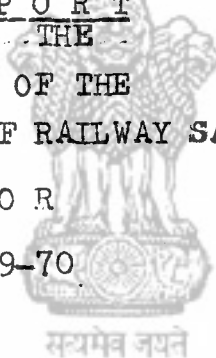


GOVERNMENT OF INDIA
MINISTRY OF TOURISM AND CIVIL AVIATION
— COMMISSION OF RAILWAY SAFETY —

R E P O R T
ON THE
WORKING OF THE
COMMISSION OF RAILWAY SAFETY
F O R
1969-70



BY
COMMISSIONER OF RAILWAY SAFETY,
B O M B A Y

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CHAPTER I

G E N E R A L

1. Brief History — (a) To exercise effective control over the construction and operation of the first railways in India, which were entrusted to private companies incorporated in the United Kingdom, Consulting Engineers were appointed under the Government of India. Later, when the Government undertook the construction of railways, the Consulting Engineers were designated as Government Inspectors. In 1883, their position was statutorily recognised. Two decades later, the Government Railway Inspectorate, so called, was placed under the Railway Board which was established in 1903.

(b) Under the Indian Railway Board Act, 1905 and Notification No.801 dated 24th March 1905 of the Department of Commerce and Industry, the Railway Board is vested with Powers and Functions of the Central Government under various Sections of the Indian Railways Act, 1890, in respect of all railways in India, and is authorised to make General Rules for the operation of railways. It thus follows that the Railway Board is the Safety Controlling Authority for the working and operation of Government and company-managed railways.

(c) Section 181(3) of the Government of India Act of 1935 provided that "functions for securing the safety both of the members of public and of persons operating the railways, including holding of inquiries into the causes of accidents should be entrusted to officers independent of the Federal Railway Authority".

To avoid direct subordination of the Railway Inspectorate to the Railway Board, the Pacific Locomotive Committee, headed by Lt. Colonel A.H.L. Mount, then Chief

Inspecting Officer of British Railways, suggested in para 210 of their Report of 1939:

"We understand that, under the Government of India Act, 1935, it is contemplated that the Inspectorate will be separated from the control of the Railway Board. This is very desirable in so far as it will eradicate the present anomaly of the Board being the Inspecting as well as the Executive Authority. We were informed that the Board fully appreciate the position, and would welcome the change, although it appears that, in practice, Government Inspectors have generally retained their freedom of judgement...."

The Principle of separation of the Railway Inspectorate from the Railway Board was endorsed in 1940 by the Central Legislature who recommended that "Senior Government Inspectors of Railways should be placed under the administrative control of some authority of the Government of India other than the Railway Board". Accordingly, the Railway Inspectorate was placed under the administrative control of the Department of Posts and Air, thereafter under the Ministry of Transport and Communications. Since May, 1967, the administrative control over the Railway Inspectorate, designated as the Commission of Railway Safety since 1st August 1966, is exercised by the Ministry of Tourism and Civil Aviation.

(d) The responsibility for safety in the working and operation of railways rests solely with the Railway Board and the Zonal railway authorities. The main task of the Commission of Railway Safety is to assist railway executives with a view to ensure that all reasonable precautions are taken in regard to safety in train operation. The Railway Board does refer to the Commission matters relating to modification or enhancement of standards in respect of operation of trains, track, locomotives, rolling stock and

signalling — embodied in the General Rules, Rules for Opening of New Lines, Manuals, I.R.C.A. Regulations, Schedules of Dimensions and other publications. Suggestions made by the Commission of Railway Safety are duly considered by the Railway Board before necessary revisions are notified.

2. Responsibilities — (a) The principal functions of the Commission of Railway Safety are :—

- (i) Inspection of new Railway Lines prior to authorisation for passenger traffic.
- (ii) Periodical Inspections of Open Lines.
- (iii) Approval of new works and renewals affecting passenger-carrying lines.
- (iv) Investigations into accidents, including inquiries into such accidents to passenger trains as are considered to be of a serious nature.
- (v) General advice on matters concerning safety of train operation.

(b) Statutory powers of an Officer of the Commission of Railway Safety, and facilities to be afforded by railways, are specified in Sections 4 to 6 of the Indian Railways Act, reproduced below :—

*Section 4: (1) The Central Government may appoint persons by name or by virtue of their office, to be Inspectors of Railways.

(2) The duties of an Inspector of Railways shall be —

- (a) to inspect railways with a view to determine whether they are fit to be opened for the public carriage of passengers, and to report thereon to the Central Government as required by this Act;
- (b) to make such periodical or other inspections of any railway or of any rolling-stock used thereon as the Central Government may direct;

-: 4 :-

- (c) to make inquiry under this Act into the cause of any accident on a railway;
- (d) to perform such other duties as are imposed on him by this Act or any other enactment for the time being in force relating to railways.

"Section 5: An Inspector shall, for the purpose of any of the duties which he is required or authorised to perform under this Act, be deemed to be a public servant within the meaning of the Indian Penal Code (45 of 1866) and, subject to the control of the Central Government, shall for that purpose have the following powers, namely :-

- (a) to enter upon and inspect any railway or any rolling stock used thereon;
- (b) by an order in writing under his hand addressed to the railway administration, to require the attendance before him of any railway servant, and to require answers or returns to such inquiries as he thinks fit to make from such railway servant or from the railway administration;
- (c) to require the production of any book or documents belonging to or in the possession or control of any railway administration (except a communication between a railway company and its legal advisers) which it appears to him to be necessary to inspect.

"Section 6: A railway administration shall afford to the Inspector all reasonable facilities for performing the duties and exercising the powers imposed and conferred upon him by this Act".

(c) The duties under Sections 4(2)(a) & 4(2)(b) of the Indian Railways Act have been detailed in succeeding Sections 17 to 20, and 22 to 24. These are —

- (i) To sanction the opening of new railway lines after inspection on behalf of the Central Government.
- (ii) To inspect a railway or a part of it and submit a detailed inspection report to the Central Government.
- (iii) To sanction the execution of all works, including new works, affecting the safety of running lines.

(iv) To report to the central government any condition which may endanger the safety of the travelling public and make recommendations.

(v) To inspect a closed railway prior to re-opening.

(d) Functional duties, including field inspections, of an Inspector of Railways, since designated as Additional Commissioner of Railway Safety, are amplified, among other technical publications, in the Railway Board's:-

- (i) General Rules for all open lines of railways in India, administered by the Government.
- (ii) Rules for opening of a railway or section of a railway for the public carriage of passengers.
- (iii) Indian Railways' Codes of practice for Engineering works.
- (iv) Indian Railways' Way & Works and Signal Engineering Manuals.
- (v) Schedules of Dimensions.
- (vi) Indian Railway Conference Association Regulations.
- (vii) Rules for Notices of and inquiries into Accidents.

The Additional Commissioner of Railway Safety is thus responsible for the day-to-day sanctions he accords for works affecting the safety of the running road, for dispensations agreed to under "approved special instructions" after due examination of each application, and for detailed Reports of inspections of Open Line Sections, of New Lines, Conversions, Sections doubled, trebled or quadrupled, of Electric Traction and so on.

(e) After its separation from the Railway Board in May 1941, a post of Chief Government Inspector of Railways, since designated as Commissioner of Railway Safety, was created to enable the Ministry, under which the Railway

Inspectorate was placed, to exercise "effective technical control".

The Commissioner of Railway Safety directs the technical activities of the Organisation and is responsible for advising the "controlling" Ministry in matters relating to recruitment of officers, transfers and promotions, budget and expenditure. The Commissioner deals principally with :-

- (i) Matters appertinent to Field Inspections and Statutory Inquiries into Accidents.
- (ii) Inspection Reports of Circle Officers.
- (iii) Reports of Statutory Inquiries held into Accidents by the Additional Commissioners.

After careful study he forwards his considered opinion to the 'controlling' Ministry and the Railway Board with such recommendations as necessary.

- (iv) Railway Board's suggestions pertaining to corrections or amendments to General Rules, Rules for Opening of a Railway, Schedules of Dimensions, the Way and Works and Signal Engineering Manuals, Procedures for Inquiries into accidents, Codes of practice and other Publications.
- (v) Preparation of the Annual Report on the working of the Commission of Railway Safety.

Field duties of the Commissioner of Railway Safety consist of inspections of sections of railways, visits to the Railways' Headquarters and Divisional Officers, railway installations and to Circle Offices. If considered necessary, he holds inquiries into accidents of an important nature.

CHAPTER II

THE ORGANISATION.

3. The Cadre: (a) The functions detailed in para 2 of Chapter I are carried out on the Indian Railways by a Small cadre comprising the Commissioner of Railway Safety — hereinafter referred to as C.R.S. — and 5 Circle Officers, each known as the Additional Commissioner of Railway Safety— hereinafter referred to as A.C.R.S.

The C.R.S. as Head of the Organisation, is the Principal Technical Adviser to the Government in all matters pertaining to the Commission of Railway Safety. He is generally assisted by a Deputy C.R.S. who also acts as Leave Reserve Officer.

(b) Shri P.B. Aibara held charge of the post of C.R.S. during the year, and additional charge as A.C.R.S., Western Circle, Bombay.

On account of the increased work-load, incidental to the C.R.S' assignment on the Railway Accidents Inquiry Committee — 1968, Shri P.M.N. Murthy, Deputy C.R.S. was entrusted with the executive duties of Western Circle, with effect from 10th July, 1968, till 16.11.69. Thereafter these duties were entrusted to Shri C.R. Sule, Additional Commissioner of Railway Safety, Northern Circle, Lucknow.

Shri P.B. Aibara retired from service as C.R.S. with effect from 25th May, 1970. Shri C.R. Sule, Additional Commissioner of Railway Safety, Western Circle, Bombay, was appointed as C.R.S. with effect from the same date vice Shri Aibara. Consequent to this, there is a shortage of two Officers in the Cadre and steps are being taken to make good

the short-fall.

-: 8 :-

Shri Arya Bhushan, Additional Commissioner of Railway Safety, South Eastern Circle, Calcutta, was deputed to the U.S.A. from 20.9.69 to 20.2.70 on an "Observation Tour", to study the usage of sophisticated equipment and the latest techniques in electro-mechanical signalling, etc., primarily from the safety angle, under the jointly sponsored Indo-U.S.A.I.D. programme.

(c) Pursuant to the recommendation made by the Railway Accidents Committee — 1962, a "Technical Wing" was set up -

"..... to help the C.R.S. and the A.Cs.R.S. to carry out..... inspections and 'Audit Checks' on the quality and standard of maintenance of locomotives, rolling stock, state of equipment, safety aspects of actual practices followed by railways and observance of rules and regulations affecting the safe operation of Railways".

Shri S.S. Lall, Deputy Chief Signal and Telecommunication Engineer, Central Railway, was appointed as Dy. C.R.S., S&T with effect from 28th October 1968.

Shri C.S.P. Sastry, officiating Deputy Chief Electrical Engineer, Western Railway, was appointed as Dy. C.R.S. Electric Traction, with effect from 28th November, 1968.

Measures have been initiated to recruit two additional Officers for the Technical Wing to complete the sanctioned complement.

(d) As on 31st March 1970, the cadre

in the Commission was :-

C.R.S. - Shri P.B. Aibara, B.A., B.Sc.Hons(Vict.
U.K.) M.I.E.(India), F.P.W.Inst.(U.K.).

A.C.R.S., Western Circle, Bombay - Shri P.B. Aibara held charge of this Circle in addition to his duties as Commissioner of Railway Safety. The executive functions of this Circle were, however, entrusted to Shri P.M.N. Murthy, Dy.C.R.S. with effect from 10th July 1968 - sub para (b) previous - till 16th November, 1969 and thereafter to Shri C.R. Sule, A.C.R.S., Northern Circle.

A.C.R.S., North Eastern Circle, Calcutta - Shri G.S. Pandor, B.E., A.M.I.E.(India).

A.C.R.S., South Eastern Circle, Calcutta - Shri Arya Bhushan, B.Sc.(Ald), C.E.(Hons), M.I.E. (India), - M.A.S.C.E., M.A.R.E.A..

A.C.R.S., Northern Circle, Lucknow - Shri C.R. Sule, B.A.(Hons), B.Sc.(Bom.), B.Sc.(Lond.), A.C.G.I., A.F.P.W.I.

A.C.R.S., Southern Circle, Bangalore - Shri H.S. Hart, B.E., M.I.E.(India), F.P.W.Inst., F.A.S.C.E., M.A.R.E.A.

Dy.C.R.S. - Shri P.M.N. Murthy, B.Sc.(Hons.) B.E., M.I.E.(India), M.Inst. R.T.

"Technical Wing".

Dy.C.R.S.(S&T) - Shri S.S. Lall, Grad.I.E.E.(Lond.) A.M.I.E.(India).

Dy.C.R.S.(ET) - Shri C.S.P. Sastry, A.M.I.E.(India), A.M.I.Loco.E.- A.M.I.EE(Lond.).

4. Jurisdiction: (a) The route kilometrage in the jurisdiction of each Circle, as on 31st March 1970, was as below:-

	Route Kilo- metrage	Principal Railways
A.C.R.S. Western Circle, Bombay	15,925	Central and Western Railways.
A.C.R.S. North Eastern Circle, Calcutta.	9,501	Eastern and North Eastern Railways.
A.C.R.S. South Eastern Circle, Calcutta.	10,442	South Eastern and North East Frontier Railways.
A.C.R.S. Northern Circle, Lucknow	10,798	Northern Railway.
A.C.R.S. Southern Circle, Bangalore.	13,611	Southern and South Central Railways.

(b) The A.C.R.S. also exercises jurisdiction over Company-managed Railways, Port Trust Railways and District Board Lines located within his Circle. Such Lines constitute 1.7% of the aggregate route kilometrage of Indian Railways.

5. Establishment of the 5th Circle in 1960 - Prior to February 1960, the Organisation consisted of 4 Circles - Northern, Eastern, Southern and Western. On account of development works under the Five Year Plans, the workload increased very considerably, specially in the then Eastern Circle which included the Eastern, South Eastern and North-east Frontier Railways aggregating to 14,465 route kilometres. An additional Circle, known as the Construction Circle, based at Calcutta, was therefore, set up on a temporary basis on 1st March 1960 to deal with Major Projects, the Electrification on the Eastern and South Eastern Railways and the new Dandakaranya-Bolangir-Kiriburu railway

construction. Sanction for continuance of the Additional Circle was obtained successively year after year.

6. With the reorganisation of jurisdictions from 11th April 1968, the functions of the Construction Circle devolve on the North Eastern and South Eastern Circles at Calcutta. This reorganisation became necessary due to the enormous increase in the workload and it was felt that an additional Inspection Circle should be created in place of the Construction Circle and suitably redistribute the jurisdiction of the Circles. This additional Circle continues to be on a temporary basis uptill now. Ample justification exists for making it permanent and this question is currently under the active consideration of Government. It is to be hoped that this Circle will be made permanent shortly.



CHAPTER III

FIELD INSPECTIONS.

7. Inspection of New Lines - (a) The duties of an A.C.R.S. pertaining to the inspection of new railway lines, including diversions, prior to their being commissioned for passenger traffic, to the use of locomotives and rolling stock, and to electrification of lines are contained in the "Rules for the Opening of a Railway or Section of a Railway for the Public Carriage of Passengers". Vide Railway Board's Notification No.152-P of 1916, the A.C.R.S. exercises the powers under section 18 and 19 of the Indian Railway Act (IX) of 1890, for authorising such new works for traffic.

(b) In respect of Inspections of New Lines, Doublings, Conversions, Electrification and Major Works, it would be unreasonable to assume that an A.C.R.S., on mere inspection of such works, can take upon himself any part of the responsibility which should rest squarely on the Engineers who have supervised their progress from day-to-day over months and years. During the inspection, defects, if any, are pointed out and remedial measures suggested - measures which require compliance before the works are commissioned to traffic on specific conditions as may be prescribed by the A.C.R.S.

(c) During the year under review, the Circle Officers carried out detailed inspections of new works to the extent shown below :-

	<u>Kilometres</u>
(i) New Lines.	-- 212.85
(ii) Doubling of Sections	-- 396.21
(iii) Diversions	-- 4.52
(iv) Electric Traction	-- 345.00

Works inspected by the A.Cs.R.S. prior to authorisation for passenger traffic are listed in Appendix 'A'.

8. New Minor Works - Circle Officers of the Commission of Railway Safety are empowered to sanction new minor works affecting the running lines such as new bridges, re-building or regirdering of bridges, remodelling of station yards, resignalling works and alterations or renewals which affect the operation of passenger carrying traffic.

During the year, the A.Cs.R.S. sanctioned 4,174 new minor works which included new bridges, regirdering, signalling, new crossing stations, remodelling of station yards and line-capacity works.

9.(a) Works involving infringements of Standard Dimensions - On the recommendation of the Commission of Railway Safety, the Railway Board sanctioned 171 works involving infringements to Standard Dimensions specified in the Schedules for Broad, Metre and Narrow Gauges. Of these 82 infringements were sanctioned as a temporary measure, and 89 were sanctioned as a permanent measure.

The Railways continued to implement their programme for the removal of infringements during the year. In all 5 infringements to Standard Dimensions were reported to have been removed. It was desired that works involving removal of infringements, sanctioned as a temporary measure, should be undertaken on priority.

(b) Movement of Outsize Loads - Various types of heavy machinery, which infringed maximum moving dimensions, were transported on the Railways, mostly from the sea-ports.

The number of these has been on the increase, necessarily so on account of the rapid growth of heavy industries under the five Year Plans. During the year, procedures for the safe transport of 293 outsize loads were scrutinised, and their movement on railways sanctioned by Circle Officers subject to such conditions or speed-restrictions as were deemed necessary.

