 27th. Instructions were given for taking the bogies of the coaches involved to the Hubli Workshops for a thorough examination of their springs. This examination was carried out on 9th and 12th September 1958.

(ii) The following officers attended the inquiry:—

Shri M. Srinivasamurthy, Divisional Superintendent, Southern Railway, Vijayawada.

Shri P. R. Krishnaswamy, Deputy Chief Operating Superintendent, Coaching, Southern Railway, Madras.

Shri S. Rajagopal, Deputy Chief Engineer, Southern Railway, Madras.

The Police and the Civil Authorities were informed about the inquiry. The District Superintendent of Police saw me before I started the inquiry but he did not attend. The Sub-Divisional Magistrate, Nuzvid, Shri G. Lakshmanaswamy, attended the inquiry for a short time on 25th and 26th August. The evidence of 28 witnesses was recorded.

3. *Brief description of the accident*—On 22nd August 1958 at about 13.00 hours while No. 261 Up Masulipatam-Donakonda Passenger, which was running 8 minutes late, was entering Tarigoppula station on the main line, three of its rear bogie coaches, i.e. 5th, 6th and 7th derailed and capsized at mile 528/13-15. The engine and first four bogie coaches remained on the rails. All the couplings were intact.

4. *Casualties*—As a result of the accident 25 passengers and one Railway employee received injuries. All the injuries were in the first instance reported to be minor. After rendering first-aid to the injured, the Divisional Medical Officer decided to keep 3 injured passengers and one Railway employee under further observation. They were carried by stretchers to the Medical Van and from there were taken to the Railway Hospital at Vijayawada. X-Ray examination of these patients on the 23rd revealed that one of them had fractured his heel bone. Thus there were 25 cases of minor injuries and one of grievous hurt. All the patients have since been discharged from the hospital.

5. *Composition of the train*—The train consisted of seven bogie coaches hauled by YL class engine No. 2840 (2-6-2). The marshalling order and particulars of the coaches were as under:—

Coach Number	Description
1. TLR 2084 . . . . .	Third luggage and brakevan.
2. GT 3322 . . . . .	Third class coach.
3. TPPQ 2002 . . . . .	Composite third and postal van.
4. FSY 310 . . . . .	First and Second class coach.
5. T 839 . . . . .	Third class coach.
6. T 6912 . . . . .	Third class coach.
7. TLR 2095 . . . . .	Third luggage and brakevan.

(ii) The total length of the train including the engine was 453'-0" and its weight 233 tons.

(iii) The train was fully vacuum braked and its brake power was 163 tons.

6. *Damage*—There was no damage to the engine and the first three coaches.

(ii) The fourth coach No. FSY 310 was not derailed but a deep dent, approximately  $3'' \times \frac{3}{4}'' \times \frac{1}{8}''$  deep, was found on the left leading wheel of the rear bogie of this coach. The dent was partly at the root of the flange and partly on the tyre tread.

(iii) The fifth coach No. T 839 had capsized and was lying on the left side of the track at an angle of  $20^\circ$  to the main line. Its front and rear ends were approximately 3 feet and 12 feet respectively to the left of the main line. The head stock of this coach was bent and the bolster pivot bearing top face plate broken. The left hand body panelling suffered extensive damage. Both the bogies of this coach had detached from the underframe. This coach had a steel underframe and a wooden body with steel panelling. It was built in the year 1928 and had received its last Periodical Overhaul on 30-6-1958.

(iv) The sixth coach No. T6912 was standing between the loop and the main line almost parallel to the main line but tilted towards the right at an angle of  $45^\circ$ . Both the bogies of this coach had detached from the underframe but were still under the coach. The right hand side bottom portion of the panelling near the leading end was damaged. The brake shafts and yoke buffer spindle were bent. This coach had a steel underframe and a wooden body with wooden panelling. It was built in the year 1928 and had received its last Periodical Overhaul on 7-6-1958.

