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MADRAS RECORD OFFICE.

Government of Madras.

DEPARTMENT.

G.O. No.	Press Mis.
Dated	18 / 5 .

Not to be folded or roughly handled

Read the following papers :—

No. 442. From the Acting Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, Fort St. George, dated Madras, 28th December 1871, No. 570.

With reference to G. O., No. 569, of the 27th April 1871, in the Judicial Department, I have the honour to forward letter No. 386, of the 28th June, from the Agent and Manager of the Madras Railway giving explanations regarding the arrangements for the safety of traffic on the North-West Line before the Cheyaur Bridge accident, and as now proposed.

2. The statements made by the Resident Engineer, Mr. Roberts, which are also supported by the Acting Chief Engineer, are strangely at variance with the conclusion arrived at by Mr. Master in paragraph 41, that no copies of the circular memorandum for the guidance of line watchmen had ever been supplied for use on the North-West Line. The records of the Chief Engineer's office show that the books have been repeatedly issued to the North-West Line, and Mr. Going affirms that the watchmen have been trained in strict conformity with the rules. Rule No. III. also provides for line watchmen being instructed as to their duties when unable to read even the vernacular copy of the rules.

The circular memorandum was forwarded to the Government of India for confirmation of the rules in July 1865, and sanction was given in November of the same year. The rules were first printed in May 1865 and have been kept in use ever since. A copy is enclosed.

Vide G. O., No. 3,793, dated 18th December 1865.

I have personally examined the Railway Officer's books and found at Arcotum in the Resident Engineer's office an outlay of the receipt of Issue Note No. 714, dated 10th August 1870, conveying fifty copies of the circular memorandum, viz., in Tamil twenty, in English two, and in Telugu twenty-eight. I also found in the Chief Engineer's office at Royapooram the same Issue Note filed; it bears the signature of Mr. Pfeil and also of Mr. Jaikson, the Sub-Inspector at Cuddapah, who was under the Inspector, Mr. Smith, and signed the note in acknowledgment of receipt of the fifty copies.

3. The Acting Agent is unable, paragraph 4, to offer any suggestions as to the improvement in these rules; but mentions in paragraph 6 that from the 1st June last the number of night watchmen had been increased to allow a man for each mile and a special watchman for the sole charge of each large bridge, two Inspectors being also appointed to see that the watchmen are at their posts at night.

4. In the Rules and Regulations for the Madras Railway Company, in Section 18 it is laid down in paragraph 22 that "each Foreman or Maistry must watch over the portion of the permanent way in his charge every day before the departure of the first train," and in paragraph 33 that "each Foreman or Maistry is required in the event of a flood to examine carefully the action of the water through the culverts and bridges on his length," while by the circular memorandum, paragraph 12, the duty of watchmen is "to walk daily at least four times over their respective lengths to see that the line is in proper order." In

these rules nothing is said about night watchmen nor of inspections by night, and I think it advisable that rules should be submitted for the approval of the Government defining the duties of night watchmen both at the large bridges and on other parts of the line, and also the manner in which the Inspectors of night watchmen will exercise their supervision.

5. With a second letter, No. 430, of the 19th July, the Agent furnishes a report from the Telegraph Engineer explaining the form of the block system of signalling which he would propose to adopt.

By the block system the line is supposed to be blocked between two stations, that is, no train can come upon that portion of the line until a signal is given that the line is clear. Mr. Winter shows that if the telegraph wire is broken the signal cannot be given that the line is clear, and therefore no train coming from either direction would be allowed to pass the stations between which the wire has been broken. He would further, however, suggest a plan of his own adaptation, by which a danger signal would be exhibited at each station by red discs on the wire being brought to the earth. A watchman would by this means be able to convey intimation from any point on the line to the nearest station in both directions, not merely that the line is not clear but that something has happened causing the line to be blocked.

Mr. Winter has further devised a plan of self-acting signals for the large bridges; in the event of a bridge giving way the wire over it would cause a signal to be exhibited at each end of the bridge. A full description of this method of protecting a bridge, with reference to letter from the Government of India* of the 29th June 1871, No. 1,098, is given in the Agent's last letter, No. 767, of the 18th December 1871.

*Vide G. O., No. 1,886, dated 17th July 1871.

The arrangements proposed by the Telegraph Engineer are not at present submitted for sanction: they would involve a heavy outlay, and will have to be considered when the estimates are prepared. In the meantime, as noticed above, each large bridge is protected by a watchman and each mile of line likewise.

6. Mr. Anderson records his opinion, in his letter of the 28th June, paragraph 10, that night traffic can never be conducted with perfect safety on the North-West Line under the existing state of the law as regards the responsibility of the owners of tanks. The statement accompanying shows, too, that the line has been damaged on several occasions by the bursting of tanks.

Measures have been taken by the Railway Officers to add to the security of the masonry works in general, and, in conformity with G. O., No. 1,849, dated 13th July 1871, every bridge is to be reported on that has not the protection of a flooring and retaining walls. The railway will thus be placed in an efficient condition with respect to floods; but there is still the liability to danger from the tanks along the line.