10. Inspection of Open Lines - (a) Upto the year 1953, periodical inspections of Indian Government Railways were carried out by the A.Cs.R.S. In 1953, the Railway Board decided that these inspections should be discontinued, as the General Managers were responsible for ensuring the safety of operation of their respective railways. It was, however, left open to the Additional Commissioners to carry out inspections for their own purposes, or arrange ad-hoc visits to study particular aspects of railway working with which they may desire to make themselves familiar.

A.Cs.R.S. are, however, responsible for the annual inspections of Company-managed and Port Trust Railways.

(b) During the year, the A.Cs.R.S. inspected 7 Company Railways and 1 Port Trust Railway aggregating to 469.70 Kms., and accompanied the General Managers of Government Railways during their inspections to the extent of 4,612.90 Kms. In addition, they carried out tour inspections of Government Railways to the extent of 17,236 Kms. They submitted reports of inspections to the Commissioner of Railway Safety who, in turn, referred the important observations affecting safety of train

operation to the Railway Board for necessary action. Significant defects noticed during the inspections were discussed at sites with the railway officers concerned to ensure prompt remedial action.

(c) The A.C.R.S. is at times unable to comply with the annual quantum of detailed inspections of Open Lines. The General Manager and Heads of Departments, whom he accompanies, as convenient to him, generally carry out their inspections with the Divisional Superintendent and Divisional Officers by Departmental Trains during the period November to March. Railways, keen to adhere to the programmed targets of construction of new lines, doublings and electrification before the end of the financial year, require the A.C.R.S. to inspect and authorise the works for passenger traffic during the working season, i.e. November to March. The programme of annual inspection is seriously affected by one or more accidents should they occur during the said period or when an A.C.R.S. has to hold charge of another Circle in addition to his own. Moreover, the present workload on the A.C.R.S. and their jurisdictions are such that it has become virtually impossible to carry out detailed inspections to the extent stipulated, unless their strength is augmented in accordance with Recommendation No. 284 of the Railway Accidents Committee - 1968. The said recommendation is currently under Government's consideration.

11. New types of locomotives and rolling stock - On the recommendations made by the Commission of Railway Safety, the Railway Board accorded sanction to the running of 11 new types of locomotives and 22 new types of rolling stock during the year under review, including the operation of such locomotives and rolling stock on other routes as were already in use on certain sections of the Indian Railways.



INVESTIGATIONS INTO ACCIDENTS.

12. Incidence of Accidents - (a) The following table indicates the number of accidents which occurred in 1969-70, as advised by the Railway Board, on Government and Company-managed Railways, including those reported under Section 83 of the Indian Railways Act of 1890 :-

S.No.	Railway	Number of Accidents.	No. of Accidents under Section 83/ I.R.A.
1.	Central	470	37
2.	Eastern	433	24
3.	Northern	469	69
4.	North Eastern	299	36
5.	Northeast Frontier	517	49
6.	Southern	564	48
7.	South Central	542	78
8.	South Eastern	440	29
9.	Western	547	34
10.	Non-Government Railways.	337	40
Total in 1969-70 :-		4558	444

The corresponding figures for the preceding year 1968-69 were 4,346 and 481.

The figures in the table do not include such occurrences as persons falling out from trains, persons run over on line and injuries to station or line staff.

(b) For the period 1963-64 to 1968-69 and the year 1969-70, the incidence of train accidents on Government-managed Railways is shown by the following table :-

S. No.	Category	'63- 64	'64- 65	'65- 66	'66- 67	'67- 68	'68- 69	'69- 70
<u>G R O U P I</u>								
(i)	Collisions	93	81	74	67	66	47	54
(ii)	Derailments	1300	1035	962	876	892	684	751
(iii)	Collisions with road Vehicles at level crossings	161	146	123	104	111	129	111
(iv)	Fires in Trains	81	31	42	50	42	48	47
<hr/>								
Total of Items								
i) to (iv)		1635	1293	1201	1097	1111	908	963
<hr/>								
<u>G R O U P II</u>								
(v)	Averted Collisions	63	55	45	46	44	31	22
(vi)	Breach of Block Working Regulations.	82	76	58	56	41	46	36
(vii)	Trains driven past Signals at Danger	126	116	108	93	100	68	47
(viii)	Parting of trains due to failure of coupling apparatus	1686	1310	1159	823	749	653	590
<hr/>								
Total of Items								
(v) to (viii)		1957	1557	1370	1018	934	798	695
<hr/>								
Grand Total (Items								
(i) to (viii)		3592	2850	2571	2115	2045	1706	1658

Under Group I are included accidents which in almost all cases resulted in casualties and/or damage to railway assets. Under Group II are included serious irregularities by train-working and train-signalling staff.

It is regrettable that the accidents under Group I, which as stated above, normally lead to casualties and loss of railway

-:19:- to 963

assets, has increased from 908 i.e. an increase of over 6 percent. This, though not very large, is rather a disturbing trend, considering that the accidents in this Group have been progressively on the decline over the past years. Concerted efforts to arrest this deterioration appear to be necessary.

It is, however, gratifying to note that the incidence of train accidents under Group I and of serious irregularities under Group II have, on the aggregate, registered a declining trend during the period 1963-64 to 1969-70.

13. Regulations:- (a) The Rules for Inquiries into Accidents are contained in Railway Board's Notification No.59-TTV/42/1 dated 11th April 1966, entitled the "Railway (Notices of and Inquiries into Accidents) Rules, 1966".

All accidents as described in Section 83 of the Indian Railway Act are reported, i.e. -

".....Accidents of a description usually attended with loss of human life are meant to include all accidents to passenger trains like collisions, derailments, train-wrecking, or attempted train-wrecking, cases of running over obstructions placed on the line, of passengers falling out of trains, or fires in trains in which no loss of life or grievous hurt as defined in the Indian Penal Code, or serious damage to railway property of the value exceeding Rs.50,000/-, has actually occurred but which by the nature of the accident might reasonably have been expected to occur; and also cases of landslides, or of breaches by rain or flood, which cause the interruption of any important through line of communication for at least 24 hours.

(b) The relevant portions of para 8 of the Rules, relating to Inquiries into Serious Accidents, are reproduced below:-

"8(2)....Every accident to a train carrying passengers which is attended with loss of human

life, or grievous hurt as defined in the Indian Penal Code to a person or persons in the train or with serious damage to railway property of the value exceeding Rs. 50,000/- and any other accident which in the opinion of the Commissioner of Railway Safety or the Additional Commissioner of Railway Safety requires the holding of an Inquiry shall be deemed to be an Accident of such a serious nature as to require the holding of an Inquiry.

"3 Where the Commissioner of Railway Safety considers the holding of an Inquiry into an Accident necessary, he may either hold the Inquiry himself or direct the Additional Commissioner of Railway Safety to do so.

"Explanation - The inquiry by the Additional Commissioner of Railway Safety shall be obligatory only in those cases where the passengers killed or grievously hurt were travelling in the train. If a person travelling on the foot-board or roof of a passenger train is killed or grievously hurt or if a person is run over at a level crossing or elsewhere on the railway track, an inquiry by the Additional Commissioner of Railway Safety shall not be obligatory. Similarly, if in a collision between a road vehicle and a passenger train at a level crossing, no passenger in the train is killed or grievously hurt the Additional Commissioner of Railway Safety shall not be obliged to hold an inquiry. For the purpose of this rule, workmen's trains or ballast trains carrying workmen shall also be treated as passenger trains and in the event of a workman getting killed or grievously hurt as a result of an accident to the train, an inquiry by the Additional Commissioner of Railway Safety shall be obligatory".

(c) The rules provide that if an A.C.R.S. due to pre-occupation or otherwise, is unable to hold an inquiry into a serious accident himself, he may request the railway administration to arrange for a "joint inquiry".

After examination of the proceedings of the inquiry held by a committee of railway officers, he is required to send a report on the accident investigation. If, however, the A.C.R.S. should differ from the conclusions reached by the Committee of railway officer, he may decide to take additional evidence, carry out tests and prepare his own Report.

14. Procedure for the conduct of Statutory Inquiries -

a) Under the Railway (Notices of and Inquiries into Accidents) Rules, 1966, referred to in para 13, the A.C.R.S., on receiving intimation of the occurrence of a serious accident, proceeds to site by the quickest possible means and records all particulars after careful inspection before according sanction to the Railway for clearance of wreckage and restoration of the line/s. He then carries out Tests as required and records Evidence. The emphasis has necessarily to be on the material and circumstantial evidence at the site, which in almost all cases leads to the determination of the cause or causes.

(b) Although the press and the public are disallowed even as observers at the Statutory Inquiry, a notification is published in the Press and announcements made on the A.I.R. to the effect that persons having knowledge of circumstances leading to the accident or features of relevance connected therewith may appear before the C.R.S. or A.C.R.S., holding the Inquiry, for evidence or communicate with him by post. Officers of the local magistracy and police attend the Inquiry, but members of recognised unions of railway employees or other associations of railway staff are not permitted.

The evidence recorded by the Inquiring Officer is not taken on oath or solemn affirmation. As the Inquiring Officer's Findings may be followed by prosecutions in a Court of Law, it is likely that evidence as may be recorded in the presence of the Press or Public would prejudice the legal process.

To the suggestion made by the Railway Accidents Committee - 1962, viz. "The public and members of the union should be permitted to be present in the course of statutory inquiries into accidents", the Government held the agreeable view that "No useful purpose would be served as technical investigations are not likely to be of interest to the public".

15. Statutory Inquiries into Accidents in 1969-70 -

(A) There were 19 serious accidents during the year under review of which 3 were inquired into by Railway Administrations under Rule 8(5) of the Railway Rules, 1966 - Notices of and Inquiries into Accidents.

Of the 16 accidents directly inquired into by Officers of the Commission of Railway Safety, six were cases of Collisions, Five were cases of Derailments, one was a case of Fire, one was due to failure of coupling apparatus, in one case there was an explosion in the train due to unauthorised carriage of explosive materials by passengers. The accident to No.328 Up Secunderabad - Pune passenger during shunting was due to non-observance of prescribed procedures by the driver and the casualties among the passengers of No.10 Up Ambernath - Bombay V.T. and No.T.22 Up Thana - Bombay V.T. Suburban Trains was due to a damaged gate shutter infringing the moving dimensions.

(B) The 16 accidents of serious nature, inquired into by the Commission of Railway Safety, during the year 1969-70, are summarised hereunder with significant recommendations that were made:-

- (i) Between Gulapalyamu and Venkatampalle stations, Southern Railway — Metre Gauge — on the night of 15th April 1969.

Description: At about 20.15 hours on 15th April 1969 No.224 Down Hubli-Mysore Passenger became derailed at Km.262/4-2 between Gulapalyamu and Venkatampalle stations on the Guntakal-Bangalore City Metre Gauge Section of Guntakal Division, Southern Railway. The speed at derailment was about 62 Km.p.h. The accident occurred on a 25' high bank on a curved alignment in clear weather resulting in the derailment of the engine, capsizement of 2 coaches and derailment of 3 more coaches.

One passenger was killed and 26 were injured, the injuries to 3 of them being classified as grievous.

Cause: The derailment was brought about by deliberate removal of fishplates by persons unknown from 2 pairs of rail joints opposite each other and dogspikes of the wooden sleeper under the running on end of the outer rail next to the unfished rail joint at Km.262/4-3.

Recommendations: (a) Surprise checks to ensure that the portable telephones with Guards are always in proper working order, should be intensified.

(b) The maximum and minimum distance between wheel flanges specified in the Schedule of Dimensions, Metre Gauge, may be revised to accord with the stipulation made in 'Conference Rules, Part III, containing Rules for Train Examiners'.

(c) It is desirable to specify tolerances for wheel gauge of locomotives in the Schedule of Dimensions, Broad

and Metre Gauges.

- (ii) Between Amarun Halt and Bhatar stations,
Eastern Railway, — Narrow Gauge — on
26th April, 1969.

Description: At about 21.23 hours of 26th April, 1969, the engine of 11 Up, Burdwan-Katwa Passenger Train, got uncoupled from the rest of the load between Amarun Halt and Bhatar station, the hook of the coach coupler having come off the yoke. On becoming aware of the parting, the driver brought the engine to a stop. The train being non-vacuumed, the load moved on to collide with the engine. The speed at impact was assessed to be about 32 Km.p.h.

Four persons died and 15 were injured, of whom 4 were classified as grievous.

The cost of damage to railway property was estimated at Rs 31,100/-.

Cause: The engine parted from the train-load due to the hook of the coupling coming off the yoke. The hook which was not properly secured came off the yoke due to defective coupling assembly. Shortly after the parting, the engine came to a stop. With its momentum, the train load continued to move and collided with the engine. The accident would not have occurred had the train been vacuumed.

Recommendations: (a) The defective coupling apparatus should be replaced. Pending such replacements the hooks should be secured to the yokes by chains or other means.

(b) The deficiency in respect of drawings of the components of each type of Narrow Gauge rolling stock should

be made good to facilitate effective checks being exercised during periodical maintenance in loco sheds and carriage and wagon depots.

(c) All rolling stock on the N.G. sections of Railways should be equipped with Automatic vacuum brakes priority being given to coaching stock.

The Railway Accidents Enquiry Committee — 1954 had suggested that all trains should be equipped with the automatic vacuum brake system.

Items 152 and 153 of the Appendix to the Reviewing Committee's Report are reproduced below:-

Summary of Conclusions & Observations by the Railway Accidents Enquiry Committee.	Consensus of Railways Opinions.	Observations by the Reviewing Committee.
152. The carriage of passengers in non-vacuumed trains should be prohibited by law. (Para 211 of the Report).	152. This is accepted as a future policy but it is not possible to implement the recommendation immediately. Fitting of automatic vacuum brakes is being done on a programmed basis.	152. The Committee note the observation by the Railways and suggest that the matter should receive closest attention and the work completed within the minimum possible time.
153. It should be held as a firm target that within 10 years all trains on the Metre Gauge and Narrow Gauge should run vacuumed. (Para 212 of the Report).	153. This is accepted except that on the Narrow Gauge and the 2' Gauge this may not be practicable.	153. The Recommendation is accepted for the BG and MG. An exemption for the NG will be necessary.

It is necessary that the recommendation made by the Railway Accidents Enquiry Committee — 1954 in regard to equipping all Narrow Gauge trains with automatic vacuum

brakes should be followed up. A number of trains on the N.G.(2'-6") systems on the South Eastern and Western Railways are equipped with automatic vacuum brakes. The Railway Board, are alive to the problem, and should lay down probable target when all coaching and train stock of the Narrow Gauge may be equipped with vacuum brakes. As an interim measure, each passenger train running on the Narrow Gauge systems may be equipped with a vacuum head, the extent of which will be governed by the load.

(d) All N.G. passenger trains should be equipped with emergency tools and emergency lighting such as powerful torches.

(iii) Between Mailongdisa and Harangajao stations,
Northeast Frontier Railway — Metre Gauge
— on 29th April 1969.

Description: On 29.4.1969, a Down Trial Special, comprising of a YDM4-A diesel locomotive and an inspection carriage, was stabled on loop line No.2 of Mailongdisa station. At about 16.40 hours, this Down Trial Special rolled down the gradient of 1 in 37, burst through the trailing points, entered the Harangajao-Mailongdisa block section and collided head-on with No.201 Up Badarpur-Lumding passenger which was being admitted into Mailongdisa station on clear signals. The speed of Down Trial Special at the time of collision was assessed at 50-60 Km.p.h. and that of the passenger train at 15 Km.p.h. The accident which occurred in hilly terrain in fair weather resulted in heavy damage to the locomotive and first 2 coaches of the passenger train, partial derailment

of the diesel locomotive and the inspection carriage of the offending Down Trial Special.

Three persons (the entire engine crew) were killed and 12 passengers received injuries, the injuries to six of them being classified as grievous.

The damage to railway assets was estimated at Rs.6,58,820/-.

Cause: The collision occurred due to the improperly secured Down Trial Special stabled on loop line No.2 rolling down and entering the Harangajao-Mailongdisa block section on which No.201 Up Badarpur-Lumding passenger train was approaching on proper authority.

Recommendations: The Railway Administration should conduct a survey of all station yards which are on infringing gradients where Railway Board's sanction for the infringement is not traceable and arrange to get fresh sanction to regularise matters. If, as a result of this survey, there are any places where slip or catch sidings are considered necessary, immediate steps should be taken for these being provided as expeditiously as possible.

(iv) Between Chirala and Vetapalemu stations,
South Central Railway — Broad Gauge —
on 17th May 1969.

Description: On 17th May 1969, following total interruption of communications resulting from severe cyclonic weather conditions, trains were worked on the Chirala-Vetapalemu double line section in accordance with special regulations.

No.52 Up Kazipet — Madras Express, consisting of

8 coaches, hauled by a steam locomotive, left Chirala station at about 11.20 hours on 'Authority to Proceed without Line Clear'. It was brought to a stop at 12.15 hours between the Up Distant and the Up Home signals of Vetapalemu station.

No.18 Up Delhi-Madras Janata Express, comprising 11 coaches, hauled by a steam locomotive, which was permitted to follow No.52 Up Express under similar conditions, left Chirala station at about 12.55 hours. At 13.15 hours, No.18 Up collided with the rear of No.52 Up Express which was stationary at the approach of Vetapalemu station. The speed at collision was assessed to be 20-25 Km.p.h.

As a result of the collision, 11 persons were injured, of whom 3 were classified as grievously hurt.

The cost of damage to railway assets, confined to coaching stock was estimated at Rs.15,000/-.