(v) The seventh coach No. TLR 2095 was found derailed and standing between the main and the loop line at an angle of approximately  $10^\circ$  to the main line in an almost vertical position. The headstock of the leading bogie of this coach was bent. This coach had a steel underframe and wooden body with pressed card board panelling. It was built in the year 1950 and had received its last Periodical Overhaul on 19-7-1958.

(vi) Approximately 900 feet of the permanent way was extensively damaged. 12 rails were badly twisted and bent. 210 sleepers were destroyed. A few fittings of the points and crossing were broken.

(vii) The estimated cost of damage to the Permanent Way was Rs. 6,000 and to the Rolling Stock Rs. 7,000.

7. *Relief Measures*—The accident occurred at about 13.00 hours. The Assistant Station Master, Tarigoppula, who was in the station issuing tickets heard people shouting that the train had met with an accident. He came out and saw from the platform that some bogie coaches had derailed and capsized. He immediately returned to his office and informed the Vijayawada Control at 13.05 hours that No. 261 had met with an accident. He also intimated that he was proceeding to the accident site and would report further details on his return. The Medical Relief Van was called out at 13.07 hours. The Medical Relief Van with the Divisional Superintendent, the Divisional Medical Officer and other officers left Vijayawada at 13.38 hours reaching Tarigoppula at 14.18 hours. In the meanwhile the Control had ordered the Station

Masters at Gudivada and Tarigoppula to requisition local medical aid. Since the nearest local Medical Practitioner from Tarigoppula was in a village about 4 miles away and as the road was not fit for vehicular traffic due to the slushy condition, he could not be contacted. Medical aid from Gudivada arrived by road long after the Medical Relief Van reached Tarigoppula and as the casualties were light, no use was made of this aid. Immediately after the accident 4 or 5 passengers who reported that they were injured in the accident were given first-aid by the Guard with the assistance of the First-aid Box available with him. On arrival of the Medical Relief Van necessary medical attention was given by the Divisional Medical Officer and his assistants. In the meanwhile passengers were given light refreshments.

8. *Restoration of communication*—The breakdown special left Vijayawada at 14.10 hours and reached Tarigoppula at 14.45 hours. The work of removing the derailed coaches and rectifying the permanent way was immediately started. The obstruction on the main line was cleared at 10.55 hours and through running on the main line was restored at 12.00 hours on the 23rd.

9. *Interruption to traffic*—As a result of the accident four trains were cancelled and two trains transhipped on the 22nd; three trains were cancelled and one train transhipped on the 23rd.

10. *Number of passengers on the train*—The carrying capacity of the train was 354. It was estimated that at the time of the accident there were about 200 passengers travelling in the train.

11. *Weather conditions*—The day was cloudy but clear. There was no drizzle and visibility was good.

## II.—DESCRIPTION OF LOCAL CONDITIONS

12. *Description of locality*—(i) The accident took place at mile 528/13-15 within the station limits of Tarigoppula station between Tarigoppula and Dosapadu. This station is approximately 16 miles from Vijayawada on the Vijayawada-Masulipatam Metre Gauge Section of the Vijayawada Division of the Southern Railway. The mileages, reckoned from Goa frontier, of the various stations referred to in this report were as under:—

	Mileage
Masulipatam . . . . .	562½
Gudivada . . . . .	539¾
Dosapadu . . . . .	535¾
Indupalli . . . . .	531½
Site of accident . . . . .	528/13-15 T.P.
Tarigoppula . . . . .	528½
Vijayawada . . . . .	513¼
Donakonda . . . . .	419¼

NOTE:—(i) There were generally 18 telegraph posts to a mile.

(ii) The words 'right' and 'left', 'front' and 'rear' have been used with reference to the direction of movement of the train.