7. I beg to recommend, for the consideration of the Government, that one or more competent officers should be deputed to examine all the tanks that might affect the North-West Line, with a view to their present state being ascertained and necessary repairs or improvements carried out. It is, in my opinion, desirable that not only the tanks adjacent to the railway should be inspected but also others

above in the same drainage basin, for it may happen that a tank which is itself in good order will be breached by the bursting of other tanks above that have been neglected.

In the year 1858, when the South-West Line was injured by the bursting of tanks, the Government gave orders for immediate repairs to all tanks to secure the railway from further damage; and in March of the following year the Chief Engineer furnished reports of the District Engineers of Chingleput, Salem, and Coimbatore.

G. O., No. 577, 26th October 1858.

G. O., No. 210, 14th April 1859.

I do not find any general notice as to the condition of tanks along the South-West Line of more recent date, and thus after a lapse of twelve years it would probably be both satisfactory to the Government and assuring to the Railway Company if an inspection were made in each district of the present state of the tanks.

Many tanks on both lines are owned by Zemindars and private holders of land, who are not liable to direct interference; but I would suggest that all tanks should be examined and estimate prepared for repairs that may be needed without regard to the source from which the funds may have to be provided. Some arrangement would at the same time have to be made by the Revenue Officers with the Zemindars and others regarding the execution of repairs or the provision of funds.

The Agent has again brought to the notice of the Government the adjust of liability to danger from tanks near the line in his letter No. 702, of the 22nd November, which has been recorded in G. O., No. 3,151, dated 14th December 1871.

8. The Agent of the Great Southern of India Railway explains in the papers marginally noted the system in force on his line.

An Inspector sends a certificate every fortnight of the state of the works under his charge. All bridges are examined every morning by a Gang Maistry appointed to two miles of the line. The watchman also goes over his two miles in the morning to see that keys, etc., are secure before the trains pass.

The rules, as per copy forwarded, are printed in English and Tamil and given to Inspectors, Sub-Inspectors, Gang Maistries, and watchmen. The Inspector is held responsible that every one under him thoroughly understands the rules.

There are no night trains on this line at present, and it is not contemplated that there should be any night service on the length of line now open.

From B. ANDERSON, Esq., Acting Agent and Manager, of the Madras Railway Company, to the Acting Consulting Engineer for Railways, dated Madras, 28th June 1871, No. 386.

WITH reference to the Proceedings of the Madras Government, Judicial Department, dated 27th April 1871, I have the honour to offer the following observations.

2. The record of the evidence taken before Mr. Master is of so confusing and contradictory a nature as almost to preclude the possibility of comment, and I shall therefore confine myself to remarking upon the deductions which have called forth the censure contained in the fifth paragraph of the Government Order thereon.

*Proceedings of the Madras Government, Public Works Department,
28th February 1872.*

3. In the first place, the enclosed extract of a letter from the Chief Engineer forwarding copy of a letter from Mr. L. Roberts will, I trust, satisfy the Government that Mr. Master is not correct in his statement that the Circular Memorandum for the guidance of Watchmen, dated 26th May 1865, has never been distributed on the North-West Line.

4. These rules, which appear to me to be of the clearest and most comprehensive nature, were supplied to the Resident Engineer of the 1st Division, North-West Line, so far back as 26th May 1865, and have since then been repeatedly issued both in English and the vernacular as required. I am unable to offer any suggestions as to their improvement.

5. The whole question as regards the best precautions to be adopted in order to ensure the safety of night trains running on the North-West Line has for a long time past engaged my most serious attention, and on last Friday, the 23rd instant, I held a meeting in my office at which the following gentlemen were present:—

Acting Chief Engineer.
Locomotive Superintendent.
Traffic Manager.
Electric Telegraph Engineer.

6. Mr. Going explained that from the 1st of the present month the number of night watchmen was increased to one man per mile and a special watchman was appointed for the sole charge of each large bridge. Two Inspectors of night watchmen also were entertained, whose duties consist in accompanying the night trains to see that the watchmen are at their posts.

7. Mr. Winter exhibited a very ingenious apparatus for signalling across large bridges, and which in the event of serious damage to the bridge would cause a danger signal to be displayed at either side.

8. The Committee was of opinion that in addition to the precautions already adopted a Semaphore Signal should be erected on each side of all large bridges, such as the Cheyaur, Chittravutty, Pennair, Toongabudra, etc., and that each bridge should likewise be provided with Mr. Winter's telegraphic signalling apparatus; that the speed of night trains should be restricted to fifteen miles per hour between Cuddapah and Gooty and to twelve miles per hour between Gooty and Adoni until the cotton soil banks shall have become thoroughly consolidated.

9. As regards the employment of night Signallers at all stations past which night trains now run, it was pointed out by Mr. Church that it usually takes several months to train a Signaller in the use of the ordinary telegraph instrument, and it appeared to the Committee that the desired object would be much more completely attained by the adoption of what is known as the block system of signalling, a system that with slight additions can be so arranged as to enable a watchman on any part of the line to convey a danger signal to the stations on either side.