Cause: The collision was the result of No.18 Up Delhi-Madras Janata Express not being driven at walking pace in accordance with the special instructions prescribed for trains moving on 'Authority to Proceed Without Line Clear' on account of total interruption of communications and condition of severely restricted visibility.

Recommendations: (a) The anti-telescopic ends of I.C.F. coach No.WFC 3353 did not function as was expected. The Railway Board may consider the advisability of looking into the design of the anti-telescopic ends of I.C.F. coaches and advise further.

(b) It should be ensured that Driving Staff are not

allowed to work trains when they are due periodical medical examination or vision test.

(v) Between Vetapalemu and Kadavakuduru stations, South Central Railway — Broad Gauge — on 17th May 1969.

Description: On 17th May 1969, following total interruption of communications resulting from severe cyclonic weather conditions, trains were worked on the Vetapalemu-Kadavakuduru double-line section in accordance with special regulations.

No.16 Up New Delhi-Madras Grand Trunk Express, consisting of 17 coaches, hauled by a diesel locomotive, left Vetapalemu station at about 12.45 hours on 'Authority to proceed without Line Clear'. It was brought to a stop at 13.15 hours between the Up Distant and the Up Home signals of Kadavakuduru, short of No.89 Up Express that had preceded it.

No.54 Up Hyderabad-Madras Express, comprising 5 coaches, hauled by a steam locomotive, which was permitted to follow No.16 Up Grand Trunk Express under similar conditions, left Vetapalemu station at about 13.35 hours. At 13.50 hours, No.54 Up collided with the rear of No.16 Up Express, which was stationary at the approach of Kadavakuduru station. The speed at collision was of the order of 30 Km.p.h.

As a result of the collision, 15 persons were injured, the injuries to 5 persons being classified as grievous.

The cost of damage to railway assets, confined to coaching stock, was estimated at Rs.30,000/-

Cause: The collision was the result of No.54 Up Hyderabad-Madras Express not being driven at walking pace in accordance with the special instructions prescribed for trains moving on 'Authority to proceed without Line Clear' on account of total interruption of communications and conditions of severely restricted visibility.

Recommendations: (a) The anti-telescopic ends of I.C.F. coaches Nos.FCT3345 and WGTDNY 5332 (which were damaged in the collision) did not function as per expectations.

Attention has been drawn to the failure of these anti-telescopic ends of I.C.F. coaches in connection with inquiries into the Accident to No.26 Up "Bangalore City-Cochin Harbour Terminus Island Express" at Kuppam station on the Southern Railway on the 21st May, 1967, and the Collision between No.301 Down "Madras-Arkonam passenger" and No.1 Down "Madras-Mangalore Mail" on the 13th January 1968 near Ambattur station on the Southern Railway.

It is suggested that the design of the anti-telescopic ends of I.C.F. coaches be looked into afresh.

(b) Although visibility was restricted at Vatapalem and Kadavakuduru stations, no staff were available to send out on either side with detonators to warn approaching trains. The Railway Administration should issue detailed instructions on this point so that necessary staff will be available when required.

(c) Railway Board may ensure effective implementation of instructions pertaining to marshalling of passenger carrying

trains.

(vi) Between Dharamtul and Anjuri stations,
Northeast Frontier Railway — Metre Gauge —
on 21.5.1969.

Description: On 21st May 1969, No.20 Down Tinsukia-Siliguri passenger train was proceeding at about 50 Km.p.h. between Dharamtul and Anjuri stations on the Lumding-Gauhati section of Northeast Frontier Railway. On the run at Km.82/11 at 02.30 hours, there was an explosion in the III class 'A' compartment of the rear TLR. As a result of the explosion, the sides of the compartment were ripped open and pieces of its wooden body were strewn upto a distance of 128'. The ceiling, the sides and electrical fittings were damaged and the under-frame was dented.

Due to the explosion, 4 persons lost their lives and 19 were injured, the injuries to 2 of them being classified as grievous.

The cost or damage to the coach was estimated at Rs.7,990/-.

Cause: The accident was caused by detonation of explosive material including high explosive shell fuses carried by some person or persons in an unauthorised manner in compartment 'A' of TLR 2286.

Recommendations: (a) Special measures are warranted on the sections affected to ensure the safety of rail users. It is expected that effective co-ordination between the State Police and the Railway security authorities at all levels will be ensured by the Railway Board in conjunction with the authorities concerned.

(b) Numerous cases of inadequate maintenance of field telephones have come to light. Stringent measures are called for.

(c) Special attention has to be paid to the lighting of coaches in sections where security check has to be exercised on account of likely subversive activities.

(vii) Chandanpur station, Eastern Railway —
Broad Gauge — on 16.6.1969.

Description: On 16.6.1969 passengers in the 10th coach, 1st class, of the Darjeeling Mail Train ex: Sealdah to Farakka raised an alarm on noticing fire and smoke in some compartments. The attendant of the adjacent 9th coach acted promptly and pulled the communication chain, whereupon the train was brought to a stop at 13.30 hours between the Up Departure Signals of Chandanpur station.

The fire which occurred in the 10th coach spread to the 9th coach. It was extremely fortunate that passengers of both the 9th coach and 10th coach detrained hastily without injury.

The damage to both the 9th and 10th coaches has been estimated to be about Rs 2,74,800/-; to the traction overhead distribution system, about Rs 2,500/-.

Cause: The accident was due to electrical faults on the fan circuits of coach No. 1755 and a fault of opposite polarity in the same or some other coach or coaches. The current so caused could have overheated the wire and ignited the wooden supports in the vicinity.

Recommendations: (a) The existing 24 V Train lighting

system using aluminium conductors may be replaced by higher voltage system, preferably 110 V, which is already in use in EMU trains, to minimise fire hazards.

(b) It was observed that over-size fuses and of incorrect metal were being used in circuits. It should be ensured that this is guarded against in future.

(c) To reduce the fire hazards it is considered necessary to :-

- (i) provide fuses in the negative circuits;
- (ii) relocate the fuses so as to leave no part of cable unprotected.

All steel-bodied coaches should be equipped according to the suggestions made above during P.O.H. in workshops, even earlier.

(d) The present arrangement of connecting the vestibules between two coaches is such that they cannot be disconnected quickly to permit uncoupling of the coaches in an emergency. The RDSO should devise simpler arrangement which should take the least time to disengage the bellows of the vestibules.

(viii) At New Misamari station, Northeast Frontier Railway — Metre Gauge — on 16.6.1969.

Description: On 16th June 1969, the rearmost coach of No.173 Up Passenger train derailed at 12.18 hours. The speed at derailment was 15 to 20 Km.p.h. The accident occurred at New Misamari station at Km.111/16-17 on Rangiya-Rangapara Metre Gauge section of the Northeast Frontier Railway. Due to the accident, the underframe and suspension assembly of the steel-bodied anti-telescopic coach were badly damaged. The

coach itself capsized. The permanent way and signalling gear were also affected.

As a result of the accident, 1 person was killed and 5 were injured, the injuries to 3 of them being classified as grievous.

The damage to the railway assets was estimated at Rs 42,790/-.

Cause: The derailment was due to distortion of the track on a hot day on account of excessive creep, existence of a long length with continuously jammed joints and absence of creep anchors. The track had been disturbed the previous day for picking up slacks. The joints had been lubricated in 1969 without adjusting the creep. These factors contributed to the distortion of the track.

Recommendations: (a) Whatever the classification of the track, it is essential that instructions contained in the Indian Railways Way & Works Manual should be meticulously followed. Creep anchors, with sufficient back-up anchors must be provided as necessary and creep registers systematically maintained.

(b) The standard of maintenance of track as brought out in the report, indicates that supervision was anything but effective. It is regrettable that such conditions should have been allowed to exist. It is desired that the Railway administration should without delay provide adequate staff, tools and materials and ensure that the permanent way is maintained to prescribed standards round-the-year.

- (ix) Between Jakhnian and Dulahpur stations,
North Eastern Railway — Metre Gauge —
on 21st June 1969.

Description: At about 01.10 hours on the night of 20th/21st June 1969, the north bound 6 Down Express from Allahabad to Gorakhpur became derailed on a straight track at Km.94/11-12 between Jakhnian and Dulahpur stations on the Varanasi-Bhatni single line section of Varanasi Division, North Eastern Railway. The speed at derailment was about 62 Km.p.h. The derailment occurred on the approach of a girder bridge, consisting of 5 x 40' spans across Manghai Nalla. The maximum height from the bed to the underside of the girder was about 22 ft. The results of the derailment were disastrous. The engine traversed the bridge without constraint and capsized at the far end. The first 6 coaches precipitated on the nalla bed and suffered heavy damage.

As a result of the accident, 72 persons were killed and 127 persons injured. The injuries to 37 persons were classified as grievous.

The cost of damage to the track, the bridge and the rolling stock was estimated at an aggregate of Rs 7,63,000/-.

Cause: The derailment was the result of deliberate act of sabotage by person or persons unknown, who opened the joints and fastenings of a rail 39' in length and moved it out of alignment.

- (x) Between Hathras Road and Rati-ka-Nagla
stations, North Eastern Railway — Metre
Gauge — on 2nd July 1969.

Description: No.11 Down Kumaon Express became derailed between Hathras Road and Rati-ka-Nagla stations at 01.40 hours

on 2nd July 1969. The derailment occurred on a straight track when the train was proceeding at 60 Km.p.h. on a moonlit night. Due to the derailment, the locomotive and its tender capsized, the first 5 coaches completely derailed and stood on the ploughed formation in a concertina fashion and the permanent way over a length of 70 metres was destroyed.

As a result of the derailment, 3 persons (the engine crew) died and 18 were injured, the injuries to one person being classified as grievous.

The cost of damage to railway assets was estimated at Rs. 1,65,000/-.

Cause: The derailment was the result of a deliberate act of sabotage by person or persons unknown, who removed a rail, 39 feet in length. This was effected by disconnecting it at either end, unfastening the fixtures to the sleeper and tilting the rail out of alignment.

Recommendations: (a) Provisions of S.R. 143/2 of the Railway may be re-emphasized to the staff concerned and check should be intensified.

(b) Machinery should be geared up to avoid delays in the turning out of medical vans. Periodical drills are suggested.

(c) It should be ensured that engines of all Mail and Express trains are fitted with speed recorders in accordance with extant instructions

(xi) Jajpur-Keonjhar Road station, South
Eastern Railway — Broad Gauge — on
14th July, 1969.

Description: On 14th July, 1969, 398 Up Passenger

Train, ex: Asansol to Puri, was received on the Main Line or Jajpur-Keonjhar Road Station at 21.15 hours and started therefrom at 21.22 hours on the departure signals being cleared. After passing the main line starting signal the train was brought to a stop on the alarm chain being pulled in one of the coaches. After about 13 minutes stoppage, the train started, but in a few seconds it was collided into by D513 Up Goods Train. The effective speed at impact was of the order of 24-25 Km.p.h. The collision which occurred under conditions of cloudy weather, with normal visibility by the engine headlight, resulted in —

Destruction of the rearmost coach No.2657 TLR of the 398 Up Passenger. Its underframe was buckled, both trollies dislodged and the superstructure smashed;

Damage to coach No.GT1881 of 398 Up, second from the tail-end. Its headstock was bent, the rear end was lifted after being badly bashed in; and

Damage to Diesel locomotive No.17026 WDM-1 of D513 Up Goods. The cattle fender and buffers were bent. The frame of the front truck was bent. The third pair of wheels of this truck derailed. The driving compartment was damaged.

As a result of the accident, 69 persons were killed in the crash and 17 others died in the hospitals. The total number killed was therefore 86. 115 other persons were injured, the injuries to 91 being classified as grievous.

The South Eastern Railway has estimated the cost of damage at Rs.3,71,280/-.

Cause: The collision took place as a result of the South Cabin Leverman releasing the slot on the Up Reception Signals and advising that 398 Up passenger had cleared the station section when it had not actually done so and was still

between the Up Starter and Up Advanced Starter Signals moving ahead.

Recommendations: (a) General Rule 10(d) may be suitably amended to incorporate that when the warner is 'ON', the driver of an approaching train will proceed cautiously, prepared to stop short of any obstruction and pick up speed only when he gets the 'Authority P to proceed' in a Single Line Section or if he is signalled past the station building on Double Line Sections, even if the despatch signals are in his favour.

(b) As a complete safety measure, track-circuiting should be provided in all station yards with Main Line track-circuits in the entire station section to start with. As an interim arrangement the proposal of the South Eastern Railway reproduced below which costs very little may be adopted on all Indian Railways.

"The Railway proposes to make an improvement on the arrangement by providing that :-

- i) the slot lever must be put back and then pulled, again for receiving another train.
- ii) when the main line starter and advanced starter signals have been once taken 'off' for the despatch of a train, it would not be possible to give slot for the main line home signal for a subsequent train unless these signals have been put back".

"The above arrangement would prevent reception signals being taken off till the despatch signals for a previous train have been put back in danger. This does not however exclude the possibility of taking 'off' the despatch signals again after lowering the reception signals and an accident is possible if the cabin staff inadvertently do so

when the line is occupied. Complete safety of eliminating the presence of even a single vehicle inadvertently left by the station staff can only be achieved by providing track circuits. However, the cost involved in the proposed arrangement is small and this is an improvement on the existing system and could with advantage be adopted as an interim measure. It would be very much preferable if alongwith the above proposals, automatic replacement of the main line starter and advanced starter signals to 'on' after the passage of a train is also provided.

(c) It is desired that the Railway Administration should comply with Railway Board's instructions on marshalling of steel/anti-telescopic coaches even in respect of passenger trains.

(xii) Between Itarsi 'B' and Itarsi 'C' Cabins,
Central Railway — Broad Gauge — on
10th November 1969.

Description: In the early day light hours of 10th November 1969, the Itarsi bound ex: Wadi Bunder Freight Chief Goods train which was to be received in the terminal goods yard at Itarsi, via Itarsi 'B' Cabin, ran past the Reception and Departure Signals of that Cabin at Danger and entering the block section ahead, rammed into the rear of 357 Down Bhusaval-Jhansi Passenger train that was stationary at the Down Outer Signal of Itarsi 'C' Cabin on the Down Main Line. The speed of the goods train at impact was of the order of 35 Km.p.h.

The collision resulted in derailment and almost complete destruction of the last 2 coaches of 357 Down passenger, derailment and capsizing of the locomotive of the

goods train and complete derailment of 13 wagons of the goods train, 12 of which capsized.

Due to the accident, 10 persons travelling in the passenger train (including the train Guard) were killed and 2 were injured, of whom 1 was grievously hurt.

The damage to railway assets was estimated at Rs 14,38,429/-.

Cause: The Collision was the result of the Freight Chief Goods train being driven past the Down Reception and Departure Signals of Itarsi 'B' Cabin at Danger and the subsequent failure of the Driver to control his train so as to bring it to a halt short of the obstruction.

Recommendations: (a) Setting up an adequate machinery for the efficient maintenance at all times of the Vigilance Control Devices already provided and the fitment of a suitable Vigilance Control Device to all diesel and electric locomotives may be implemented on top priority.

(b) It may be ensured that approved modifications in the circuitry of dynamic brakes are carried out on all WDM2 locomotives very early and extant instructions to Drivers on application of brakes revised as necessary.

The need to ensure that such vital modifications in the braking arrangements of locos are duly notified to all Drivers and they are thoroughly conversant with the same is emphasised.

(c) It is recommended that the block sections between Itarsi 'A' and Itarsi 'D' Cabins which are now only partially block interlocked - the Last Stop Signal is released through

the 'Line Clear' indication in the Block Instruments, but the arrival of the train at the block post in advance is not proved - are provided with full Lock and Block.

It is desired that block sections on trunk routes and main lines should be fully block-interlocked.

(d) The block sections Itarsi 'A' - Itarsi 'B' and Itarsi 'C' - Itarsi 'D' are very short, the distance between the Last Stop Signal of 'A' and the First Stop Signal of 'B' Cabins being 628 metres and that between the Last Stop Signal of 'C' and the First Stop Signal of 'D' Cabins being 570 metres - substantially less than the emergency Braking Distance of Passenger and Goods trains. It is recommended that :-

(i) The speed of trains running through Itarsi 'A' and Itarsi 'C' Cabins (which have been provided with Working Warners) be restricted to correspond with the distance available for emergency braking should the First Stop Signal of Itarsi 'B'/'D' Cabins be at Danger.

(ii) ^{or} The relevant Last and First Stop Signals at these Cabins be interlocked, so that the Last Stop Signal cannot be taken 'off', unless the First Stop Signal of the block Cabin in advance is in the 'off' position. Till such time as this suggestion is implemented, a speed restriction for run through as indicated in (i) above may be imposed.

(e) Evidence shows that hand signals were not exchanged between the Guard of the Freight Chief and the Train Signalling staff and between the Guard and Driver, while running through Itarsi 'A' Cabin. The Switchman of this Cabin deposed also that Goods Trains generally run through his post without the crew exchanging 'all right signals'.

It is desired that measures should be taken to ensure strict compliance with extant instructions in this regard, which may, if necessary, be elaborated.

(xiii) Gorakhpur Junction station, North Eastern Railway — Metre Gauge — on 17th January 1970.

Description: On 17th January 1970, 196 Down Passenger ex: Nautanwa to Gorakhpur arrived at the Down Home Signal of Gorakhpur Junction at about 08.01 hours and stopped thereat as the signal was displaying the red aspect. Having halted for about 9 minutes, the Driver started the train and running past this as well as the Routing Home Signal ahead, without making sure of their aspect collided head on with a Shunting Load moving across his path. The collision occurred in Multiple Aspect Colour Light territory, on a straight stretch of track between points No.63 and 68-26 metres from the West Cabin — under conditions of foggy weather with severely restricted visibility. The effective speed at impact was of the order of 30 Km.p.h. The collision resulted in partial derailment of the locomotive, substantial damage to the first, third and fourth coaches of the passenger train and slight damage and partial derailment of the shunting engine.