Tarigoppula is a 'B' class key locked station. It is provided with Standard I signalling. The main and loop lines are signalled. The platform and station building are provided along the main line. The general direction of the line at the site of the accident is from east to west. The country near the site of the accident is open with cultivated paddy fields on both sides. The Divisional Officers are stationed at Vijayawada and the Control Office is also located there.

(ii) *Description of the Permanent Way*—The track consisted of 50 lbs. flat footed rails, 42'-0" long, laid on N+5 wooden sleepers per rail length. The rails were held on to the sleepers by 2 dog spikes per rail seat. The track was ballasted with stone ballast at the rate of 5 to 6 cft. per foot run. The height of the bank at the site of the accident is about 1'-2" and it is made up of black cotton soil which is well consolidated. Leaving Dosapadu an

Up train has to negotiate a short right hand curve of 3820 feet radius at mile 535. From mile 535 the track is straight upto and beyond Tarigoppula. From Dosapadu an Up train has to negotiate various lengths on varying grades upto mile 531. From mile 531 upto and beyond Tarigoppula there is a grade of 1 in 2000 rising towards Vijayawada.

(iii) *Maximum permissible speed*—The maximum permissible speed on this section is 40 miles per hour. There was no temporary or permanent speed restriction.

### III.—SUMMARY OF EVIDENCE

13. *Shri S.M.A. Razak*, Driver of No. 261 Up Passenger stated that he came on duty at 09.15 hours after 06.00 hours of rest. His train left Indupalli, a flag station between Dosapadu and Tarigoppula at 12.52 hours. While entering Tarigoppula station on the main line, after his engine and three or four bogie coaches had passed the facing points, he experienced a heavy pull from the rear. He immediately applied the vacuum brake and brought the train to a stand. He stated that the speed of the train at the time of the accident was about 10 to 15 miles an hour. The weather was clear and there was no rain. His engine was assigned to him and was not pooled. He considered it to be a good engine and rather comfortable. He did not feel any jerk or lurch at the site of the derailment either on this or the previous trip. He did not have any trouble with his vacuum brakes and no major repairs had been booked on this engine. He noticed some gang tools lying near the track at the place of derailment but did not see any gangmen near the site at that time. He stated that when he looked at his watch, 3 or 4 minutes after the accident, the time then was 13.05 hours.

14. *Shri Mohammed Rahim Khan*, Guard of No. 261 Up Passenger stated that his train left Indupalli at 12.53 hours. The train was running 8 minutes late. He was sitting in his brakevan. While his train was passing mile 528/14-15 he experienced a heavy jerk and fell down. He immediately got up and applied the vacuum brakes. After the train came to a stop he found his brakevan standing inside the Up facing points. He stated that the signals for his train were correctly lowered and the speed of his train at the time of the accident was between 12 and 15 miles an hour.

15. *Shri S. Venkatakrishna Naidu*, Assistant Station Master, Tarigoppula stated that he gave line clear for No. 261 Up to Dosapadu at 12.43 hours. The Control instructed him that the crossing between 261 Up and 262 Down was to take place at his station. As No. 261 had already left Dosapadu he issued the necessary key to his Yard Porter and instructed him to lock and man the Up facing points for the main line (platform line) on which he intended to receive No. 261 Up Passenger first. After exchanging "All Right" signals with the pointsman he lowered the Home Signal and ensured that the Outer Signal was correctly lowered by the pointsman. Thereafter he went inside the station to issue tickets.

16. *Shri Jeevaratnam Yelliah*, Gangmate, stated that he was through packing the track at mile 528/14-16 on that day. Before the accident occurred he had packed  $2\frac{1}{2}$  rail lengths from the unmanned level crossing at mile 528/14-15 towards the Up facing points and then broke off for lunch. He stated that before breaking off for lunch, he had checked the cross levels and found them to be correct.

Note:—This was found to be not true when the cross levels were checked after the accident.

He stated that during the lunch interval all the gang tools were collected and kept in one place by the gang.

Note:—This was not the normal practice. Normally gangmen left their tools wherever they were working when they broke off for lunch.