10. Every effort is being made to provide without delay the foot-paths and hand-rails approved by the Bridge Commission. It is hoped that the arrangements which have already been adopted and those which are now proposed will meet with the approval of Government. I desire, however, to place on record my opinion that night traffic can never be conducted with perfect safety on the North-West Line under the existing state of the law as regards the responsibility of the owners of tanks.

11. Along the whole line between Arconum and Goondacul there are a number of tanks that constitute a standing menace to the safety of our line. I subjoin, for the information of Government, a statement showing the cases of interruptions to traffic that have resulted from breaches to tank bunds on the North-West Line since 1864, and I have only to add that a recent decision of the High Court in the case of the Madras Railway Company v. The Carvetnugger Zemindar has caused the greatest anxiety to the Railway officials, inasmuch as it tends to remove all responsibility on account of the up-keep of tank bunds from the owners and thus deprives the Railway Company of its only guarantee that these bunds shall be efficiently maintained.

*Proceedings of the Madras Government, Public Works Department,
28th February 1872.*

12. I beg to forward, for the sanction of Government, a revised time table to come into effect on and after Sunday the 9th proximo, which provides for the restriction as to speed referred to above, and shall feel obliged by your communicating the necessary sanction as early as possible.

Extract from a letter from the Acting Chief Engineer, No. 253, dated 15th May 1871.

With regard to the observations made in the G. O. under reference on the subject of the rules in force on the Madras Railway for the guidance of watchmen, I must call attention to paragraph 41 of Mr. Master's letter to the Chief Secretary, in which, when alluding to the printed copy of these rules, he states as follows, "It is quite clear, however, that no copies, English or vernacular, have ever been supplied for use on the North-West Line. Mr. Roberts himself was not aware of the existence of this memorandum, and the Inspector and Section Maistry had not been instructed to use it." On reading this portion of what I supposed to be Mr. Roberts' evidence it seemed so unaccountable that I wrote to him for an explanation, and you will observe from the appended copy of his reply that the Magistrate did not fully apprehend his evidence in this matter, also that he was perfectly conversant with the rules laid down for watchmen.

The records of this office show that a number of copies of the memorandum of "Rules for the guidance of Watchmen" were supplied to the Resident Engineer of the 1st Division, North-West Line, so far back as May 26th, 1865, and that since this date they have been repeatedly issued on the North-West Line, according as required, both in English and in the vernacular. Previous to May 1865, it had been the practice to supply Resident Engineers of Divisions with copies in the vernacular of the rules applicable to line watchmen as extracted from Section 29 of Act XVIII of 1854 and issued by the Government of India for the guidance of all Railway Companies in India. As these rules appeared to us insufficient, the revised set of rules alluded to in Mr. Master's letter as the "memorandum" was issued by this office, as previously stated, in May 1865 and received the formal sanction of Government in November of the same year. Since this date our watchmen have been trained in strict conformity with these rules both on the North-West and South-West Lines, and I am of opinion that as a whole their duties have been well performed.

From L. ROBERTS, Esq., Resident Engineer, 1st Division, North-West Line, to the Acting Chief Engineer, dated Arconum, 11th May 1871, No. 947.

Yours, No. 615, of 8th instant.

With reference to the report of the Magistrate of Cuddapah on the Cheyaur Bridge accident, Mr. Master must have misunderstood my evidence. I was shown a book by him which is, I believe, that furnished to Station Masters and which was in Telugu. I was asked by him if that book contained all regulations for watchmen. I told him I believed it did, but I could not positively say so as I could not read it. I had not had time to get English copies of the Rules and Regulations from my office, but a few days afterwards I forwarded one to him. I was perfectly aware of the existence of the Circular Memorandum for the guidance of Line Watchmen dated 26th May 1865, but I had not a copy by me at the time.

Mr. Smith cannot have known what he was talking about when he gave his evidence. All the Inspectors have been continually supplied with the books, and Mr. Smith himself received fifty copies in August 1870. All the Inspectors have been perfectly acquainted with these rules whenever I have examined them in them.

The Section Maistry had only been on the line a few weeks, and Mr. Smith may not have supplied him with a copy.

*Proceedings of the Madras Government, Public Works Department,
28th February 1872.*

*Statement showing date, position, and nature of each instance which has occurred on the
Madras Railway of interruption to traffic caused by damage to the works from floods.*