In the accident, 7 persons travelling in the train were killed and 29 received injuries, 17 being classified as grievous.

The damage to railway assets was estimated at Rs.1,44,700/-.

Cause: The collision was the result of 196 Down being driven without requisite care past the colour light

Down Home and colour light Down Routing Home signals when the light at these signals was extinguished.

Recommendations: (a) The timings looked by the Guard in his journal were entirely incorrect. He had simply copied in his journal the timings as given in the Working Time Table and had no relation to the actual timings of the train at various stations.

(b) It is necessary for the Operating Department to ensure that the station staff are thoroughly conversant with the provisions in the Station Working Rules.

(c) The provisions of G.Rs 71 and 71A may be re-emphasized to staff.

(xiv) Wadi station, South Central Railway —
Broad Gauge — on 28th February 1970.

Description: At about 04.05 hours on 28th February, 1970, a W.P. Engine and a bogie-coach, a IIIrd, Luggage and Brake (TLR), which was being backed on to a stationary TLR(of 328 Up Passenger, separate from the rake) on the 1st loop at Wadi station, bumped into the latter at a speed of the order of 15 Km.p.h.

The accident which occurred in clear weather resulted in minor damage to one of the bogie-coaches, the cost of damage being negligible.

In the accident, 1 person was killed and 4 others in the TLR of 328 Up Passenger, were injured.

Cause: The accident was brought about by the Driver of engine No. WP7417 failing to exercise sufficient vigilance and caution during the shunting. He thereby violated General Rule 147.

Recommendations: The Commission of Railway Safety had occasion in the past to point out several instances of non-compliance with extant instructions pertaining to marshalling of coaches at either ends of passenger trains. It is desired that the Railway Board may take effective steps in the matter.

(xv) Between Malavli and Kamshet stations,
Central Railway — Broad Gauge — on
3rd March, 1970.

Description: At about 12.15 hours on 3rd March 1970, L.7 Down was proceeding on the Down line between Malavli and Kamshet stations, it became almost completely derailed 36.6 metres ahead of Km.139 while travelling at about 65 to 70 Km.p.h.

As a result of the accident, one passenger was thrown out of the compartment and suffered grievous injuries. No other passenger was hurt.

Cost of damage to railway property has been estimated at Rs.42,527.70.

Cause: The derailment of L.7 Down Lonavla-Poona Local was due to the obstruction caused by the dislodged bottom half of the gear casing of one of the driving axles of Engine No.EA/1 20011. The gear casing got dislodged due to breakage of the gear rim. The gear rim broke due to fatigue during service.

Recommendations: (a) The gear rims of the driving wheels of all the engines of EA/1 class should be subjected to a crack-detection examination on an urgent basis and the rims in which fatigue cracks might have started should be replaced at once.

(b) These gear rims should be examined for cracks during I.O.H. in addition to the examination now being done during P.O.H.

(c) The programme of rehabilitation of the driving wheels of EA/1 locomotives should be expedited by stepping up the rate of out-turn.

(d) Safety chains should be provided on the gear housing of EA/1 locomotives to prevent the gear case from dropping even if the gear rim gives way. This should be taken in hand on top priority and completed in next two months.

(e) Locomotives whose gear rims have done a large mileage and the general condition of whose driving assembly is not in good condition should be earmarked for shunting. Other locomotives of this class should not normally be used for shunting duty.

(f) An organisation should be set up to ensure that various clearances of the traction gear, including traction motors, are brought strictly within specified limits during P.O.H.

(xvi) Between Parel and Curry Road stations,
Central Railway — Broad Gauge — on
21st March 1970.

Description: In the bright and sunny morning hours of 21st March 1970, A.10 Up and T-22 Up Suburban trains carrying peak load traffic of commuters, following each other on the Up through line, came in contact on their left with a structural member of a damaged gate shutter between Parel and Curry Road stations.

As a result of the accident, 52 commuters who were

travelling on the tread-plates got injured. Injuries of 33 of them were classified as grievous.

The cost of damage to the gate shutter and the shunting load was estimated at Rs.605/-.

Cause: The gate shutter at the entrance of the Parel Workshop which was not properly secured in the open position, swung in and got entangled with a shunting load. It was dragged ahead, buckled, broken at its hinges and forced through the gap in the compound wall resulting in the horizontal of its angle iron frame infringing the moving dimensions of 12' wide stock.

Recommendations: (a) The accident emphatically points to the necessity of educating the staff on all railways in hazards of infringements. It is essential to bring to the notice of all the staff what constitutes an infringement and what action should be taken when one occurs.

(b) In such accidents, where there are a large number of casualties, it is desirable that senior officers of the headquarters also should visit the injured persons promptly to reassure the public and to ensure that adequate care is being taken.

Accidents into which statutory inquiries were held in the year 1969-70 are listed in Appendix-B. The list shows the casualties, killed and injured, the estimated damage to railway assets and the 'Findings' in brief.

16. Incidence of Serious Accidents inquired into during the period 1963-64 to 1968-69 and in 1969-70.

(a) In relevance to the reports of High Level Committee appointed by the Government, one in 1962 and one in 1968,

"to look into the causes leading to accidents on Indian Railways" and suggest accident-prevention measures, it would not be unreasonable to expect not only gradual, if not substantial, reduction in the incidence of accidents, but also reduction in casualties - Killed and Injured - and in resultant Damage to Railway assets. It would, therefore, not be inappropriate to compare the incidence-figures, pertaining to serious accidents during the year 1969-70 under report, and for that matter the incidence-figures in succeeding years, with the annual average of the incidence-figures during the 6 year period, 1963-64 to 1968-69.

(b) The Table below shows the number of accidents during the period 1963-64 to 1968-69 and in 1969-70, into which inquiries were held by Officers of the Commission of Railway Safety, the Casualties and the resultant Damage to Railway assets :-

Year	No. of inquiries.	Casualties		Damage to Railway assets. Rs.
		Killed	Injured	
1963-64	9	34	186	9,28,178
1964-65	13	148	185	13,64,039
1965-66	13	42	349	14,49,415
1966-67	23	299	1006	21,01,668
1967-68	19	121	443	31,85,439
1968-69	18	120	502	35,01,525
		plus 510 cattle-heads		
Total for 6 year period	95	764	2671	1,25,30,264
Yearly Average of the 6 year period, 1963-64 to 1968-69.	15.8 or = 16	127.28 or = 127	445.16 or = 445	20,88,375.8 or 20,88,376
1969-70	16	192	451	40,61,542

The incidence figures of 1969-70, in respect of

Serious accidents indicate no improvement on the annual average figures over the 6 year period 1963-64 to 1968-69. The number of passengers killed, it is distressing to note, has been the highest during the period under review except for the year 1966-67, though it must be remembered that the extent of casualties in an accident is essentially fortituous.

17. Serious Accidents by Main Categories and principal Causes -

(a) The table hereunder shows the number of accidents by Main categories for the 6 year period 1963-64 to 1968-69 and for the year 1969-70 :-

Nature of accident	1963-64 to 1968-69	1969-70
Collisions in Station yards.	25	2
Collisions in Mid-Section	2	4
Collisions in Automatic Signalling Territory	7	-
Derailments	31	5
Collisions at Level Crossings.	8	-
Fires in Trains	6	1
Miscellaneous	16	4
	95	16

(b) The break-up by principal causes of the 95 cases in 1963-64 to 1968-69 and of the 16 cases in 1969-70 is shown in the following table :-

Cause	1963-64 to 1968-69		1969-70	
	No. of cases	percentage of Total	No. of cases	percentage of Total.
Collisions -				
Train driven past Station fixed signals at danger.	13	13.7	1	6.3
Reception of train on clear signals on an occupied line at a station.	10	10.5	1	6.3
Irregular shunting by Driving crew/Station staff.	2	2.1	1	6.3

Cause	1963-64 to 1968-69		1969-70	
	No. of cases	Percentage of Total	No. of cases	Percentage of Total.
Train driven without requisite care in automatic signalling Section after stopping at signal displaying the Red aspect.	7	7.4	-	-
Train driven without requisite care under conditions of total interruption of communications.	1	1.1	2	12.4
Others(failure of station Staff/ Driving crew).	-	-	2	12.4
<u>Derailments -</u>				
Sabotage of track i.e. Malicious interference by miscreants.	15	15.8	3	18.7
Train driven significantly in excess of authorised speed.	2	2.1	-	-
Defective setting of points at Stations.	1	1.1	-	-
Track Defects or failures.	2	2.1	1	6.3
Rolling stock Defects or Failures.	7	7.4	1	6.3
Combination of Rolling Stock and Track Defects.	1	1.1	-	-
Mismanipulation of Train by Driving Crew.	3	3.1	-	-
<u>Collisions at Level Crossings -</u>				
Negligence of Gatemen at Manned Level Crossings.	1	1.1	-	-
Negligence of road users at Level Crossings.	7	7.4	-	-
<u>Other Accidents -</u>				
Fires in Trains				
i) Electrical defects.	3	3.1	1	6.3
ii) Negligence of passengers.	3	3.1	-	-

Cause	1963-64 to 1968-69		1969-70	
	No. of cases	percentage of Total.	No. of cases	percentage of Total.
Explosions in Trains caused by (i) Anti-socials/(ii) Unauthorised carriage of explosive material.	3	3.1	1	6.3
Acts of passengers in defiance of Regulations-Leaning right out of carriages or crossing railway lines or travelling on roofs of coaches.	5	5.3	-	-
Sudden Convulsions of nature-Cyclone or flood.	3	3.1	-	-
Miscellaneous-Human Failures.	2	2.1	2	12.4
Others	4	4.2	-	-
Total.....	95	100.00	16	100.00

It is observed that -

Human failure, attributable to train-working and train-signalling staff, accounted for 45.3% of Accidents in the period 1963-64 to 1968-69 and for 45% in 1969-70.

Sudden convulsions of nature, acts of passengers in defiance of regulations and 1 case of explosion in the train by anti-social elements accounted for 11.2% of accidents in the period 1963-64 to 1968-69 and for 6.3% in 1969-70.

15 accidents, or 15.8% of the total were caused by deliberate acts of sabotage in the period 1963-64 to 1968-69. 3 such cases (18.7% of the total) occurred in 1969-70. It may be mentioned that no measures can be devised to counter the predatory intentions of determined saboteurs and this is a matter to be dealt with by authorities responsible for law and order.

18. Recommendations made - During the period 1963-64 to 1968-69, 220 significant Recommendations were made by the Commission of Railway Safety as a result of investigations into serious accidents. In the year 1969-70, 48 Recommendations were made. By and large Recommendations made by the Commission are accepted by the Railway Board and the Railway Administrations advised accordingly. Very few are, however, under correspondence between the C.R.S. and the Railway Board.

19. Accidents inquired into by Zonal Railways - (a) It is impossible for the Commission of Railway Safety to inquire into all accidents of the type described in Section 83 of the Indian Railways Act. Statutory inquiries are generally confined to important accidents of a serious nature. Other accidents, as also averted collisions, breach of block working regulations, signals passed at danger, attempted train wrecking, collisions at level crossings, derailments of passenger, goods or mixed trains, and significant failure of rolling stock, permanent way or works, are inquired into departmentally and Proceedings sent by the Railway Administrations concerned to Circle Officers for Scrutiny.

(b) In the year 1969-70, departmental inquiries were held by Committees of Railway Officers into 268 train accidents. These are summarised below under main categories :-

(i) Derailments -	
Total	--104
Failure of Axles/Journals	-- 12
Failure of Suspension/Bogie Components.	-- 11
Failure of Brake-gear	-- 6

Failure of Tyres/Wheels	-- 3
Failure of Coupling Apparatus	-- -
Failure of/Defects in Permanent Way	-- 5
Failure of Equalising Beam	-- 1
Mismanipulation of Trains/Excessive Speed	--13
Incorrect setting of points by Station staff	-- 9
Sabotage of Track/Obstruction placed on line	--20
Miscellaneous (Faulty Loading, Maintenance Defects in Locomotives/ Rolling Stock, Improper marshalling, Animals of Line, etc.)	--15
Cause not established	-- 1
Due to cyclone	-- 1
Due to slips caused by rains	-- 1
Animals run over	-- 6
(ii) Collisions -	
Total	--12
Train driven past signal/s at Danger	-- 3
Reception on clear signals on occupied line	-- 1
Trolley/Lorry not protected	-- 3
Failure of Station Staff	-- 2
Failure of Guards	-- -
Failure of Driving Staff	-- -
Incorrect setting of Points	-- 2
Miscellaneous	-- 1
(iii) Fires in Trains -	
Total	--27
Electrical Defects	-- 7
Malicious interference/Passengers carrying inflammable materials	-- 2
Battery Box coming in contact with live cinder	-- -
Cause not established	-- 4
Acts of Arson/Vandalism	-- 8
Carelessness of Passengers or Lining Car Staff	-- 3
Miscellaneous	-- 3

(iv) Collisions at Level Crossings -

Total	-- 65
Road Vehicles driven carelessly	-- 49
Failure of Gateman	-- 16
Miscellaneous	-- -

(v) Averted Collisions/Derailments -

Total	-- 7
Between train and trolley	-- -
Attributed to Station Staff	-- 1
Attributed to Driving Staff	-- 2
Intereference with track, detected in good time	-- 1
Incorrect setting of points	-- 2
Miscellaneous	-- 1

(vi) Other Accidents -

Total	-- 53
Train Parting	-- -
Passengers travelling in defiance of Regulations	-- -
Breach of Block Working Regulations	-- 1
Attempted train wrecking/sabotage	-- 21
Trains running over obstructions	-- 29
Overshooting of signals by Drivers	-- 2

A brief summary of 39 selected cases inquired into by Committees of Railway Officers is shown in Appendix 'C'.

(c) A study of the Proceedings of Inquiries held by Railways into accidents, falling under Section 83 of the Indian Railways Act, shows no other trend than the occurrence being, by and large, the result of failure on the part of train-working and train-signalling staff to comply with the prescribed Rules and of railway assets not being maintained to specified standards. There were, however, 20 accidents due to malicious interference of track/obstruction placed on line, and 21 cases of attempted train-wrecking which were detected by the line staff in good time.

CHAPTER V

GENERAL REMARKS ON MAINTENANCE OF
RAILWAY ASSETS AND OPERATION

20. Pursuant to the acceptance of a recommendation made by the Railway Accidents Committee, the C.R.S. is required to include, in the annual report, a general appreciation of the condition and maintenance of railway assets with special reference to safety in train operation. While action on maintenance defects is generally prompt, it is common knowledge that no permanent way can be maintained nor rolling stock, the signalling installations, nor the electrical traction equipment, to cent per cent perfection.

21. Inspections of the track and bridges, signalling installations, electric equipment, locomotive sheds, carriage and wagon maintenance centres, sick lines and stations are carried out at regular intervals by the railway executives at various levels. The C.R.S. and the Circle Officers, have occasions to peruse Inspection Notes of Head of Departments and executive officers. It is considered that verification of follow-up action by the field staff would be facilitated if the Inspection Notes can be abridged as much as feasible.

Reports of Circle Officers and Deputy Commissioners of Railway Safety (Signalling & Telecommunication) and (Electric Traction) on Inspections of Open Line Sections, of New Lines, or Doublings and Diversions, and of Electrification highlight several departures from accepted practices and procedures. Some important observations contained in their reports of Inspection, are summarised in Broad outline :-

A. THE PERMANENT WAY

(i) Ballast: On some sections there was a deficiency in ballast cushion - in one case the track was found resting only on 2" consolidated muck. Haunches were choked and screening of ballast was overdue.

Some of the turn-in curves to loops at way side stations were noticed inadequately ballasted. Considering that serious accidents have occurred in the past on poorly maintained turn-in curves, the need to ensure that turn-in curves to loops are properly anchored and are adequately ballasted is paramount.

(ii) Alignment: (a) Alignment on curves on several sections admitted of substantial improvement. Variations in versines were excessive. Cant gradient was not proportional to the versine gradient on transitions. The prescribed values of superlevation did not in some cases accord with the graduated steps in the cant-boards provided to the maintenance gangs; on one curve the superelevation was found negative at places. The superelevation in terms of cant-board steps was not painted on the inside of the inner rail. In a few cases posts for zero and maximum superelevation fixed on the cess were missing.

(b) Curve alignment registers in some cases were not being maintained in the prescribed form and periodic checks were not being exercised by the Supervisory Officials concordant with instructions. It was evident in a few cases that the concerned staff did not adequately understand instructions regarding proper maintenance of curve registers.

(iii) Small closer pieces, even 1" or 2" in length, were used in crossing assemblies and elsewhere. This is admittedly a dangerous practice and pointed attention to it was drawn by a Circle Officer even last year.

A number of crossings were found worn out and tongue rails badly chipped.

In the steel assembly of points and crossings, the holes for fixing the jaws were found to have elongated. This position obtained even on the Rajdhani route where the highest speed on the Indian Railways is permitted. In such assemblies, the jaws and keys were somehow kept in position by bits of rods, screws and in such other unsatisfactory manner.

In a number of cases, it was noticed that the wheel flanges were riding on the C.I. blocks of crossings in turnouts and at level crossings. This indicated either a deep flange or a head-worn rail or a non-standard block.

The maintenance of the joints deserved more attention as in a number of cases, it was noticed that the fittings were loose, the gaps were incorrect and rail ends were battered.