He stated that at the time of the accident the ground was wet but not slushy.

17. *Shri V.K. Rangachari*, Assistant Engineer, Vijayawada North, arrived at the site of the accident at 14.18 hours by the Medical Relief Train. He checked the cross levels and gauge upto 150 feet in the rear of the point of mounting and found that the variation in cross levels was upto  $3/8''$  except at one place about 81 feet in rear of the point of mounting where it was  $5/8''$ . The gauge was fairly uniform, the maximum variation being upto  $3/16''$ . He observed that there was split of about  $3/8''$  at points No. T-7 and that the connecting rod was broken. He had last inspected the track by trolley on 12-8-1958 and by brakevan on 16-8-1958 but had found no defect in the track in this length. About 10 to 20% of sleepers in this length required renewal. There was 1'-3'' of creep at this mileage but the joints were not jammed and the points had not gone out of square. According to him this creep had been steady since 27th of May 1958. He could not get the creep pulled back earlier as his staff was engaged in pulling back creep elsewhere where creep was more pronounced. According to him the normal practice was that when the gangs broke off for their lunch they left their tools wherever they were working and did not collect and keep them in one place. He stated that the work of this mate was generally satisfactory, but during May 1958 the Divisional Engineer had found the track kinky and had instructed the Assistant Engineer to issue a charge-sheet to this mate.

18. *Shri C. Srinivasa Rao*, Divisional Engineer, arrived at the accident spot at 22.30 hours on the 22nd. He found that 12 joints on the left hand side had closed but did not consider that the joints were jammed and they could not in any way cause buckling. He stated that the creep in this mileage required to be pulled back at intervals of 2 or 3 months and he had made arrangements to provide anti-creep bearing plates and was awaiting supply. He stated that the creep should have been drawn as soon as it went beyond 6'' but as there was heavy creep in many mileages, the Assistant Permanent Way Inspector had to pull back creep at other places where the extent of creep was greater. According to him there were about 20% sleepers requiring renewal in this length. He had inspected the track by the Inspection Carriage on 21st August and had found nothing wrong in this portion. He considered the mate's statement, that the cross levels were checked by the mate before breaking off for lunch, to be incorrect as these were found to be uneven after the accident. He stated normally the gangmen left their tools wherever they were working alongside the track when they broke off for lunch.

19. *Shri P.J. D'Cruze*, Assistant Mechanical Engineer, on arrival at Tarigoppula by the Medical Relief Van made a cursory inspection of the engine No. YL2840. He again examined the engine in detail in the Loco Shed. He found that the springs, brake gear, axle boxes, wheels, flanges, etc. to be in good condition. He stated that this was a new engine placed on line in December 1956 and had so far done 49540 miles. It was due for its first I.O.H. after completion of 50,000 miles and this was programmed to be taken in hand on 17-9-1958. The excessive wear on the right leading bissel wheel according to him had no bearing on the accident as the wheel had not developed a sharp flange. He examined the engine repair book and stated that there were no major repairs booked on this engine.

20. *Shri K.K. Prabhakaran*, Divisional Mechanical Engineer, arrived at Tarigoppula at 14.18 hours by Medical Relief Van. On arrival, he inspected the derailed coaches and arranged for the removal of the obstruction. He subsequently examined the coaches along with the Carriage and Wagon Inspector and checked the wheels, axles, axle guards, springs, etc. and found them to be in good condition. He noticed there was a gap of about  $3/8''$  between the tongue and stock rail but the tongue rail was not damaged.

21. *Shri R.S. Goel*, Assistant Signal and Tele-Communication Engineer, arrived at Tarigoppula at 14.18 hours by the Medical Relief Van. He found the double key lock of Up facing points No. T-7 wrenched and smashed and the detector connecting rod and gauge tie plates bent. He also found that the left hand tongue rail was normally housed and was in good condition except that the tip was slightly open due to the damage to the split stretchers.