Date of accident.	Position.	Nature of breach.
21st November 1864.	Breach at 62nd mile, North-West Line, on 19th November 1864.	Bursting of a large tank known as Govindarajcoopum, about ten chains to the west of the point where the bund is crossed by railway; the ballast and part of embankment were washed away.
" " "	Breach at 78th mile, North-West Line, on 19th November 1864.	Bursting of a tank bund some four or five miles up the valley. Two-feet culvert washed away, and a breach about 40 feet wide was made in the embankment.
30th " "	Breach at 62nd mile, North-West Line, on 28th November 1864.	Bursting again of the Govindarajcoopum Tank, and the line breached as on the 19th instant.
8th December 1865...	Breach at 71½ mile, 80th mile, and 96th mile, North-West Line, on 5th December 1865.	Bursting of Pootoor Tank bund (71½ miles), completely carrying away a bridge of 3-15 feet arches and leaving a gap of 120 feet. Bursting of Coyempettah Tank bund (80 miles), carrying away a 12-feet and a 6-feet arch, and leaving gaps of 140 and 120 feet, respectively. Several bridges in this locality were more or less damaged by scour.
25th August 1866 ...	Flood at 132nd and 133rd miles, North-West Line, on 21st August 1866.	Railway line breached near Ballapully bank by the overflowing of a torrent (96th mile). Bursting of a tank bund, inundating the line about 15 chains between 132nd and 133rd mile, North-West Line.
15th October "	Bursting of Coyempettah Tank bund at 80th mile, North-West Line, on 10th October 1866.	Bursting of Coyempettah Tank bund (80th mile). The rush of water through the screw pile bridge damaged the revetment of the abutment.
7th July 1868... "	Breach at 171st mile, North-West Line.	Bursting of a tank bund between Cuddapah and Camelapore, by which three arches of 5-30 feet arch bridge at 171st mile were washed away.
20th September 1870.	Breach at 168th and 172nd miles, North-West Line.	At 168 miles, in consequence of the bursting of tanks, a small bridge was scoured, and at the 172nd mile the bank was flooded but no interruption was caused to traffic.
3rd November "	Breach at 163rd and 168th miles, North-West Line.	Bursting of tanks in the neighbourhood of Cuddapah. The pier of double nine-feet girder bridge at $\frac{163}{10}$ miles gave way, also the east abutment of the twelve-feet girder bridge at $\frac{168}{10}$ miles.

(Signed) B. ANDERSON,
Acting Agent and Manager.

From B. ANDERSON, Esq., Acting Agent and Manager of the Madras Railway Company, to the Acting Consulting Engineer for Railways, dated Madras, 19th July 1871, No. 430.

With reference to your letter, No. 433, of the 5th instant, I have the honour to enclose you a copy of a Report* made by the Telegraph Engineer explanatory of the method by which

* No. 341, 10th July.

he proposes to enable watchmen to convey a danger signal to the nearest station.

From G. K. WINTER, Esq., Telegraph Engineer, to the Acting Chief Engineer, Madras Railway.
(Here enter No. 341, dated 10th July 1871.)

*Proceedings of the Madras Government, Public Works Department,
28th February 1872.*

From the Agent and Manager of the Madras Railway Company, to the Acting Consulting Engineer for Railways, dated Madras, 18th December 1871, No. 767.

With reference to your letter, No. 736, of the 28th ultimo, I have the honour to observe that this office letter, No. 386, of the 28th of June, does not indicate any provision for carrying a danger signal from our large bridges to the stations on either side. It is proposed that the system of signalling at large bridges shall be complete in itself, each bridge being provided with a Semaphore Signal at either end. The signalling apparatus devised by Mr. Winter is of a very simple description, and can be worked by the watchmen in charge of the bridge. It consists of a wire which runs from end to end of the bridge along the flange of the girder, and is connected at both ends with an instrument which exhibits either a red or white signal, as may be required. The mode of working is as follows.

2. Taking the Palar Bridge as an example, let us suppose a train expected from Madras. The watchman from the western bank of the river, after having carefully examined the bridge and returned to his station, by merely moving a handle on the instrument at his side of the river displays either a safety or danger signal to the watchman on the east bank of the river. On receipt of this signal the Semaphore is placed either at danger or all right as indicated.

3. In the ninth paragraph of the letter* under reference the block system of signalling is recommended, the use of which does not entail the necessity for the employment of trained Signallers. Any man who may be on duty at a station can see for himself whether the instrument exhibits a red or a white signal, and a watchman on any part of the line, by either cutting the wire or "putting on earth," causes the block instruments at the stations at each side of him to indicate danger.

4. I conclude that it is unnecessary for me to say that the proposals referred to above have not yet been carried into effect, and, although Mr. Anderson's letter, with which he submitted them for the sanction of Government, is dated as far back as the 23th of June last, I have not yet been informed whether they have been approved or not, neither have I learned whether the explanation afforded by Mr. Anderson in the first portion of his letter was considered by His Excellency the Governor in Council to have cleared the officers of the Company in regard to the alleged non-distribution of rules for the guidance of line watchmen.

From the Agent of the Great Southern of India Railway, to the Acting Consulting Engineer for Railways, dated Negapatam, 14th August 1871, No. 4,138.

The inquiry contained in the first paragraph of your letter, No. 241, of the 3rd instant having been referred to the Resident Engineer, I have now the pleasure to enclose a copy of that officer's reply.

2. In answer to your second question I have to state that no train is allowed to leave one station until intimation (from the station in which direction the train is proceeding) has been received by telegraph that the line is clear.

From the Acting Resident Engineer, to the Agent of the Great Southern of India Railway, dated Trichinopoly, 9th August 1871, No. 12,759.