(iv) In some stretches :

Metal sleepers were found cracked. Many sleepers were unserviceable.

Cotters were missing from some CST-9 plates.

Full complement of spikes had not been provided on wooden sleepers. Packing was loose and sleeper spacings awry, particularly at rail joints.

(v) Equipment with Gangs : Permanent Way gangs, particularly on the new lines and doublings were deficient in equipment, such as: graduated yard sticks and sleeper spacing diagrams; cotter splitting tools; socket-clamps with keys to be fastened on rails for fixing banner flags; squares large enough to span the rails; wooden mallets/logs for testing the packing of sleepers; Hand signal lamps and phowrahs.

(vi) Track Maintenance: Running on certain sections, for example Allahabad-Pratapgarh, Pratapgarh-Lucknow via Raibareilly was very unsatisfactory at speeds approaching the maximum permissible. It was desired that urgent action may be taken to improve the running, alternatively restrict the current maximum speed over the sections.

B. LEVEL CROSSINGS.

(i) It was found on one of the Divisions on the North Eastern Railway that all level crossings were deficient in flank fencing - an essential provision stipulated in the Indian Railways Way & Works Manual.

(ii) On some level crossings on the Southern Railway, protective gate signals were located at less than the specified safety distance (1320 ft.) from the crossing. It was desired that this infringement be made good without delay.

C. BRIDGES.

Some of the deficiencies noticed were :

Top flanges of Girder Bridges were corroded, particularly the portions below the sleepers;

The depth and spacing of bridge timbers ~~were not in~~

accordance with the requirements contained in the Schedule of Dimensions;

On a bridge on the Northern Railway almost all the bridge timbers required renewal;

Non-standard fittings had been used and some of the fastenings were loose;

Guard-rails had not been spiked to each sleeper as required.

D. SIGNALLING

(i) It was noticed at some stations that Neale's Block Token Instruments were not sealed and 'E' type key locks wherever provided were not rivetted or otherwise secured - contrary to the instructions in the Indian Railways Signal Engineering Manual.

(ii) At one station on the South Central Railway, a signal post located on an island platform which had been recently extended was found infringing the Standard Dimensions

(iii) At some stations light repeaters were not functioning. The lever quadrants were found broken at a number of places.

(iv) The inter-spacing of automatic stop signals on the Allahabad-Naini section of the Northern Railway and some on the Churchgate-Virar section of the Western Railway was less than the braking distance.

(v) On some sections, 'Sighting Boards' had not been provided as required. In some cases, their location was not properly delineated on the track.

(vi) On the Western Railway, ...

(vi) On the Western Railway, three instances came to notice of gate protection signals not being located at the prescribed adequate distance from the level crossings.

(vii) It was found on the Central Railway at one station that the signal control relays had outlived their useful life and needed replacement.

(viii) Unauthorised bridging of contacts had led to a serious accident on the Central Railway and the need to discontinue forthwith the practice in vogue of bridging contacts for lowering signals under certain circumstances, which was fraught with danger, was emphasized.

(ix) A case of faulty design in the installation of a combined facing point lock and detector was noticed on the Western Railway.

(x) Signalling cables were not being subjected to periodic and random tests in most station yards as required by para 953 of Indian Railways Signal Engineering Manual.

(xi) It was found at some stations provided with track circuits that platform lines were dirty, rails had rusted, overhead watering mains were leaky, and earth ballast existed in some portions. Some insulated joints had not been placed square and the stagger was more than permissible.

(xii) There were quite a number of cases where interlocking frames/station master's slide control instruments were overdue overhauling and periodic testing.

(xiii) At some stations on the 25 KV A&C traction territory, protective earths provided for the interlocking frames, apparatus housing, cables sheaths, etc. were not being tested regularly as prescribed. In a few cases separate

earths had not been provided and in a few others, the earth connections did not conform to specifications.

(xiv) On some stations on Western Railway the re-sealing of the 'cancellation keys' used to normalise the Double Line Lock & Block Instruments was not being done as stipulated, leaving the Instruments liable to unauthorised operation.

(xv) On the Northern Railway, the control on the advanced starter through the double line block instrument was such that it permitted the signal to remain 'off' even when the 'line clear' was cancelled. It was desired that the circuitary may be suitably amended to conform to requirements.

(xvi) In the Palanpur-Umardeshi tokenless block section of Western Railway, the track circuits for proving complete arrival of a train at the block post, were incorrectly located at the Advanced Starter, instead of inside the Home Signal as required.

E. ELECTRIC TRACTION.

(i) It was noticed that of the 62 WAM-1 A.C. electric locomotives based at Asansol, Eastern Railway, modifications recommended by M/S Rendel Palmer & Tritton had been effected on only 50.

It was found that slips used for securing the imported tyres in position on certain D.C. electric locomotives at Kalyan broke frequently.

(ii) Cases of fire in A.C. as well as D.C. electric locos continued to engage attention. It was observed :

On A.C. electric locos fires were occasioned

generally by: Arcs across OGR contacts; puncturing of capacitance resulting in ignition of oil nearby; and surge from armo terminals and consequent phase to phase flashing at the bus-bar.

On D.C. electric locos fires resulted mainly from: failure of insulation of bakelite bars; cracking of the cable near the terminal lug in the H.T. compartment; failure of insulation of cable of exhausters and cable leading to pantographs.

While some of the causes are under examination by the Research, Designs and Standards Organisation of the Ministry of Railways, the need for an expeditious review in the matter was emphasized.

(iii) On some of the electrified sections on the Eastern Railway, it was noticed that :

Fire extinguishers were not provided at all switching stations - some, where provided, were found unserviceable.

An electric mast was found leaning towards the track and the stagger of the catenary wire was in excess of the permissible limit.

On a 35 kilometre long section, night inspection revealed sparking of the pantograph at 23 places on the overhead equipment - indicating that the running of the pantograph was not smooth and the current collection unsatisfactory.

F. OPERATION.

(i) It was observed that Rule Books at some stations were not posted up-to-date with correction slips and in a few cases the issue of correction slips was delayed by as long as 6 months.

Assurances from train signalling/train passing staff at some stations on their knowledge of revisions to Station Working Rules were not obtained in time - the advisability of ensuring that station staff familiarised themselves with all relevant aspects of station working and record their assurance without delay was pointed out.

(ii) Several instances came to notice on the Western and Northern Railways, of contravention of extant regulations on working of trains during disconnection of signals, locking or other gear at stations.

(iii) Instances of drivers performing excessive hours of duty on the foot-plate, attention to which was drawn in the report of the preceding year, continued to feature this year as well. Inspection of the Loco Shed at Guntakal, Southern Railway, revealed that a number of loco running staff performed duties for more than 14 hours continuously. There were 247 instances of drivers based at Barawadih, Eastern Railway, being put on duty from 14 to 20 hours during the period August 1969-December 1969. The advice recorded in the last Report - "..... the incidence of over-hours on duty should be drastically reduced - emergencies excepted - if not avoided" is repeated herein.

G. LOCOMOTIVES AND ROLLING STOCK

(i) On the Secunderabad Division, the speed-indicator of the diesel locomotive hauling an inspection train was found to have a residual error of (-) 10 km.p.h. It was desired that speedometers should be carefully calibrated at regular intervals.

(ii) On the Guntakal Division, it was noticed that exhausters of a WDM2 locomotive hauling a special train created as much as 28" vacuum. It was understood that this was a feature common to all WDM2 locomotives. The need for suitably 'throttling' the exhausters on these locomotives to reduce the amount of vacuum created was emphasized.

(iii) Locomotives which should have been fitted with speed indicators and speed recorders were found in a number of cases, deficient or with the equipment out of order.

(iv) On a number of occasions, the marshalling of wooden coaches was noticed to be in contravention of orders issued by the Railway Board.

(v) Incidence of overloading in a number of cases was seen and brought to the notice of concerned officials.

(vi) The maintenance of brake gears and draw bar assembly was found inadequate in the goods stock on few occasions.

H. MEASURES FOR DEALING WITH ACCIDENTS.

There were several instances of Guards of passenger trains not being equipped on the run with Portable Telephones, Emergency Lighting Equipment and Fire Extinguishers. Cases of Guards not being conversant with the use of Portable Telephone as well as of First Aid Equipment also came to light. Some 'First Aid' boxes were found deficient in their complement.

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CHAPTER VI

INTERNAL SAFETY ORGANISATION ON RAILWAYS

— THE GENERAL RULES —

22. Accidents attributable to sabotage of track, to unpredictable convulsions of nature such as heavy flood, cyclone or severs gale, to passengers acting in defiance of regulations, i.e. travelling on roof tops, foot-boards, buffers, and to recalcitrant road users causing collisions at level crossings are to be regarded as accidents over which the railways have no control.

It is to be said that Rules for Operation of Trains are framed to afford the maximum safety, as could be envisaged, but in the ultimate analysis dependence on human effort and vigilance is unavoidable, and human frailty does come in at times to set at naught a system built up with care and calculation. It is common knowledge that railway materials, mechanical and electrical appliances do fail with wear and tear. Occasional breakages of rails, failures of rolling stock components and traction equipment do occur on railway systems the world over.

Analysis of railway accidents that have occurred during recent years shows that 70 to 75% of the train accidents — Collisions and Derailments — were attributable to lapses by the railway staff. No railway in the world has been able to find sure remedies against human failure. In the U.K. the Medical Research Council had carried out detailed investigations on the problem of drivers passing signals at danger. Every aspect was dealt with, but the Council could not reach definite conclusions on the how and why of the problem due to many

variable factors involved. The problem is indeed complex.

It is therefore just not possible to say why, at times, trains are driven past signals at Danger or why the train signalling staff take off signals to admit a train on an occupied line.

23. In Chapter VI of his Report for the year 1968-69, the C.R.S. had touched upon the Internal Safety Organisation, created as an adhoc measure at various levels. The Organisation came into being as a result of the Railway Accidents Committee-1962's recommendations. The Committee had then made it clear that as soon as the short term objectives were achieved the Safety Inspectors in the Internal Safety Organisation should be absorbed in the normal cadres. The objectives aimed at were to make the staff more safety conscious, to discourage short-cut methods and in general to create a spirit towards a better record of safety observance. In 1963-64, on Divisions, a Safety officer drawn from the Operating Department, and Safety Counsellors drawn from Inspectors of various Departments were appointed. At the headquarters level an Administrative Officer drawn from the Operating Department was appointed with assistants. In the Railway Board, a Safety Directorate was established with a Director.

While the programmes that were launched to arouse safety-consciousness would have had the intended impact, it is difficult to gauge the extent of their success in specific terms. For this purpose, the extent of Reduction in Accidents, directly attributed to Human Failure - Derailments caused by Drivers exceeding authorised speeds or not observing restrictions on line, Collisions caused by Drivers passing

signals at danger or Station Staff receiving trains on occupied lines on clear signals, Negligence of Gatemen at Level Crossings, and Serious Irregularities, e.g. Trains driven past signals at danger, and breach of Block-working Regulations, whether or not resulting in Averted Collisions - may be the base, notwithstanding the fact that the decline in their incidence is attributable, in considerable measure, to important safety works, progressively undertaken and completed such as Track Circuiting, Route Relay Installations, Improved Signalling, Complete Track Renewals, Upgrading and/or Interlocking of Level Crossings, provision of Aids and so on.

While it may be said that the incidence of major and minor accidents had shown a somewhat declining trend on the aggregate, there has been no reduction in the number of serious accidents into which statutory inquiries were obligatory, nor the effects of accidents, viz. number of persons killed and injured and in the destruction of Railway assets.

It is, however, considered that the safety organisational set-up, formulated by the Railway Accidents Committee-1962, would be capable of better performance, provided that :-

(i) The duties of Safety Officials are specifically outlined to avoid clash, conflict or overlapping with the functions of the executives-in-charge. These should include intimate liaison with their confreres, brief reports to their superiors on rectification of shortcomings noticed, and intimate association with investigations into accidents and unusual occurrences;

(ii) personnel for the safety organisations are carefully selected from among the senior experienced staff, well-versed in rules and procedures, competent enough to instil morale, to ensure sufficiency of spares - equipment and relief staff - and to formulate measures to minimise repetitive incidence of typical occurrences on particular sections or in station yards.

It was, therefore, suggested that the Railway Board may carry out a detailed survey of the functions of safety organisations at various levels with a view to explore the feasibility of remodelling these to a pattern that would be really effective. The views of the Railway Board in this matter are that the Safety Organisation as constituted at present is functioning satisfactorily.

24. General Rules - (a) The General Rules were last reprinted in March 1962. Since then, about 70 amendments have been issued and a new Chapter entitled "Absolute permissive Block System" included as Chapter 21. A separate draft chapter pertaining to the System of Working with MAUQ and MACL Signalling was also prepared by the Railway Board which the Commission of Railway Safety had scrutinised and sent its considered views thereon.

(b) During the year 1968-69 the Railway Board undertook the task of revising the General Rules pursuant to a recommendation made by the Indian Railways Inquiry Committee-1947 and views expressed by the Railway Accidents Committee-62 in part II of their Report.

(c) Admittedly, amendments, corrections, modifications or additions to General Rules for the operation of trains

become inevitably necessary in the course of progressive developments. This process is continuous. Furthermore, some current General Rules require streamlining or rewording, individually or groupwise, to make for better understanding.

(d) In his Annual Report for 1968-69, the Commissioner had expressed the hope that a wholesale revision and rearrangement of the General Rules was not contemplated by the Railway Board, as it would be a step in the wrong direction.

(e) The draft of the new General Rules was sent to the Commission by the Railway Board for their views in the latter half of the year 1969-70. Scrutiny of the first 5 Chapters belied the hope of the Commission when it was noted that a wholesale revision of the General Rules and rearrangement of the sequence of Chapters was envisaged.

(f) Examination of the chapters, as drafted by the Railway Board, showed that instead of the emergence of clear cut and self-contained instructions, easy of implementation by the train working, train signalling and maintenance staff, the end product was one of confusion. The Rules have necessarily to be clear-cut and easy of implementation and understanding as these have to be complied with by men of average calibre in the field. The new General Rules as framed envisage radical

revision and rearrangement. Notwithstanding the whole sale revision and rearrangement to which the Commission is opposed, the Commission suggested about 350 alterations/additions/amendments to the Rules as drafted in the first 5 Chapters.

(g) A wholesale revision and rearrangement of the General Rules which form the basis of train working and safety of operation for over a hundred years and which are ingrained in the minds of thousands of Railway Staff, would not be desirable. These views of the Commission, duly stating its inability to agree to the adoption of new General Rules as drafted, have been conveyed to the Railway Board. The matter is now under consideration of the Railway Board.



CHAPTER VII-

RECOMMENDATIONS MADE BY THE RAILWAY
ACCIDENTS INQUIRY COMMITTEE - 1968
AS PERTAINING TO THE COMMISSION OF
RAILWAY SAFETY.

...

25. (a) In his Report for the year 1968-69, the Commissioner of Railway Safety had made mention of the appointment of a High Power Committee, known as the Railway Accidents Inquiry Committee - 1968, vide Ministry of Railways' Notification No. ERB-I/68001/46 dated 3rd April 1968. Commencing work in April 1968, this Committee, headed by a former Chief Justice of India, completed its labours with the submission of the 2nd Part of its Report to the Government in August 1969.

The Terms of Reference of the Committee were :-

- (i) To review the position of accidents on the Indian Railways since the appointment of Railway Accidents Committee - 1962, in the light of recommendations made by it and the implementation thereof.
- (ii) To suggest measures for further minimising the accidents.

(b) The total number of observations and recommendations embodied in Part II of the Committee's Report, comprising 15 Chapters, is of the order of 500. A statistical appraisal of accidents over a period of 6 years was made, and all matters cognate to train operation and maintenance of railway assets, as also the role of research, staff matters and the stores organisation were dwelt upon in sufficient

detail. The views of the Ministry of Railways on Part II of the Committee's Report are contained in a separate printed compendium.

(c) In Chapter XIII of Part II of this Report, the Committee examined the organisation of the Commission of Railway Safety and its functions and made 25 observations and recommendations. In January 1970, a Meeting was held by the Secretary, Ministry of Tourism and Civil Aviation and the Commissioner of Railway Safety with the Chairman and Members of the Railway Board to finalise Government's views on the suggestions made by the Committee. Necessarily a few of the recommendations would take time to process. Some of the significant recommendations which are "under Government's consideration" are :

- (i) Increase of Circles in the Commission of Railway Safety from Five to Seven, the jurisdictions of these being determined by the Commissioner of Railway Safety.
- (ii) Making the fifth Circle, viz. the S.E. Circle based at Calcutta, permanent as it has been temporary since 1960.
- (iii) Apart from serious accidents into which statutory enquiries are obligatory, Circle Officers should inquire into such accidents as collisions and derailments involving goods trains resulting in loss of life or grievous injury and accidents at level crossings involving loss of life and grievous injury

to road users.

[Note: Accident investigations of the type mentioned to the extent possible, will depend on the implementation of the suggestion in item (i) previous.]

- (iv) A rational grade structure for officers of the Commission, volunteers from Railway service being invited from among officers in the Junior Administrative scale.
- (v) Seniority of volunteer officers in the Commission should be reckoned from date of joining the organisation and there should be no bar to selection for grades upto that of the Additional Commissioner of Railway Safety.
- (vi) Selection for the post of Commissioner of Railway Safety from among officers of the Commission exclusively.
- (vii) Secretariat status, that of Additional Secretary to the Government of India, for the Commissioner of Railway Safety.
- (viii) Regretfully the salary of the Commissioner of Railway Safety was not correspondingly raised to that of General Managers in September 1965 and the matter should be rectified without delay.
- (ix) The office of the Commissioner of Railway Safety should be transferred from Lucknow to New Delhi.