22. *Shri S. Timmins*, Divisional Signal and Tele-Communication Engineer, stated that there was no trouble at points No. T-7 due to creep.

23. *My inspection*—(a) I inspected the track and the rolling stock involved in this accident in detail on the 25th and again on the 26th and 27th. Two marks of mounting the rail were seen, one starting 171 feet and another starting 168 feet from the facing points on the right hand rail R-1. The marks of drop in both cases were seen after a travel of about 3 feet on the rail table. These marks indicated that one bogie had derailed to the right. There was evidence of another bogie having derailed to the left about 19 feet in advance of the first mark of mounting, but in this case no clear marks of mounting or drop could be seen.

(b) A drag mark, as if some metal piece had rubbed violently against the rail table, was seen on Rail L-1 about 9 feet in advance of the first mark of mounting. This mark was about 1'-3" long and about  $\frac{1}{4}$ " to  $\frac{3}{8}$ " wide. About 35 feet from the first point of mounting a mark was seen on the right hand rail R-2. This mark was 3'-5" long. It started from the outer edge of the rail and ended at the inner edge. It indicated that a wheel had rerailed itself.

(c) Slight marks of a wheel having travelled partially suspended were seen on the outside of the right rails R-1 and R-2 between 10 and 35 feet from the first point of mount.

(d) Near the facing points wheel marks could be traced on a few sleepers showing distinctly that one bogie had travelled on the right of the main line while another bogie had travelled on the left of the loop line. These marks of derailment could be traced upto the bogie trucks of the 5th coach.

(e) The permanent way was carefully inspected for nearly half a mile behind the point of mount. The gauge and cross levels in this portion were checked both free and under load. The cross levels showed a variation of upto  $\frac{3}{8}$ " except on one sleeper. On this sleeper, which was about 81 feet in rear of the first point of mounting, the variation was  $\frac{5}{8}$ ". The variation in gauge was found to be upto  $\frac{1}{8}$ ". The condition of the rails, spikes and other fittings was satisfactory. The sleepers were generally in good condition. About 10 to 20% of the sleepers required renewal. The track was ballasted with  $5\frac{1}{2}$  to 6cft. of stone ballast per foot run and there was 2 to 3 inches of ballast under the sleepers. There was no evidence of water logging. There was 1'-3" of creep at the site of the accident but there was no evidence of the points having gone out of square on that account. The rail had crept through the level crossing at mile 528/14-15 and the creep extended for  $2\frac{1}{2}$  miles beyond. At joints there was no flow of metal from one rail to another indicating that the joints were closed but not jammed.

(f) The engine was carefully examined at Vijayawada and the only defect that was noted was that the root radius of the flange of the right leading bissel wheel was worn but it was not a sharp flange. The engine was new. It was put on line in December 1956 and had not completed 50,000 miles.

(g) The fourth bogie coach No. FSY 310 was examined and it was found that there was a dent on the left leading wheel of the rear bogie truck at the root of the flange. This dent was about 3" long, upto  $\frac{3}{4}$ " wide and  $\frac{1}{8}$ " deep. There was metal burr around this dent. Both the flanges of the leading wheels of this bogie truck showed slight signs of having travelled on ballast for a short distance.

(h) The bogies of the 5th, 6th and 7th coaches were also carefully examined at Tarigopulla and it was found that the axle boxes, the brasses, the brake gears, etc. were all in satisfactory condition.

(i) The triple elliptical springs of the bogie coaches were checked for free camber and the camber was tested under various loads in a spring testing machine in the Hubli Workshops. The condition of the springs was found to be good. The free camber as well as the camber under load was found to be within permissible limits. The side coil springs of the bogie coaches were also tested under load and were found to be in a satisfactory condition.