In answer to your letter, No. 6,091-2,120, I have to inform you that the Rules and Regulations to be observed by all employes on this Railway are printed both in English and Tamil, and that a copy is handed to each Inspector, Sub-Inspector, Gang Maistry, and watchman. The Inspector's own copy is, of course, in English, and, when a Sub-Inspector can read and understand

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English, his copy is also in English; if he cannot read English he is furnished with a Tamil copy. All Gang Maistries and watchmen have a Tamil copy, but very few can read, as might be expected in men of their position. Each Inspector is responsible that his Sub-Inspector and all his Gang Maistries and watchmen thoroughly understand the Rules and Regulations, so far as their work is concerned, and no man is allowed to go on the line as Gang Maistry or watchman until the Inspector has satisfied himself that he understands the rules.

2. All our Permanent Way Inspectors have served in the capacity of Sub-Inspectors on this line, and have been familiar with the Rules and Regulations for years.

3. There is no fixed time for examining the watchman and Maistries as to their knowledge of the Rules and Regulations; but the Inspectors satisfy themselves from time to time that they are understood by all employed on the line under them.

Copy of letter, No. 12,321, dated 18th May 1871, from the Acting Resident Engineer to Agent.

With reference to the ninth paragraph of Government Order, No. 106, I have to report as follows.

2. The opened portion of our line is 168 miles long and is divided into four lengths of about 42 miles each. In charge of each portion there is an Inspector of Permanent Way and under him a Sub-Inspector. The Inspectors are, in the first place, responsible for the security of all bridges and other works on their lengths; but, as it would be impossible for an Inspector to examine all works under his charge every day, the rule hitherto has been for each Inspector to examine every bridge on his length once a fortnight and to send in a report in the form of a certificate to the Resident Engineer with any remark he may have to make as to the state of the works under his charge. All bridges are examined every morning before the passing of the first train by the Gang Maistries, who have each charge of two miles. The line watchman also goes over his two miles in the morning to see that all keys and bolts, etc., are secure, and to make them so if they are not before the first train arrives.

3. In the event of a Gang Maistry or line watchman finding anything defective with the works or way that might endanger the safety of a train, it is their duty to show a "danger signal" up and down the line and to report the matter at once to the station on each side, from which points the news would be telegraphed to the Inspector. When special trains are running it is sometimes found advisable to put on a few extra watchmen, who are generally selected from the gang coolies in preference to employing entire strangers to the line.

4. In conclusion, I have only to say that I consider the system a good one for a line on which night trains are not run, and that I do not at present see how it can be improved without adding very considerably to the cost of maintenance.

No. 443. Read the following endorsement of the Acting Consulting Engineer for Railways, dated Madras, 13th January 1872, No. 17.

Read the following letter from the Agent and Manager of the Madras Railway Company, to the Acting Consulting Engineer for Railways, dated Madras, 6th January 1872, No. 6.

I HAVE the honour to enclose, for the information of Government, the copy

* No. C.2., dated 6th January 1872. of a communication* which I have just received from the Traffic Manager

reporting a serious error which was made in the alteration of meeting stations this morning, but which was happily unattended with accident.

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2. With reference to the last paragraph of Mr. Church's letter I beg to state that I have instructed him at once to reduce Veyas Row and on no account to entrust him with the duty of altering trains again.

From H. E. CHURCH, Esq., Traffic Manager, to the Agent and Manager of the Madras Railway Company, dated Madras, 6th January 1872, No. C.2.

Alteration of Meeting Stations.

I BEG to report that in altering the meeting station of the 8-15 A.M. from Beypoor and the 5-40 A.M. Special Troop Train from Madras this morning, Veyas Row, Station Master of Madras, who was deputed to perform this duty, omitted to stop the 5-40 Train, which was late (as prescribed in the Rules printed at page 34 of the Working Time Table dated 1st October 1871), before he directed the 8-15 A.M. to proceed, and the consequence was that both trains were between Tinnanore and Trivellore stations at the same time. Fortunately the trains were stopped about one mile apart when within two miles of Trivellore, and the 8-15 A.M. was backed into that station to allow the 5-40 Special to pass.

I have withdrawn from Veyas Row the power of altering the meeting stations of trains, and do not think it is desirable that he should be again entrusted with this important duty.

SUBMITTED to the Government.

The Special Troop Train did not get away from Madras till some time after the hour fixed for its departure, viz., 5-40 A.M., on the 6th instant, and the Station Master at Madras failed to give notice to the Guard and Driver of the Troop Train to stop before he signalled to the ordinary train coming in the opposite direction to proceed from Trivellore.

According to the rules given in the Working Time Table,* at page 34, the Station Master should have first ordered the

* Copy enclosed.

Troop Train to stop at Tinnanore, and, the Guard and Driver having acknowledged the order, advice should then have been sent to Trivellore to allow the meeting train to come on to Tinnanore. In consequence of the Station Master's neglect of duty, however, the two trains were running face to face between the Tinnanore and Trivellore stations. Fortunately it was in the day time, and, the line being both level and without any sharp curves or obstructions to impede the view, the Driver of each train perceived the danger at a distance and thus the collision was averted.