(x) Circle Offices should be located at the Headquarters of Zonal Railways.

(d) The Committee's suggestions are considered acceptable. Their implementation will conduce to better facilities and functioning of the Commission. It is desired that examination of the recommendations as are "under consideration" of the Government and their implementation should be expedited in conjunction with the Ministries concerned.

(Camp)
New Delhi,
the 11th December, 1970.

G.R. SOLE
COMMISSIONER OF RAILWAY SAFETY.



A P P E N D I X 'A'

List of New Lines, Doublings, Diversions and Electrification of existing lines authorised during 1969-70.

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(a) <u>New Railway Lines -</u>	<u>kilometres</u>
(1) Jhund to Dharangadhra (Western Railway: Broad Gauge) on 19.4.1969.	52.72
(2) New Up and Down passenger Fly over Lines for despatch to and entry from Secunderabad (South Central Railways: Broad Gauge) on 26.4.69.	9.30
(3) Ahmedabad 'E' Cabin to Shahibag Cabin (Western Railway: Broad Gauge) on 16.5.1969.	2.78
(4) Dahinsara to Maliya-Miyana (Western Railway: Metre Gauge) on 6.12.1969.	1.94
(5) Halvad to Gandhidham (Western Railway: Broad Gauge) on 30.12.1969.	138.26
(6) Alignment of New Hindumalkote station (Northern Railway: Broad Gauge) on 1.1.1970.	3.00
(7) Balharshah to Wardha Bridge (South Central Railway: Broad Gauge) on 2.1.1970.	4.85
(b) <u>Doublings -</u>	
(1) Banganga Bridge No.1252 on New Up Line at Raisi yard on Moradabad-Saharanpur doubling (Northern Railway: Broad Gauge) on 22.4.1969.	0.84
(2) Srikakulam Road to Tilaru (South Eastern Railway: Broad Gauge) on 25.4.1969.	3.14
(3) Girwar to Ganeshganj (Central Railway: Broad Gauge) on 3.5.1969.	13.70
(4) Ghatara to Sagoni (Central Railway: Broad Gauge) on 4.5.1969.	16.19
(5) Nimoda to Narainpur Tatwara (Western Railway: Broad Gauge) on 13.5.1969.	9.66
(6) Nellimarla to Gujjangivalasa (South Eastern Railway: Broad Gauge) on 19.5.1969.	8.00
(7) Bareilly City to Bareilly junction (North Eastern Railway: Metre Gauge) on 21.5.1969.	2.08

- | | |
|---|-------|
| (8) Kanhan to Kanhan Block Hut (South Eastern Railway: Broad Gauge) on 23.5.1969. | 2.05 |
| (9) Gorakhpur to Domingarh (North Eastern Railway: Metre Gauge) on 31.5.1969. | 4.34 |
| (10) Tilaru to Kotabommali (South Eastern Railway: Broad Gauge) on 18.7.1969. | 14.10 |
| (11) Manjuri Road to Baudpur (South Eastern Railway: Broad Gauge) on 23.9.1969. | 15.82 |
| (12) Baudpur to Bhadrak (South Eastern Railway: Broad Gauge) on 23.9.1969. | 6.55 |
| (13) Sore to Khantapara (South Eastern Railway: Broad Gauge) on 24.9.1969. | 18.01 |
| (14) Kotabommali to Bendikonda (South Eastern Railway: Broad Gauge) on 17.12.1969. | 35.00 |
| (15) Kareli to Bohani (Central Railway: Broad Gauge) on 4.1.1970. | 15.69 |
| (16) Bhitoni-Bikrampur-Gotegaon-Karakhel (Central Railway: Broad Gauge) on 4.1.1970. | 38.83 |
| (17) Kalhar to Bareth (Central Railway: Broad Gauge) on 16.1.1970. | 9.61 |
| (18) Gomoh to Chandrapura (Eastern Railway: Broad Gauge) on 14.9.69 and 28.1.1970 in patches. | 16.93 |
| (19) Jajpur-Keonjhar Road to Jenapur (South Eastern Railway: Broad Gauge) on 4.2.1970. | 15.69 |
| (20) Manjuri Road to Jajpur-Keonjhar Road (South Eastern Railway: Broad Gauge) on 4.2.1970. | 21.17 |
| (21) Lidhora-Khurd to Girwar (Central Railway: Broad Gauge) on 10.2.1970. | 9.99 |
| (22) Sagoni to Ratangaon (Central Railway: Broad Gauge) on 11.2.1970. | 11.02 |
| (23) Hadaspur to Ghorpuri 'B' Cabin (South Central Railway: Broad Gauge) on 8.3.1970. | 2.91 |
| (24) Andal to Taposi (Eastern Railway: Broad Gauge) on 9.3.1970. | 10.32 |
| (25) Mokholi to Malarna (Western Railway: Broad Gauge) on 13.3.1970. | 4.57 |

(c) Diversions -

- | | |
|--|------|
| (1) Main Line between Jhansi and Karari
(Central Railway: Broad Gauge)
on 11.6.1969. | 2.63 |
| (2) Main Line between Mizaj Junction and Madhav
Nagar (South Central Railway: Metre Gauge)
on 18.3.1970. | 2.49 |

(d) Electrification -

- | | |
|---|--------|
| (1) Bondāmunda to Jharsuguda (South Eastern
Railway: Broad Gauge) on 8.4.69. | 105.00 |
| (2) Jharsuguda to Bilaspur (South Eastern
Railway: Broad Gauge) on 18.2.70. | 240.00 |

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A P P E N D I X 'B'

LIST OF ACCIDENTS INQUIRED INTO BY OFFICERS OF
THE COMMISSION OF RAILWAY SAFETY DURING 1969-70.

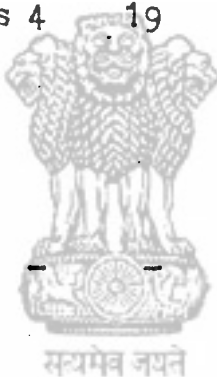
(K — Killed)

(I — Injured)

Serial No.	Brief description of accident	Casualties		Damage in Rupees to railway assets.	C a u s e
		K	I		
1.	Derailment of No.224 Down Hubli-Mysore Passenger between Gulapalyamu and Venkatampalle stations, Southern Railway, on the night of 4.4.1969.	1	26	73,000	Unauthorised interference with track.
2.	Accident to 11 Up Burdwan-Katwa Passenger Train between Amarun Halt and Bhatar stations on the Burdwan-Katwa single line Narrow Gauge Section, Eastern Railway, on 26.4.1969.	4	15	31,100	Parting on account of the coupling hook, which was loose due to inherent defects, between the first coach and the Engine coming off while on the run and the driver stop- ping the engine in contravention of extant Rules.
3.	Collision between 201 Up Badarpur- Lumding Passenger train and the Down Trial Special at Km.128.91 between Mailongdisa and Harangajao stations, Northeast Frontier Railway at 16.40 hours on 29.4.1969.	3	12	6,58,820	The improperly secured Down Trial Special rolling down and entering the Block Section already occupied by the Passenger train on proper line clear.



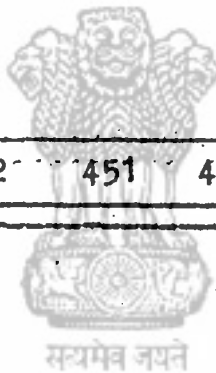
Serial No.	Brief description of accident	Casualties		Damage in Rupees to railway assets.	Cause
		K	I		
4.	Collision between No. 18 Up Delhi-Madras Janata Express train and No. 52 Up Kazi-pet-Madras Express train between Chirala and Vetapalemu stations, South Central Railway, on 17.5.1969.	-	11	15,000	Due to No. 18 Up Express being driven in disregard of Special instructions prescribed for trains moving on 'Authority to Proceed without Line Clear'.
5.	Collision of No. 54 Up Hyderabad-Madras Express with No. 16 Up New Delhi-Madras Grand Trunk Express between Vetapalemu and Kadvakuduru stations, South Central Railway, at 13.50 hours on 17.5.1969.	-	15	30,000	Due to No. 54 Up Express being driven in disregard of special instructions prescribed for trains moving on 'Authority to proceed without Line Clear'.
6.	Occurrence of casualties 4 in No. 20 Down Tinsukia-Siliguri Passenger Train between Dharamtul and Anjuri stations, Northeast Frontier Railway, on 21.5.1969.	4	19	7,990	Unauthorised carriage of explosive materials by some passengers.
7.	Fire in a Coach of No. 43 Up Darjeeling Mail at Chandanpur station, Eastern Railway, on 16.6.1969.	-	-	2,77,300	Electrical faults on the fan circuits of the Coach.
8.	Derailment of 173 Up Passenger Train at New Misamari station, Northeast Frontier Railway, on 16.6.1969.	1	5	42,790	Distortion of track due to excessive creep, jamming of joints over a long length and absence of creep anchors.
9.	Derailment of 6 Down Allahabad-Gorakhpur Express Train between Jakhania and Dulahpur stations, North Eastern Railway, on 21.6.1969.	72	127	7,63,000	Unauthorised interference with track.



Serial No.	Brief description of accident	Casualties		Damage in Rupees to railway assets.	Cause
		K	I		
10.	Derailment of 11 Down Kumaon Express between Hathras Road and Rati-ka-Nagla stations, North Eastern Railway, on 2.7.1969.	3	18	1,65,000	Unauthorised interference with track.
11.	Collision of D.513 Up Diesel Goods train and 398 Up Asansol-Puri Passenger train at Jajpur-Keonjhar Road station, South Eastern Railway, on 14.7.1969.	86	115	3,71,280	Reception of the Goods train on an occupied section.
12.	Collision of Wadi Bunder-Itarsi Freight Chief Goods Train with 357 Down Bhusaval-Jhansi Passenger Train between Itarsi 'B' and Itarsi 'C' Cabins, Central Railway, on 10.11.1969.	10	2	14,38,429	Due to the Freight Chief Goods train being driven past the Reception and Departure Signals of Itarsi 'B' Cabin.
13.	Collision of 196 Down Passenger train with a Shunting Load at Gorakhpur Junction station, North Eastern Railway, on 17.1.1970.	7	29	1,44,700	Due to 196 Down Passenger being driven without requisite care past the colour Light Home and Routing Signals when the light at these signals was extinguished.
14.	Accident to No.328 Up Secunderabad-Pune Passenger train during shunting at Wadi station, South Central Railway, on 28.2.1970.	1	4	-	Failure of the Driver to exercise sufficient vigilance and caution during shunting.



Serial No.	Brief description of accident	Casualties		Damage in Rupees, to railway assets.	Cause
		K	I		
15.	Derailment of L.7 Down Lonavla-Poona Local at Km.138/- 15-139/1 between Malavli and Kamshet stations, Central Railway, on 3.3.1970.	-	1	42,528	Obstruction on the track caused by the dislodged bottom half of the gear casing of one of the driving axles. The gear casing got dislodged due to breakage of the gear rim.
16.	Casualties among passengers travelling by A.10 Up Amber- nath-Bombay VT and No.T.22 Up Thana- Bombay VT Suburban trains, between Parel and Currey Road stations, Central Railway, on 21.3.1970.	-	52	605	A damaged gate shutter infringing the moving dimen- sions of 12' wide stock.
TOTAL...		192	451	40,61,542	



A P P E N D I X 'C'

Synopsis of a few Accidents, reportable under Section 23 of the Indian Railways Act, into which departmental inquiries were held by Committees of Railway Officers/Officials in the year 1969-70.

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1. At a Level Crossing: Between Kodigehalli and Banaswadi Stations, Southern Railway, on 7th April, 1969.

Description: On 7th April, 1969, at 20.05 hours, while No.905 Up Passenger was running between Kodigehalli and Banaswadi stations on the Bangalore City - Salem M.G. Section, one double bullock-cart suddenly crossed the manned level crossing between Outer and Home Signals at Km.407/9-10 and collided with the train engine. There were no casualties nor was there any damage to railway property.

Cause: The accident was due to non-closure of the level Crossing gate at Km.407/9-10 before the Reception signals were taken off for the train.

Recommendation: This level crossing is situated on a busy road. There is a continuous stream of motors, lorries, carts, etc. It is suggested that, though it is situated within 200 feet of the Home Signal, it may be interlocked with the Signals to prevent accidents.

2. At a Level Crossing: At Faizullapur station, Northern Railway, on 17th April, 1969.

Description: On 17th April, 1969, after signals for 11 Up Express had been lowered for a run through, the gateman of Level Crossing No.45-C opened the gates for a bullock cart to negotiate the crossing. But unfortunately while crossing the track the hind hooves of both the bullocks got trapped in the clearance between the check and running rails which caused obstruction of the Up track. The gateman with the help of others, including the cart driver, tried to extricate the hooves of the bullocks, but failed. This resulted in the bullock cart being hit by the engine of 11 Up Express. There were no casualties nor was there any damage to railway property.

Cause: The gateman is held responsible for causing an obstruction on the Up line in the face of an approaching train.

Recommendation: Whenever a level crossing is situated within station limits, it should be inter-locked with the Home Signal and telephone should also be provided over there to avoid recurrence of such accidents in future.

3. At a Level Crossing: Between Gwalior and Sithouli stations,

Central Railway, on 26th April, 1969.

Description: On 20th April, 1969, at about 03-08 hours, while 348 Up Agra-Jhansi Passenger train was running between Gwalior and Sithouli stations on Agra-Jhansi, Broad Gauge Section of Jhansi Division, its engine No.8904 WG dashed against a Motor Truck No.MPG/2117, which had forced its way on the Railway Track after smashing the Jhansi side lifting barrier of the Level Crossing Gate No.421 situated at Km.1223/10 from Bombay. There were no casualties. The cost of damage to railway property was Rs.1,500/-.

Cause: The collision was caused by the driver of the Motor Truck having failed to keep his truck under control while approaching the level crossing.

Recommendation: Nil.

4. Collision: Between Son Nagar and Bagha Bishunpur stations, Eastern Railway, on 21st April, 1969.

Description: On 21st April, 1969, M.P.372 Down Goods Train arrived at Son Nagar station at 04.00 hours and restarted at 04.25 hours after the departure signals were lowered. Simultaneously Light Engine No.12197 CWD with Loco Rest Van of 5 Up S.G. Goods, which was standing at Bagha Bishunpur station, also started at 04.25 hours from there on lowering of departure signals. Both the train and the Light engine entered the single line block section from either side and collided at Km.408/15 at 04.37 hours.

As a result of this collision, 6 empty box wagons got derailed and the engine of MP.372 Down Goods telescoped with the Light engine.

The collision resulted in the death of one person, grievous injuries to 4 persons and minor injuries to 11 persons. The cost of damage to railway property was estimated at Rs.3,95,000/-.

Cause: The accident took place on account of the two trains MP.372 and 5 S.B. light engine with R/van entering the same block section between Son Nagar and Bagha Bishunpur with their Drivers in possession of proper tokens extracted simultaneously from the block instruments of East Cabin, Son Nagar and Bagha Bishunpur station respectively due to a line contact.

Recommendation: Nil.

5. Derailment: Phirangipuram station, South Central Railway, on 21st April, 1969.

Description: On 21st April, 1969, at about 07.57 hours,

while Up Silver Arrow Goods (double headed) was passing through Phirangipuram station on Tadepalli-Donakonda Metre Gauge Section, 10 wagons 5th to 14th from Engine, derailed and the leading pair of wheels of the 15th wagon was floating, obstructing through running. There were no casualties. Railway property estimated at Rs.53,575/- was damaged.

Cause: Excessive speed and injudicious application of brakes brought about the derailment.

Recommendations: (1) It is necessary that in case of double headed working the second engine driver is also notified about the caution orders as well as any other restrictions imposed in the Brake-power Certificate. His acknowledgement should also be obtained to that effect along with the leading engine driver.

(2) It is seen that in the case of light load, the Drivers are taking less running time than the prescribed one and this variation is excessive depending on the individual Drivers as well as the load of the train. Taking into account the need for issuing different timings for maximum load as well as light load trains, two sets of intersection running time, viz., "A speed timings and B speed timings" should be issued for both Up and Down directions for all goods trains at starting stations. Drivers should be clearly notified to observe either 'A' or 'B' speed timings depending on the load of the train. This will eliminate the incidence of Drivers overspeeding under light load conditions.

6. Fire: Between Kelva Road and Saphala stations, Western Railway on 23.4.1969.

Description: On 23rd April 1969, at 13.10 hours fire was noticed in six oil tank wagons of 556 Up Goods Train between Kelva Road and Saphala stations of the Western Railway. As a result 3 railway servants were grievously injured and 4 others received minor injuries. Besides, 17 other persons received grievous injuries and 10 minor injuries. Railway property to the extent of Rs.47,000/- was damaged.

Cause: Petrol leaking from the tank wagons dropped on the cinders fallen on the track from the train engine. The master valve and discharge valve of the tank, as also the blank flanges, had not been tightened up. These resulted in the leakage of petrol.

Recommendations: (1) The fact that as many as 4 tank wagons out of 11 at Kelva forming the rear part of 556 Up were found to be leaky indicates that there is an urgent necessity for tightening up the supervisory control by TXRs at all loading points.

(2) The TYRs at train examining points of all the stations on the run should also be alerted on the necessity of detecting leakage in oil tanks and rectifying the defects.

(3) It is desirable to provide suitable fire extinguishers in the brake van of fuel specials.