(j) Braking distance test was conducted with the same engine and similar stock. It was found that the distance travelled by this trial train after emergency application of brakes at various speeds and the calculated distance for the same train were as given below:—

	Distance actually travelled	Distance as calculated
	ft.	ft.
At 30 m.p.h. . . . .	525	524
25 „ . . . . .	390	374
20 „ . . . . .	315	265
15 „ . . . . .	180	163

#### IV—DISCUSSION

24. *Speed of the train*—The driver had stated that the speed of his train at the time of the accident was about 10 to 15 miles an hour. The firemen and the Travelling Ticket Examiner generally corroborated this statement. According to the Guard, the speed was about 15 to 20 miles an hour while passing the outer signals and 12 to 15 miles at the time of the accident. The passengers stated that the train was running at about the normal speed. The train came to a stop within 360 feet from the time the driver felt the drag. Allowing five seconds for his reactions to the drag and his applying the vacuum brakes and also allowing for the extra pull exerted by the derailed coaches, the stopping distance was consistent with a speed of about 20 miles an hour. The time provided for in the Working Time Table between Indupalli and Tarigoppula was 7 minutes which was the time taken by the train upto the time of the accident. The train was being received on the main line and was booked to stop at this station. I therefore consider that at the time of the accident the speed of the train was about 20 miles an hour.

25. *Condition of the engine and the rolling stock*—(i) This engine was put on line only in December 1956. It had travelled 49540 miles and was due its first I.O.H. after 50,000 miles. The engine was examined over the examination pit and no defects in its axles, axle boxes, brake gear etc. were noticed. The flange of the right leading bissel wheel of the engine had a worn root radius but had not developed a sharp flange or a deep flange.

(ii) The under gear of 4th bogie coach was carefully examined but besides the deep dent on the left leading wheel of the rear bogie truck, no other defect was found. The brake gear, the axles, the axle boxes, etc., were in a satisfactory condition and the clearances were all within permissible limits. There was no missing or broken part in the under gear of this coach. This coach had received its periodical overhaul on 26-4-1958.

(iii) The 5th, 6th and 7th coaches had their periodical overhauls during June and July 1958.

(iv) The bogies and the undergear of the 5th, 6th and 7th coaches were carefully examined and it was found that the axles, axle-boxes, brake-gear, etc., were in a good condition. The clearances were within permissible limits.

(v) The springs of the 4th, 5th and 6th coaches were tested and found to be in good condition.

26. *Permanent Way*—The permanent way consisted of 50 lbs. 'R' F.F. rails, 42 feet long, laid in the year 1939. The sleeper density was 19 sleepers per rail length or N+5. The condition of the rails was satisfactory. The condition of the sleepers also was generally satisfactory, and about 10 to 20% of the sleepers required renewal. The spikes were tested and found to be holding the rails firmly. There was 1'-3" of creep at the site of the accident. The creep in this portion was last drawn in April 1958. In May 1958 a creep of 1'-3" was recorded. It appeared to have been steady since May. The cross levels and the gauge were tested behind the point of mount, both free as well as under load. The cross levels varied upto 3/8" except on one

sleeper at a distance of about 81 feet from the first point of mounting. On this sleeper the variation was  $5/8''$ . The gauge varied from about  $1/16''$  tight to  $1/8''$  slack. The track here is ballasted with  $5\frac{1}{2}$  to 6 cft. of ballast per foot run. There was about 2 to 3" of ballast under the sleepers. Though it had been raining slightly every day throughout the last month and a half there was no evidence of water logging. The Assistant Engineer had inspected the track on 12-8-1958 by trolley and on 16-8-1958 by brake van. The Divisional Engineer had carried out his inspection by Inspection Carriage on 21-8-1958. Both of them had found no defects at this place. The Driver of this train as well as two previous trains reported that they felt no lurch or jerk at this mileage.