2. This occurrence suggests grave doubts as to the system of working traffic affording security, and I think the Agent should be requested to take into full consideration at once the question of introducing the block system, and to furnish the estimate as referred to in the papers submitted with my letter No. 570, dated 28th December 1871.

3. The Agent has reduced the position of Veyas Row, the Station Master, and directed that he shall not again be entrusted with the duty of altering trains.

(Signed) H. L. PRENDERGAST, Major, R. E.,
Acting Consulting Engineer for Railways.

No. 444. ORDER THEREON, 28th February 1872, No. 535.

RAILWAY, No. 62.

In submitting the result of his inquiries in connexion with the Cheyaur Bridge accident on the night of the 20th October last the Magistrate of Cuddapah pointed out certain particulars in which he considered the Company's rules to be deficient and offered suggestions for the more safe and efficient conduct of the traffic in future. In reviewing Mr. Master's report the Government in the Judicial

G. O., No. 569, dated 27th April 1871. Department requested the Agent and Manager of the Madras Railway to state his opinion, through the Consulting Engineer, to the Public Works Department on the practicability of the proposals made, and in the papers above recorded these instructions are complied with.

2. Mr. Master reported that the latest rules issued for the guidance of line watchmen were never distributed on the North-West Line, and that even those rules contained no instructions as to the precautions to be taken in bad weather or any particular orders in regard to the protection of large bridges by signals or otherwise. He accordingly suggested that a new set of rules should be framed embracing these omissions, and that measures should be adopted for the stricter supervision of the night watchmen and the introduction of an improved system of signalling on occasions of special emergency. Mr. Master further recommended the employment of a night staff for every station without exception, which would be available for carrying out the provisions of the rule which requires that no engine with or without a train shall be permitted to leave one station for another until it shall have been ascertained by means of the electric telegraph that the line between is clear of all impediments.

3. The papers now before Government show that Mr. Master was mistaken in supposing that the rules issued for the guidance of line watchmen were not supplied to those on the North-West Line and that their instruction in them had been neglected.

4. At a special meeting of Railway Officers, which was held in June last to consider the precautionary measures necessary to ensure safety in working night trains on the North-West Line, it transpired that the number of night watchmen had been increased so as to allow one man for each mile of railway and a special watchman for the exclusive charge of each large bridge, two additional Inspectors having been also appointed to accompany night trains and supervise the watchmen at their posts. On the same occasion the Telegraph Engineer of the Company exhibited an apparatus for signalling across large bridges, which, in the event of serious damage, would cause a danger signal to be displayed at either side; and it was decided that the object sought to be effected by the employment of night Signallers at all stations would be more completely attained by the block system of signalling with some improvements suggested by Mr. Winter, which would prevent the passage of a train over any portion of the line that may be blocked until a signal is given showing the line to be clear. The Government approve of the principles of these precautionary measures, and direct that designs and estimates of the cost of carrying them into effect may be submitted as early as practicable.

5. The staff of watchmen now provided by the Company along the line and on the large bridges appears to be sufficient for all ordinary purposes. Special regulations for the conduct and movements of night watchmen with the duties of those in charge of bridges clearly defined should be submitted for approval.

6. The Government are inclined to doubt the gravity of the danger apprehended from the bursting of tanks along the railway if the bridges by which escape is supplied are well designed and kept in proper order; but they do not think it unreasonable that a special inquiry should be made into the state of all the tanks from which damage in case of bursting might accrue to the railway. The Superintending Engineers of the 3rd, 4th, 5th, 6th, and 7th Divisions will accordingly depute competent officers to examine all tanks in which breaches might affect the sections of the line within the limits of their respective divisions, with a view to their present condition being ascertained and the necessary repairs being carried out. The examination should extend not only to the tanks adjacent to the railway but to all above in the same drainage basin. In the case of tanks belonging to Zemindaries the Collectors will be desired to use their authority with the Zemindars to obtain the repair of such where defective.

7. The Government observe that night trains do not run on the Great Southern of India Railway and that the "line-clear" system of working is in operation on that Railway.

(True Extract.)

(Signed) J. CARPENDALE, Colonel, R.E.,

Secretary to Government.

No. 445. (DOCKET No. 536, dated 28th February 1872.)

Copy of the above is forwarded to the Government of India with reference to their letter No. 1,098, dated 29th June 1871.

(True Extract.)

Colonel, R. E.,

Secretary to Government.

Exd. A. S. Rodgers.

386

Madras Railway Company
Madras 28th June 1871.

Yours

Riverford Anderson Esq^{rs}
Acting Agent & Manager, M. R. Co.

To

Major H. L. Prendergast R.E.
Acting Cons. Engineer for Railways.

Sir,

With reference to the Proceedings of the
Madras Government, Judicial Department
dated 27th April 1871, I have the honor to offer
the following observations.

2. The record of the evidence taken
before Mr. Master is of so confusing and con-
tradictory a nature as almost to preclude the
possibility of comment, and I shall therefore
confine myself to remarking upon the deductions
which have called forth the censure contained
in the 5th paragraph of the Government Order
thereon.