7. Fire: Vangani Station, Central Railway on 25.4.1969.

Description: On 25th April, 1969 at about 18.20 hours, coach No. CR3752 WF, 3rd from engine on S.12 Up Karjat-Bombay Local caught fire and was completely gutted excluding the under-frame at Vangani station situated at Km.77/99 from Bombay on the Kalyan-Karjat Broad Gauge Section. There were no casualties due to the accident. The cost of damage to railway assets has been estimated at Rs.22,000/-.

Cause: The fire was due to the 15 way Junction Box in the lavatory (Poona end) becoming overheated due to loose contact as a result of tampering of the said Junction Box by some unknown person/persons.

Recommendations: (1) Fire extinguishers should be provided in the Brake van of the Karjat Local as well.

(2) The overhead water tanks in the lavatories of the coach on the Karjat Local should be filled with water everyday.

(3) Specific instructions should be issued to the Yard Master Kalyan not to detach the water tank from the fire fighting unit under any circumstances without the consent of RPF Inspector (Fire) Kalyan.

(4) One spare fire fighting truck, similar to Truck No.5971 should be constructed so that the same could be used effectively whenever the other fire fighting truck is marked sick or sent to shops for POH.

(5) Guards, SMs and ASMs should be sent for training in isolating a coach electrically in case of smoke or fire observed from electrically equipped coaches as required in the Hand Books of Guards and SMs.

8. At a Level Crossing: Between Sivapur and Birur stations, Southern Railway, on 30th April, 1969.

Description: On 30th April, 1969, at 23.20 hours, while No.297 Up Passenger was running between Sivapur and Birur stations, on the Birur-Talaguppa M.G. Section, it was dashed into by Lorry No.MYD 2403 at manned level crossing gate No.2. The collision resulted in simple injuries to the cleaner of the lorry. There was no damage to railway property.

Cause: The accident was due to sudden crossing of lorry in the face of the approaching train when the gateman on duty was in the process of closing the level crossing gate leaves on the right hand side (towards Sivapur) after closing the gate leaves on the left hand side (towards Birur).

Recommendations: (1) As an immediate measure, the level Crossing gate should be provided with telephone communication with the nearest station.

(2) As a permanent measure, the crossing should be provided with Signals.

9. Derailment: Between Bergaon and Murtazapur stations, Central Railway, on 2nd May, 1969.

Description: On 2nd May, 1969, at about 02.05 hours coach No. 6750 CR GT marshalled 12th from the engine of 39 Down Bombay-Nagpur Express derailed of its trailing trolley first at Km. 617-12/13 between Bergaon and Murtazapur stations with the right wheels dropping outside the track. Subsequently due to the cross pull, the leading trolley also derailed before the coach came to a halt at Km. 618/10. No casualties were involved in the mishap. The cost of damage to railway assets has been estimated at Rs. 40,855/-.

Cause: The derailment of the trailing trolley occurred due to a violent hitting and momentary wedging of the brake shoe assembly of the leading truss bar of the leading wheels between the right side check rail and gauge rail at the level crossing at Km. 617/12, as a result of working out of the right truss bar hanger top pin of the leading truss bar of the leading wheels.

Recommendations : (1) The hanger pins should be modified into a bolt with a castle nut and a securing split pin for better safety.

(2) The present arrangement of securing the truss bar safety brackets with one bolt and nut or one rivet at either end is found to be unsatisfactory as the 12 mm x 50 mm safety brackets are quite heavy and as such the rivets and bolts become loose in service. It is, therefore, recommended that the safety brackets should be fixed with two bolts and nuts with tack welding or with two rivets at each end. Further it is also recommended that the safety brackets should be fixed on the central longitudinal on one side and on the head stock on the other side and secured in the vertical position with 50 mm as depth and 12 mm as width to give better bending resistance as has been done in IRS stock.

10. Fire: Vangani station, Central Railway, on 2nd May, 1969.

Description: On 2nd May, 1969, at about 20.30 hours, engine No. 4015 EA/1 type caught fire while working 14 Up Madras-Bombay Janata Express at Km. 76/10 near Up Advanced Starter of Vangani station on the Kalyan-Karjat Broad Gauge section. No one was injured due to the accident. The damage to the locomotive has been estimated at Rs. 2,000/-.

Cause: The fire originated near No. 1 overload relay in No. 1 High Tension compartment of loco No. 4015 EA/1. The cause of the fire was parting of the High Tension Cable running between No. 1 overload relay and Line Switch 1 at the terminal lug of the No. 1 overload relay.

Recommendations: (1) The Committee recommends that the H.T. Cables from No. 1 overload relay to LSI Switch and from No. 1 overload relay to equipment switch should be replaced.

(2) Since the parting of the Cable took place due to vibration in the unsupported 4' length of H.T. Cable, the Committee recommends that additional wooden cleats should be provided to avoid the vibration on the cable.

11. At a Level Crossing: Between Aligarh and Harduaganj stations, Northern Railway on 12th May, 1969.

Description: On 12th May, 1969, train No. 356 Down Bareilly-Agra Passenger collided with Bus No. USM 7972 at the manned level crossing No. 84-B/2 between Aligarh and Harduaganj stations. As a result of the collision 22 passengers in the bus were killed and 34 received injuries. The cost of damage to the railway property has been assessed at Rs. 175/-.

Cause: The gateman failed to close the gate leaves in time and the Bus driver, attempted to pass through the level crossing in the face of the approaching train.

Recommendations: (1) The section Harduaganj-Aligarh be connected to Tundla control on the "Section Control" line also

(2) A Railway telephone should be provided in the Health Unit Aligarh with a parallel connection to the residence of A.M.O. (In-charge) Aligarh.

12. At a Level Crossing: Banda Station, Central Railway, on 13th May, 1969.

Description: On 13th May, 1969, at about 01.37 hours, while No. 522 Up Manikpur-Jhansi Fast Passenger, after starting from Banda station situated at Km. 1319/14 from Bombay on Jhansi-Manikpur Broad Gauge section of Jhansi Division was approaching 'B' Class non-interlocked level crossing gate No. 454 situated short of the Down Home Signal, it hit a Private truck No. USS-4003, which had come on the track at the Level Crossing. The

gate was open to road traffic. There was heavy damage to the truck and injuries to all its five occupants. The cost of damage to railway property was of the order of Rs.450/-.

Cause: The accident was due to the gate not having been closed to road traffic for the passage of the train and no danger signal having been displayed to the approaching train.

Recommendation: Nil.

13. At a Level Crossing: Bagbahra station, South Eastern Railway, on 21st May, 1969.

Description: On 21st May, 1969, Down Diesel open empty special ran into Motor Truck No.MPR 6761 on manned level crossing gate between Up Outer and Home Signals of Bagbahra station. The accident resulted in the death of two persons and injuries to two others, all of whom were occupants of the truck. The cost of damage to railway property was estimated at Rs.20,400/-.

Cause: The truck entered into the level crossing unobstructed and came on to the track when the train ran into it. The gate-keeper was held responsible for his failure to be present at, and close the gate.

Recommendation: The gate being extremely busy it should be interlocked as soon as possible and prior to interlocking the gate, a phone connection between the gate lodge and the Station Master should be installed so that the Station Master may be assured of closure of the gate before lowering signals for a train.

14. Derailment: Akbarganj station, Northern Railway on 23rd May, 1969.

Description: On 23rd May 1969 while Down Food Grains Special No.26 was passing through Akbarganj station, Wagon No.15227 NR, 43rd from the train engine, which developed hot axle, derailed at 23.10 hours by all wheels, 9 other wagons, 49th to 57th from the train engine also derailed by all wheels as a result of cross-pull and a series of severe jolts. No casualties were involved in the accident. Railway property to the tune of Rs.95,562/- was damaged.

Cause: The accident was due to the development of hot axle on wagon No.15227 NR while on the run.

Recommendation: The system of 'safe to run' examination for down through trains at Rosa is found to have languished and many of the down trains are being given only box feeling. Occasionally, some of the trains are not being examined at all. While cent per cent safe to run examination to down through trains at Rosa has to be ensured, responsibility for deviations

also should be determined by the Divisional Superintendent, Moradabad. There is no system of checking wagons for monthly overdue oiling as required under Headquarters letter No. 802-M/14(M-1) dated 15.4.69 in Rosa down yard in the day shift. This system also needs to be introduced by the Divisional Superintendent, Moradabad.

15. Derailment: Between Akbarganj and Sindurwa Stations, Northern Railway, on 18th June, 1969.

Description: On 18th June, 1969, the Engine of 107 Down Passenger, No. 10489 WG derailed while negotiating a 1° Curve due to the excessive speed of 85 Km.p.h. at which the engine was being driven. The presence of ballast pieces laid on both the rails contributed to the unstable conditions.

Cause: The Driver of the train was held responsible for contravening Regulations - GR's 89(a)&(b), 122, 163(b)(iii)&(iv).

Recommendation: The testing and maintenance of the portable telephone set provided on the train should be done at Kanpur and not at Lucknow, as is the practice now.

16. Derailment: Ajhai station, Central Railway, on 22nd July, 1969.

Description: On 22nd July, 1969, at about 09.50 hours, at Kms. 14 1/2-5 at Ajhai station, the rearmost coaches Nos. CR6590 GTCG and CR2912 WFC, of 6 Up Mail derailed due to the pin of the right brake hanger of the leading truss bar of the leading bogie of coach No. CR6590 GTCG working away. There were no casualties. The extent of damage to railway property was of the order of Rs 5,350/-.

Cause: No safety bracket was provided on the right side of truss bar and GI wires were provided in lieu. As a result, the right hand brake assembly started hitting the track and subsequently got entangled in the throat of crossing of point No. 8-B resulting in the right leading wheels of leading trolley mounting over it.

Recommendation: Nil.

17. Derailment: Between Duklangia and Mariani stations, Northeast Frontier Railway, on 20th August, 1969.

Description: On 20th August, 1969, Train No. 27 Up Passenger derailed, after colliding with a Motor Truck No. MNS 3549, loaded with boulders, at an unmanned 'C' Class level crossing at Km. 82/4-5, between Duklangia and Mariani stations of the N.F. Railway. The accident resulted in grievous injuries to one fireman and minor injuries to another. The cost of damage to railway property has been estimated at Rs. 6,920/-.

-:89:-

Cause: The collision was due to rash and negligent driving on the part of the driver of the Motor Truck without observing the Safety rules before passing the unmanned level crossing.

Recommendation: The Level crossing should be manned.

18. At a Level Crossing: Between parsendi and Sitapur stations, North Eastern Railway, on 20th August, 1969.

Description: On 20th August, 1969, while Up Empty Special Goods train with 15 = 18 load was running between Parsendi and Sitapur stations, its train engine dashed against a loaded motor truck No.UPD.9069 at manned level crossing gate No.8BS at Km.94/0-1. The accident resulted in the death of one unknown person travelling in the bus and of the truck driver and cleaner. Two firemen of the train sustained minor injuries. The cost of damage to railway property was of the order of Rs.18,000/-.

Cause: The Gateman did not close the level crossing gate.

19. Fire: Aroan and Shikohabad stations, Northern Railway on 25th August, 1969.

Description: While No.1 SF Up passenger train was on the run in the Aroan-Shikohabad section, the Guard of the train heard some passengers shouting and stopped the train at Km.1291/8 by applying the vacuum brake. It was found that the lavatory at the Shikohabad end of the First Class Bogie No.NR FC792 had caught fire. No casualties were involved in the accident. The damage to the Railway property has been assessed at Rs.1,30,485/-.

Cause: The cause of the fire could not be established beyond all reasonable doubt, and, therefore no railway staff was held responsible for the accident.

Recommendations: (1) The primary maintenance of the Rake Link No.98 is at Ferozepore and the secondary maintenance is at Delhi. Putting the secondary maintenance in charge of only an Assistant Fitter at Delhi is not conducive to safety and efficiency of Train Lighting maintenance in the limited time of 3 hours and 45 minutes. It is, therefore, suggested that the complement of staff for secondary maintenance in respect of the electrical portion should be in accordance with the Recommendations of the work-study Team, viz: 2 Fitters, 1 Khalasi and 1 Assistant Fitter.

(2) A study of the relevant Rake link will show that 342 Down which starts from Ferozepore at 09.45 hours on Sunday finally returns to Ferozepore as 341 Up on Friday at 07.40 hours after having worked as 2 FTD/1 SF/2SF/1FTD/341 Up. This period of nearly 5 days is considered too much for the batteries

to remain charged especially at the slow speed at which this train travels. The rake link should be broken so as to provide more frequent cell examination and cell charging. When this Rake Link runs late which is fairly frequent for passenger trains, the time available for primary maintenance at Ferozepore is correspondingly reduced.

(3) According to the R.D.S.O's instructions, the positive and negative wires should have run separately on the two sides of the coach and not in the centre. This should have been done during the last P.O.H.

(4) The main wiring has been done by using aluminium cables but in the 15 way junction box thimbles are made of copper and are under-sized for the aluminium cables. This has necessitated the cutting away of the few strands of the aluminium cables so as to accommodate the same inside the und r-sized copper thimbles. This is an incorrect practice, contrary to the recommendations of the R.D.S.O. and should be discontinued forthwith.

(5) Insulation test with the help of a meggar should be invariably performed when turning out the coaches from the Workshops after Periodical Overhauling and a proper record should be maintained. This will ensure the detection of flaws if any in the wiring.

20. Derailment: Between Ullal and Mangalore stations, Southern Railway, on 29th August, 1969.

Description: On 29th August, 1969, at about 08.15 hours, while No. 545 Kasargod-Mangalore Passenger was passing Km. 883/- 7-9 between Ullal and Mangalore, the right radial spring hanger bracket of the train engine XD 22457, which was running tender foremost, gave way and both the radial wheels derailed resulting in obstruction of through running. No casualties were involved in this Accident. The cost of damage to railway property was Rs. 10/- only.

Cause: The derailment was due to the breakage of two of the fixing bolts and working out of the nuts on three other bolts, as a result of which the right radial spring tilted, completely off-loading the right radial wheel. Consequently, the right radial wheel jumped over and derailed outside the rail and the left radial wheel derailed inside.

Recommendations: (1) All the spring gear suspension bracket bolts should be withdrawn during Schedule IV, examined and renewed wherever necessary and it must be ensured that these bolts are drive-fit ones.

These bolts should be made of high tensile steel.

(2) The train was worked tender foremost owing to the only PT class engine allotted for this service being under repairs. A better and more recently built tank engine should be allotted for this passenger service, or in the alternative, turning facilities should be provided at Kasargod.

21. Derailment: Derauli Block Hut and Zamania stations, Eastern Railway on 31st August, 1969.

Description: On 31st August, 1969 at about 02.23 hours, while No. 7 Up Toofan Express ex-Howrah to Delhi hauled by engine No. WP. 7726 was running between Derauli B.H. and Zamania stations on the Up line of the Manapur-Mughalsarai non-electrified main line section, 9 coaches of the train next to the engine derailed of all wheels between km. 707/7 and 707/11 blocking the Up main line. 36 passengers sustained trivial injuries due to the accident. The cost of damage to railway property was of the order of Rs. 42,000/-.

Cause: The derailment was due to tampering of the track by some person/persons unknown.

Recommendation: The existing instructions on locations of Gang Tool Boxes should be reviewed so as to ensure greater security.

22. Derailment: Between Dhond and Baramati stations, South Central Railway on 11th September, 1969.

Description: On 11th September, 1969, while train No. 611 Down was running on the Dhond-Baramati narrow gauge section, a loaded wagon marshalled fifth from the engine derailed at km. 270/6-7. The loss to Railway property was estimated at Rs. 1025/-.

Cause: The derailment of the wagon was the result of the imbalance caused by the combined effect of the reduction in the load of the wagon while on the run, due to the contents dropping out gradually through loosely fastened side flap and side doors, and an ill fitting pivot.

Recommendation: The possibility of posting a separate Train Examiner at the Dhond narrow gauge yard for examining and maintaining the N.G. stock should be considered.

23. Fire: Between Khar and Bandra stations, Western Railway on 2nd October, 1969.

Description: On 2nd October 1969, coach No. 112 B of SW11 Down Electric train caught fire between Khar and Bandra stations of the Western Railway. There were no casualties. The cost of damage to railway property has been estimated at Rs. 2,79,000/-.

Cause: The fire was due to initial flashover to earth in the incoming portion of the HS circuit breaker.

Recommendations: (i) protection of the feed line from pantograph upto the incoming point to the H.S. Circuit breaker by means of a roof fuse should be considered. Although this does not provide complete protection to the equipment, especially in case of high arcing faults which tend to draw low currents, such probabilities would become much less.

(ii) Isolation of fault by sub-station H.S. Circuit breakers is absolutely essential for limiting damage not only to rolling stock, but also to overhead equipment in case of faults. For this purpose the increase in fault level by provision of track cabins should be expedited.

(iii) The provision of di/dt relay or delta I relay for co-ordinating simultaneous tripping of both the breakers feeding a section should be technically examined with a view to improving the protection of rolling stock and overhead equipment.

(iv) Since the extensive damage to equipment is caused more by the continued burning of the coating of paint on the panels, the use of fire proof or fire retarding paints for the panels inside the HT compartment should be considered.

(v) The fire fighting facilities should become as far as possible independent of City Fire Brigade's assistance. This will be essential especially between Borivli and Virar where an approach to the site of accident in time is well nigh impossible by any means. Since the fire fighting equipment is very often subject to vandalism and pilferage, what is available in the stock besides being inadequate is also often not in working order. The arrangement of providing fire fighting equipment inside HT compartment has to some extent reduced these incidents. It should be augmented by facilities, such as, high pressure carbon dioxide cylinders inside the HT compartments which could release large quantity of the gas by operation of an emergency handle from outside to effectively put out or smother fire in the HT compartment. It would be worth even studying the possibility of providing a temperature sensing device which can automatically operate the cylinders. Early consideration and effective solution of this problem are absolutely essential to protect passengers and expensive equipment and to minimise damage to the rolling stock on the suburban section.