27. *Probable sequence of events*—The dent on the left leading wheel of the rear bogie of the 4th coach and the drag mark on the left hand rail L-1 about 9 feet in advance of the first point of mounting indicated that this wheel met with some violent obstruction at this point. The nature and position of the dent, which is partially on the wheel tread and partially on the side of the wheel flange, indicate that this obstruction acted as a wedge between the rail and the wheel. Due to the wedging action, excessive side thrust must have developed on the right leading wheel of this bogie. When the left leading wheel mounted on this wedge, the corresponding spring must have got suddenly compressed momentarily rendering the right wheel light. This lightening of the load on the right wheel together with the thrust caused this wheel to suddenly jump and derail. The leading pair of wheels travelled in this derailed condition for about 25 feet partially suspended. This was confirmed by the rubbing marks on the outside of the rails R-1 and R-2. After having travelled for 25 feet, this pair of wheels rerailed itself as indicated by the rerailing mark on the table of rail R-2. As a result of the sudden obstruction to the forward motion of the left leading wheel of the rear bogie of the 4th coach, there must have been a momentary reduction in the speed of the train causing the following three coaches to surge. In addition the dropping of the front pair of wheels of the rear bogie of the 4th coach on the outside of the right rail while the rear pair was on the track must have caused distortion of the track. Due to distortion of the track and the surging action induced by the momentary reduction in the speed of the 4th coach, the leading pair of wheels of the front bogie of T 839, the 5th coach, immediately behind, derailed to the right and the trailing pair of wheels of this bogie followed. The leading bogie of the 5th coach having derailed to the right caused the rear bogie of the same coach to derail to the left. In this condition the train probably moved up to the top points inflicting severe damage on the sleepers and causing distortion of the track. The following two coaches consequently derailed. At the facing points the front bogie of the 5th coach which had derailed to the right travelled along the outside of the main line; the rear bogie which had derailed to the left travelled along the outside of the loop line. This caused severe distortion of both main and the loop line.

28. From the depth of the dent on the tyre and the drag mark on the rail table L-1 it was obvious that some hard foreign body, probably a piece of metal, had caused it. A very careful and extensive search of the whole area was undertaken with a view to obtain this foreign body. The entire ballast in this length was sieved and the water-logged fields in the vicinity searched for about 3 days but no such metal piece could be found. The absence of any marks on the wheels of the engine and the first three coaches as well as the leading bogie of the fourth coach indicated that this obstruction must have worked its way on the rail table after the front bogie of the fourth coach had passed over this point. There is no doubt that the derailment was caused by some metallic obstruction having found its way on the rail table. This obstruction could have been either a part of the undergear of the preceding coaches or a gang tool working its way on the rail. A thorough examination of the rolling stock did not reveal any missing or broken part of the undergear which could have caused this obstruction. The other possibility which must be considered is of a gang tool left carelessly too near the track, dropping on to the rail and causing this derailment. At the place where the derailment occurred, a gang was working. The gang was engaged on that day in through packing and consequently had shovels, beaters, crow-bars etc. with them. At about midday the gang broke

off for lunch. They must have left their tools at the work spot. One of these tools was probably left near the rail in such a position that due to the vibrations set up by the moving train it dropped on the rail table while the rear bogie of the fourth coach was approaching the spot. The gangmate and his men asserted that they collected all the tools before they broke off, and kept them in one place far away from the track. This is contrary to the normal practice. A detailed examination of the tools in possession of the gang was made on the 26th morning and the tools were checked with the list showing the tools that should have been with the gang. No tool indicating that it was involved in the accident could be found. During the restoration work more than 200 men have been working at the spot in addition to the staff of the breakdown. It is possible that the gang realising the seriousness might have replaced their damaged tool. The nature of the dent did not definitely indicate what gang tool, whether a crow-bar, a claw-bar or a beater, caused this obstruction. The circumstantial evidence, however, indicated that the obstruction might have been one of these gang tools left carelessly too near the rail when the gang broke off for lunch.