3. In the first place the enclosed
extract of a letter from the Chief Engineer forward-
ing copy of a letter from Mr. B. Roberts will,
I trust, satisfy the Government that Mr.
Master is not correct in his statement that
the Circular Memorandum for the guidance
of watchmen, dated 26th May 1865 has never
been distributed on the North West Line.

4. These rules which appear to me
to be of the clearest and most comprehensive
nature were supplied to the Resident Engineer

1570

of the 1st Division, North West Line so far
back as May 26th 1865 and have since then
been repeatedly issued both in English and
the Vernacular as required. I am unable
to offer any suggestions as to their improvement.

5. The whole question as regards the
best precautions to be adopted in order to
ensure the safety of night trains running on
the North West Line, has for a long time past
engaged my most serious attention, and on
last Friday the 23rd instant I held a meeting
in my office at which the following gentlemen
were present.

Acting Chief Engineer
Locomotive Superintendent
Traffic Manager
Electric Telegraph Engineer.

6. Mr. Faring explained that from
the 1st of the present month the number of
night watchmen was increased to one man
per mile and a special watchman was
appointed for the sole charge of each large
bridge. Two Inspectors of night watchmen
also were entertained whose duties consist
in accompanying the night trains to see that
the watchmen are at their posts.

7. Mr. Kinkaid exhibited a very in-
genious apparatus for signalling across
large bridges, and which in the event of
serious damage to the Bridge would cause
a danger signal to be displayed at either
side.

8. The Committee was of opinion
that in addition to the precautions already

adopted a Semaphore signal should be erected on each side of all large bridges such as the Oheyane, Chittavutty, Pennair, Youngerabad, &c. and that each bridge should likewise be provided with Mr. Munter's telegraphic signalling apparatus. That the speed of light trains should be restricted to 15 miles per hour between Cuddalore and Ghooty and to 12 miles per hour between Ghooty and Adoni until the Cotton soil banks shall have become thoroughly consolidated.

9. As regards the employment of night signallers at all stations past which night trains now run it was pointed out by Mr. Church that it usually takes several months to train a signaller in the use of the ordinary telegraph instrument and it appeared to the Committee that the desired object would be much more completely attained by the adoption of what is known as the block system of signalling, a system that with slight additions can be so arranged as to enable a watchman on any part of the line to convey a danger signal to the stations on either side.

10. Every effort is being made to provide without delay the foot-paths and hand-rails approved by the Bridge Commission. It is hoped that the arrangements which have already been adopted and those which are now proposed will meet with the approval of Government. I desire however to place on record my opinion

19/2
that night traffic can never be conducted with perfect safety on the North West Line under the existing state of the law as regards the responsibility of the owners of tanks.

11. Along the whole line between Accrington and Foulraden there are a number of tanks that constitute a standing menace to the safety of our line. I subjoin for the information of Government a statement showing the cases of interruptions to traffic that have resulted from breaches to tank bunds on the North West Line since 1864 and I have only to add that a recent decision of the High Court in the case of the Merchants Railway Company versus The Lancashire & Yorkshire Rly Co. has caused the greatest anxiety to the Railway Officials inasmuch as it tends to remove all responsibility on account of the upkeep of tank bunds from the owners and thus deprives the Railway Company of its only guarantee that these bunds shall be efficiently maintained.

12. I beg to forward for the sanction of Government a revised time table to come into effect on and after Sunday the 9th proximo which provides for the restriction as to speed referred to above and shall feel obliged by your communicating the necessary sanction as early as possible.

I have the honor to be
Sir

Yours most obedient servt.
Wm. F. Ancher.
Ag. Agent & Manager.

Previous to May 1865 it had been the practice to supply Resident Engineers of Divisions with copies in the Vernacular, of the Rules applicable to line watchmen, as extracted from Section 29 of Act XVIII of 1854 and issued by the Government of India for the guidance of all Railway Companies in India - As these rules appeared to us insufficient the revised set of Rules alluded to in Mr. Master's letter as the "Memorandum" was issued by this office as previously stated, in May 1865, and received the formal sanction of Government in November of the same year. Since this date our watchmen have been trained in strict conformity with these Rules both on the North West and South West lines, and I am of opinion that as a whole their duties have been well performed.

(True Extract)

Yours faithfully

Acting Agent and Manager

Composed

Madras Railway Company.
1st Divn. N.W. & S.W. Engineers Office
Arcotum 11th May 1871.

No 947.

J. H. Gomez Esq.
Ag. Chief Engineer

My dear sir,

Yours No 615 of 8th instant.

With reference to the report of the Magistrate of Cuddapah on the Cheyair Bridge accident, Mr. Master must have misunderstood my evidence. I was shown a book by him which is I believe that furnished to Station Masters and which was in Teloozo. I was asked by him if that book contained all regulations for watchmen. I told him I believed it did, but I could not positively say so as I could not read it. I had not had time to get English copies of the Rules and Regulations from my office, but a few days afterwards I forwarded one to him. I was perfectly aware of the existence of the Circular Memo for the guidance of line watchmen dated 26th May 1865, but I had not a copy by me at the time.