(vi) The live portion of the incoming terminals should be taped.

(vii) Insulation caps should be provided on the foundation bolts to prevent direct arcing between any live part and the

bolts on the HSCB.

(ii) In every inspection, the HSCB contacts should be inspected and the pressure between them should be checked and adjusted to specified value.

(ix) The HSCB parts must be thoroughly cleaned during the periodical inspections to avoid tracking of insulation

24. Derailment: Mollarpur station, Eastern Railway, on 25th October, 1969.

Description: On 25th October, 1969, while Diesel 433 Up Goods train with a load of 57 = 60 worked by Engine No. 18143/ WDM-2 was being admitted on the Up Loop line at Mollarpur station, the train engine entered into the Sand Hump resulting in derailment of the train engine and 14 following wagons - some of them having capsized, blocking the up and down lines. There were no casualties involved in the accident. The cost of damage to railway property was estimated at Rs. 1,41,500/-.

Cause: The derailment was due to the Driver disregarding the Home and Starter Signals and entering the loop at a speed exceeding 15 Km.p.h.

Recommendation: Nil.

25. Derailment: Between Bhikmur and Talmadla stations, South Central Railway on 29th October, 1969.

Description: On 29th October 1969, at about 05.10 hours, while No. DSL Special Down Goods Train was on the run between Bhikmur and Talmadla stations of the South Central Railway, 4 wheeler wagon No. NRC 9208, marshalled 20th from the engine, derailed of its rear pair of wheels at Km. 529/8-9. The train continued its onward journey in this condition for a length of approximately 284 metres whereafter this wagon and another 19/22 wagons derailed and capsized between Km. 529/5-3. The wagon in front viz. the 19th wagon was also pulled off the track and the draw-bar between this wagon and the one ahead was wrecked off the head stock. There were no casualties. The cost of damage to railway property amounted to Rs. 1,17,500/-.

Cause: The trailing pair of wheels of wagon No. NRC 9208 (20th wagon from the engine) dropped off the rails due to (a) excessive speed and (b) uneven loading.

Recommendation: The Commercial Department should be advised to instruct all stations at transshipment points to ensure that the loading of MG stock is done strictly as per the instructions in force, and excessive and uneven loading avoided. Special care should also be exercised at loading points of cement and stone slabs, and clear instructions issued regarding the distribution of cement bags and number of stone slabs so as to ensure even loading.

26. Derailment: Chandimandir station, Northern Railway on 15th November, 1969.

Description: On 15th November, 1969, at 07.55 hours, the Down Special Goods train ex: Kalka to Ambala ran through Surajpur and Chandimandir stations and derailed on the slip siding. 2 persons were injured due to the accident. The cost of damage to railway property has been assessed at Rs.2,25,010/-.

Cause: The derailment was due to inadequate brake power before departure of the train from Kalka and failure on the part of the driver to take adequate precautions before re-starting from the Upper Jhajjar Bridge where the train had stopped for vacuum trouble.

Recommendations: (1) The foils of O&W-61 and OPRS-22 should be serially numbered to avoid tampering at a subsequent stage by employees involved in the accident.

(2) Out of 2 vacuum exhausters at Kalka, one is not working for over an year. It should be commissioned early.

(3) Due to long steep gradient between Kalka and Chandimandir, provision of catch sidings at Surajpur and Chandimandir is recommended.

27. Derailment: Anattidal station, Southern Railway, on 15th November, 1969.

Description: On 15th November, 1969, at about 04.35 hours, while No.4029 Down Goods was allowed to run through on the main line (Road 2) on clear signals at Anattidal station in Tiruchchirappalli-Manamadurai M.G. Section, 19 wagons (18th to 36th from the engine - all loads) derailed between the Down Home and Up Starter Signals at Km.505/2-10. As a result of the accident, the Guard of the train received minor injuries. The cost of damage to railway property was estimated at Rs.1,40,716/-.

Cause: Derailment of an unknown wagon on the train, caused by certain track defects, combined with defects, presumably in the wagon, which, however, could not be established. No Railway staff is held responsible.

Recommendations: (1) It is suggested that the Railway Administration may pursue the suggestion of the Additional Commissioner of Railway Safety, Southern Circle, Bangalore City, made in the report on the derailment of No.1127 Up between Pidugurala and Nadikude in April, 1964, with the R.D.S.O. and the tolerance for rate of change of gradients laid down.

(2) In all cases of dissensions, particularly at the

Assistant Officers' Enquiry, a review of the proceedings of the Assistant Officers' Enquiry should be done by Senior Scale Officers, collectively as a Committee, and not individually.

28. Derailment: Burhanpur station, Central Railway, on 18th November, 1969.

Description: At about 0.53 hours on 18th November, 1969, Coach No.2524 CR WCD marshalled 12th from the engine of 5 Down Mail derailed with its leading pair of wheels of the leading trolley at point No.6-C at Kms.499/C-1 at Burhanpur station on Bhusaval-Itarsi BG section of Bhusaval Division. There were no casualties. The cost of damage to railway property was estimated at Rs.100/- only.

Cause: The derailment occurred due to the right leading hanger coming under the wheel which resulted in the right side wheel to mount and drop outside the track causing the corresponding left side wheel to drop inside the track.

Recommendations: (1) IRCA Rule No.12 should be suitably amended to make it obligatory on the part of HTXR not to pass the coaches fitted with open type of safety loops after workshop repairs.

(2) All the coaches fitted with open type of truss bar safety loops should be replaced by closed type of safety loops on an urgent basis.

(3) Till such time Recommendation No.(2) is implemented, the starting stations should ensure that the coaches of this type are subjected to thorough examination of the fitting of brake-gear to ascertain that there are no deficiencies and in addition secure the brake beam with chains or wire ropes of adequate section as an added precautionary measure.

(4) Intermediate stations should ensure that the safety chains/loops are intact during the train examination and also specially look out for any likely deficiencies of brake-gear fittings.

(5) With the progressive dieselisation and increase in the length of Mail, Express/Passenger trains, the train examination staff strength should be suitably augmented to intensify the examination. This aspect should receive urgent attention particularly as it may not be feasible to increase the halt of the trains at the train examination stations.

29. Derailment: Anas 'B' Cabin, Western Railway, on 6th January, 1970.

Description: On 3th January, 1970, TLR No.5639 of 26 Up A.C.C. Express derailed over points No.8 at Anas 'B' Cabin.

There were no casualties. The cost of damage to railway property was estimated at Rs 18,000/-.

Cause: The derailment was due to working out of the pin holding the brake hanger to the bracket of the bogie frame head stock on the left leading end and dropping on the run, causing the brake truss to drop and rest on the safety straps.

Recommendation: Nil.

30. Collision: Garwa Road station, Eastern Railway on 10th January, 1970.

Description: On 10th January 1970, line No.2 of the Garwa Road station was blocked by the load of 6 Down S.B. Crane Special. In the meantime, Goods Train No.MP 62 Down with a load of 46 empty wagons and 2 brakevans arrived and collided with the former, at about 23.55 hours. As a result of the collision, loaded BFR No.ER98913, which was the first vehicle of the Crane Special at the Kalka end got derailed of all the four wheels of its Howrah-end trolley. The next two vehicles, namely Inspection Carriages No.70 and 154 were smashed and thrown off the rails and staff coach No.NR FC/728 got derailed of four Kalka-end wheels. The collision resulted in the death of 1 person and injuries to 6, of whom one was grievously hurt. The cost of damage to railway property was of the order of Rs 50,550/-.

Cause: The collision was due to the Driver of 62 Down passing approach signal in the 'ON' position.

31. Derailement: Between Mahim and Matunga Road stations, Western Railway on 23rd January 1970.

Description: On 23rd January 1970, the second coach No.120 B of SW 56 Up derailed between Mahim and Matunga Road stations of Western Railway. No casualties were involved in the accident. The damage to railway property was to the extent of Rs.4,400/-.

Cause: The accident was caused by the reservoir having been broken, being loose and fallen on track. This fouled the eighth rear wheel of north bogie on the run.

Recommendations: (1) It is seen that on the underframe a large number of parts are slung. There is no separate gang for the inspection of these suspensions. In view of the safety, it is suggested that separate gangs should be created in the Carshed to inspect the suspension arrangement so that necessary remedial action can be taken in time. There are about 400/500 nuts holding various fixtures, to inspect these, one fitter per day per rake is required extra. Thus nine fitters(ELF) grade 110-180 (5 during day and 4 during night

shift) are required alongwith two ELCs grade Rs 205-280.

(2) The auxiliary tanks in the MAN stock is not provided with a sound suspension arrangement. Instead of side bracketing, it is considered that it will be better to suspend the tanks from the top so that the vertical forces can be accommodated by the vertical suspension studs. Alternatively it is suggested that the arrangements followed in the other stock may also be adopted in this stock.

(3) It is seen that one of the studs was welded with another part of the stud. Similarly one of the straps after breakage was repaired by welding. This apparently must have been done due to non-availability of right type of stores. It is, therefore, recommended that the Stores Branch should ensure that the right quality of material is supplied to the consuming department.

32. Collision: Merta Road station, Northern Railway, on 1st February, 1970.

Description: On 1st February, 1970, engine No.3717 YG of Jodhpur and 3265 YG shunting engine collided in the station section of Merta Road station. As a result of this collision, all the tender wheels of 3717 YG, all wheels of 1st and 2nd wagons from the train engine derailed and capsized. There were no casualties. The cost of damage to railway property was of the order of Rs 2,704/-.

Cause: The driver of Engine No.3717 YG passed the Down Outer signal of Merta Road at Danger.

Recommendation: The visibility of down approach signals of Merta Road is adversely affected by a series of bright yard lights. The visibility should be improved. Moreover, in general, signals were dim. Focussing and cleaning of glasses should be done at more frequent intervals.

33. At a Level Crossing: Sewait station, Northern Railway, on 9th February, 1970.

Description: On 9th February, 1970, a collision took place between Up Empty Mela rake and Truck No.7035 UPI at L/xing No.70/C at Sewait station. There were no casualties. There was also no damage to railway property.

Cause: The accident occurred as the truck driver got the gate forcibly unlocked and opened by his own men and trespassed in the face of the approaching train although restricted by the gateman on duty.

Recommendation: Nil.

34. Fire: Boisar station, Western Railway, on 4th March 1970.

Description: On 4th March 1970, fire broke out in the generator car of 28 Up at Boisar station of Western Railway. There were no casualties. Cost of damage to railway property was to the extent of Rs.70,000/-.

Cause: Live cinders in the Ash pit got lodged either on the members of the underframe soaked in coal dust and oil or came into contact with the oil soaked wooden flooring of the coach.

Recommendations: (1) The Generator cars of 1956 build for A.C. Express trains are with wooden flooring and wooden body. These cars are susceptible to instant fires, due to the presence of oil, which may get soaked on the coach members and thereby provide an ideal combustible material. The Generator Cars should be built with all steel members, having chequered plate leak proof flooring and pipe drains, with properly sealed receptacle underframe for collecting waste oil etc. thereby eliminating the possibility of the waste oil sprinkling on to the under frame members as at present.

(2) Till such time the present wooden body of power cars is replaced by all steel body in A.C. Express trains, the train should be hauled by diesel locomotives.

(3) Detergent mixed solutions should be used for cleaning the flooring inside the generator car and also the underframe members.

(4) Immediate arrangements should be made to provide leak proof steel flooring with chequered plates in the engine room.

(5) The drencher cock arrangements for quenching ashes must be maintained in proper working order on all the locomotives and the present practice of blanking off this equipment should be curbed immediately.

(6) In addition to putting responsibility on the loco staff for quenching dropped fires, it should be made incumbent on the station staff also to ensure that live cinders are not allowed to remain on the track after passing of a train.

(7) Till such time the arrangements suggested above are implemented, action should be taken to scrape and scrub inside and outside the wooden flooring and underframe members of all oil deposits, with either chemical detergents or soda ash.

(8) The Generator car should not be left unoccupied and some members of Electrical crew should always be available in the Generator cars whether in service or idle, who should examine

the same at every stop on both sides (platform side and off side) for any leakage of oil, etc.

- (9). Possibilities of providing automatic fire fighting devices in the Generator Cars, which house costly equipments should be explored in consultation with experts on the subject and if possible the same should be provided at the earliest.

35. Derailment: Diva station, Central Railway, on 9th March, 1970.

Description: On 9th March, 1970, at 06.02 hours, Down Goods Train No.VD/BSL/POL/6 Hauled by engine No.20179 WDM2 while entering Diva station, got derailed at Km.41/11 and travelled a distance of 3 Electric structure lengths before automatically coming to a stop obstructing the Up through line. There were no casualties. The cost of damage to railway property has been assessed at Rs.62,894/-.

Cause: The derailment occurred due to the connecting rod of wagon No.SR-35183, 21st from the engine, dis-engaging, falling on track and getting firmly wedged into the crossing of point No.102 of the Diva Central Cabin wrenching out the brake shaft from its bracket, thus causing an obstruction in the path of the following wagons resulting in the derailment.

Recommendation: Priority 'A' WAI may be issued for fitting a suitable safety strap for the connecting rod either in common with the brake shaft arm, or a separate one.

36. Derailment: Bommidi station, Southern Railway, on 16th March, 1970.

Description: On 16th March, 1970, at about 01.07 hours, while No.19 Down Madras Central Cochin Harbour Terminus Mail train was passing through Bommidi station on the Jolarpettai-Erode B.G. Section, one pair of wheels of Coach No.GT3886 derailed first at the crossing of points No.B-14 and subsequently rerailed at the crossing of B-12 A in a distance of 18'1"-3". No casualties were involved in the accident. The damage to railway property was only Rs.163/-.

Cause: The left leading wheel of the trailing bogie of the coach mounting over a flat iron piece which was wedged in between the left hand wing rail and splice rail of frog of the crossing of points No.R/14 at the trailing end at Bommidi station. The flat iron piece was one of the safety brackets that had got wrenched out from the same bogie coach No.GT3886 and fallen on the track, ultimately getting jammed in the frog of the crossing.

Recommendation: Till recently brake gear pins were fitted with split pins which were renewed once in two months. As it

was found that the split pins were getting sheared frequently, these were replaced recently with cotters. Examination of the cotters revealed that these cotters were also subjected to severe shear stress which could be caused only by heavy side lurches of the bogie. These split cotters should be replaced by solid steel cotters secured with safety split pins at the bottom, so that the possibility of shearing of the cotters can be minimised.

37. Derailment: Sithouli station, Central Railway, on 18th March, 1970.

Description: on 18th March, 1970, at about 05.12 hours, Coach No. FCT846-SE, marshalled third from the engine on 15 Down Grand Trunk Express which was running through Sithouli station derailed of all the four-wheels of its Delhi end trolley at Km. 1216/7 from Bombay and travelled in the derailed condition for a distance of 1230 feet. There were no casualties. The cost of damage to railway property was assessed at Rs 7,100/-.

Cause: The derailment was due to breakage of the left journal of the leading pair of wheels of the Delhi end trolley as a result of hot box.

Recommendation: Nil.

38. Derailment: Dhoki station, South Central Railway, on 24th March, 1970.

Description: on 24th March, 1970, at about 16.05 hours, while No. 1 Latur-Kurduwadi passenger train was rolling into Dhoki station, the leading bogie wheels of the tender of the train engine No. 730-G derailed after passing point No. 2. No casualties were involved in the mishap. The damage to railway property has been estimated only at Rs 50/-.

Cause: The derailment was due to excessive speed at the turn-out.

Recommendations: (1) According to the Assistant Works Manager, Kurduwadi, tenders with pressed Steel type bogies as provided in G/730 were subjected to vertical movements and side oscillations at speeds over about 48 Km.p.h. As the permissible speed is 50 Km.p.h. it was suggested that trials may be carried out by the Divisional Mechanical Engineer and Divisional Engineer, Sholapur. This should be taken up as early as possible.

(2) pending the above, it is suggested that the permissible speed in the Latur-Miraj N.G. Section be restricted to 40 Km.p.h.

(3) Due to overaged engines to the extent of 60 to 70

per cent of the total allowance, old track and due to heavy grades in the section, the Drivers are prone to run at higher speeds and above the maximum permissible speed at times, particularly on down grades before negotiating an up grade, as otherwise, they will not be able to negotiate the Up grade due to heavy load. Load trials are already submitted by the Loco Inspector and Fuel Inspector/Kurduwadi. It is suggested that the load be reduced by 20 per cent.

39. Collision: Madras Central station, Southern Railway, on 30th March, 1970.

Description: On 30th March, 1970, at about 11.00 hours, while No.MS7 Madras Central-Pattabiram Military Siding Local Train was being started from No.8 Platform at Madras Central station on the Down Fast Line, the empty rake of No.TM 4 Trivellore-Madras Central, which had earlier been drawn ahead from Canal siding No.1 to the Down Slow Line, was backed and collided with the engine of MS 7 Local train. As a result of the mishap, one person was killed and eight others received minor injuries. The cost of damage to railway property has been estimated at Rs.15,300/-.

Cause: The pointsman hand signalled the empty rake of No.TM 4 to pass Shunt Signal No.76 while this signal was 'ON'.

Recommendations: (1) The Starting Signal No.13 on the Down Slow Line should be shifted to accommodate rakes of normal composition handled on the suburban wash down sidings.

(2) The number of pointsmen may be suitably augmented for ensuring relaying the signals after a review. This should be done not only in Madras area, but also in such other areas.