29. *Possible cause of the accident*—Since the cause of the accident was not obvious it was necessary to examine the following factors which might have caused the derailment:—

- (i) Excessive speed.
- (ii) Defects in the rolling stock.
- (iii) Hot axle.
- (iv) Defects in the engine.
- (v) Tampering with the track.
- (vi) Defects in the Permanent Way.
- (vii) Obstruction on the line.

(i) *Excessive speed*—The train was approaching the station, signalled to standard I, on a straight road. The speed of the train at that time was about 20 m.p.h. Therefore excessive speed could be ruled out as a cause of this accident.

(ii) *Defects in the rolling stock*—The rolling stock concerned in the accident had received their periodical overhaul very recently. Careful examination of various clearances had shown no abnormal condition. The springs had been tested and found to be satisfactory. No breakage of any part of under-gear was found. This would indicate that the rolling stock was in a satisfactory condition and could not have caused this accident.

(iii) *Hot axle*—The axle boxes of all the coaches involved were opened and examined. It was found that the packing used in all axle boxes was full of oil. There was no evidence of melted white metal. Therefore hot axle could be ruled out as a cause of the accident.

(iv) *Defects in the engine*—The engine was new having been put on the line only in December 1956. There were no major repairs booked on this engine at any time. There were no defects discovered on this engine except the wear on the right leading bissel wheel but this wear had not caused either a sharp or a deep flange. The engine was not a pooled engine it had been allotted to this driver and consequently was maintained well. Defective engine could therefore be eliminated as a cause of the accident.

(v) *Tampering with the track*—Even after the derailment the rails remained linked. The accident occurred in broad day light within sight of the yard porter manning the facing points. The gang had been working at the site since morning and were at the time of the accident having their lunch within the sight of the accident spot. The likelihood of tampering with the track therefore could be ruled out.

(vi) *Defects in the permanent way*—The general condition of the permanent way was fairly satisfactory. There was 1'-3" of creep which was more than is allowed in the Way and Works Manual, but this creep had not caused jammed joints or buckling. The creep moreover had been steady for the last 3 months. The joints were not low and therefore the creep would not have had much effect on the running. The cross levels up to about 20 feet behind the point of mount showed a variation of only 1/16". Beyond that, the variation was up to 3/8", except on one sleeper 81 feet in the rear of the point of mount, where it was 5/8". At no point was the variation on two consecutive sleepers more than 3/8". The cross levels, therefore, were not very satisfactory, but at the speed at which the train was moving, it was not likely that this would either cause, or contribute to, the accident.

(vii) *Obstruction on the line*—The dent on the leading wheel of the rear bogie truck of the 4th coach and the drag mark on the table of rail indicated that there must have been some hard obstruction on the rail. This obstruction must have caused surging of the coaches behind and distortion of the track, as a result of which the derailment occurred. This, therefore, I consider, was the cause of the accident.

30. *Cause of the accident*—Having considered all the available evidence, I have come to the conclusion that the derailment of No. 261 Up Masulipatam-Donakonda Passenger at mile 528/13-15 in Tarigoppula station limits on the 22nd August 1958 was due to the left leading wheel of the rear bogie of the 4th coach having met with an obstruction on the track. The object which caused the obstruction could not be traced in spite of a thorough search at the site of accident. However, the circumstantial evidence indicates that it might have been a gang tool.

31. *Responsibility*—The circumstantial evidence indicates that Jeevaratnam Yelliah, Gangmate, is responsible for not ensuring that when the gang broke off for lunch the tools were left in such a manner as not to endanger the safety of the train.

32. Gangmate Jeevaratnam Yelliah is 51 years of age and has put in 34 years of service. He has worked as gangmate since 31st March 1958. There are no punishments for any serious offence recorded in his service sheet.

33. I am satisfied that the relief measures were prompt and adequate. The injured persons received immediate first-aid at the site and satisfactory further medical treatment at Vijayawada.

Yours faithfully,

C. R. SULE

Government Inspector of Railways.

Bangalore,

17-9-58