Mr. Smith cannot have known what he was talking about when he gave his evidence. All the Inspectors have been continually supplied with the books, and Mr. Smith himself received 50 copies in August 1870. All the Inspectors have been perfectly acquainted with these rules whenever I have examined them in them.

The

The section Maistry had only been on the line a few weeks and Mr. Smith may not have supplied him with a copy.

Gover. &c.
 Mr. Roberts
 Resident Engineer

/True Copy/

/Cop. J. H. Goring
 Ag. Chief Engineer.

/True Copy/

Wm. A. Anderson
 Ag. Agent and Manager

Mr 6189/71

Statement showing date, position and nature of each instance which has occurred on the Madras Railway of interruption to traffic caused by damage to the works from floods.

Date of accident	Position	Nature of Breach
1864 Nov 21	Breach at 62 nd Mile North West Line on 19 th Nov 1864	Bursting of a large tank known as Goundaraj Cooperum about 10 Chain to the west of the point where the bund is crossed by railway, the ballast and part of embankment were washed away.
" "	Breach at 78 th Mile North West Line on 19 th Nov 1864	Bursting of a tank bund some 4 or 5 miles up the Valley, 2 feet Culvert washed away and a breach about 40' wide was made in the Embankment.
30 Dec 28	Breach at 62 nd Mile North West Line on 28 th Nov 1864	Bursting again of the Goundaraj Cooperum tank and the line breached as on the 19 th instant
65 Dec 8	Breach at 71 ^{1/2} Mile, 80 th Mile & 96 th Mile North West Line on 5 th December 1865	Bursting of Pooloor tank bund (71 ^{1/2} miles) completely carrying away a bridge of 3-15 feet arches and leaving a gap of 120 feet - Bursting of Ceyampettah Tank bund (80 miles) carrying away a 12 feet and a 6 feet arch and leaving gaps of 140 and 120 feet respectively. Several Bridges in this locality were more or less damaged.

Continued

1866 Augt 25	Flood at 132 nd & 133 rd miles at N. line on 21 st August 1866	Railway line breached near Ballapally bank by the overflowing of a torrent (96 th mile)
1866 Sept 15	Bursting of Coyampettah tank bund at 80 th mile at N. line on 10 th Decr 1866	Bursting of a tank bund inundating the line about 15 chains between 132 nd and 133 rd mile at N. line
1868 July 7	Breach at 171 st mile at N. line	Bursting of Coyampettah tank bund (80 th mile). The rush of water through the screw pile bridge damaged the rivetment of the abutment.
1870 Sept 20	Breach at 168 & 172 miles at N. line	Bursting of a tank bund between Cuddapah and Cannalore by which 3 arches of 5-30 feet arch bridge at 171 st mile were washed away.
1870 Nov 3	Breach at 168 & 168 th miles at N. line	At 168 miles in consequence of the bursting of tanks a small bridge was scoured and at the 172 nd mile the bank was flooded but no interruption was caused to traffic.
	Breach at 168 & 168 th miles at N. line	Bursting of tanks in the neighbourhood of Cuddapah, the pier of double girder bridge at 163 rd miles gone away, also the east abutment of the 12 feet girder bridge at 168 miles.

Wm. Alfred Anderson
Agent & Manager

No. 430

MADRAS RAILWAY.

AGENT AND MANAGERS' OFFICE

Madras, 19th July 1871

From

Wm. Alfred Anderson Esq.
Agent and Manager of the M. R. Co.

To

Major H. D. Prendergast, R.E.
Chf. Consulting Engineer for Railways.

Sir,

No 341-
10th July

With reference to your letter No 433 of the 5th instant, I have the honor to enclose you a copy of a Report made by the Telegraph Engineer explanatory of the method by which they propose to enable Watchmen to convey a danger signal to the nearest station.

I have the honor to be
Sir
Your most Obedient Servant
Wm. Alfred Anderson
Acting Agent & Manager

Madras Railway Company
Agent and Manager's Office
Madras 18th Decr 1871.

No. 767.

From

Robert B. Edwin Esqre
Agent and Manager, M. R. Co.

To

Major H. K. Prendergast, R.E.
Acting Cons. Engineer for Rys.

Sir,

With reference to your letter No. 736 of the 28th ultimo, I have the honour to advise that this office letter No. 386 of the 28th of June does not indicate any provision for carrying a danger signal from one large bridge to the stations on either side. It is proposed that the system of signalling at large bridges shall be complete in itself - Each bridge being provided with a semaphore signal at either end. The signalling apparatus devised by Mr. Wither is of a very simple description and can be worked by the watchmen in charge of the bridge. It consists of a wire which runs from end to end of the bridge along the flange of the Girders, and is connected at both ends with an instrument which exhibits either a red, or white signal as may be required. The mode of working is as follows.

2. Taking the Palaw Bridge as an example - Let us suppose a train expected from Madras. The watchman from the

MADRAS RAILWAY.

From

The Agent and Manager.

The Consulting Engineer

for Railways.

Dated

Recd

No. 4230.

19th Decr 1871.

Enclosing copy of a
Report made by the
Engineer in Charge of the
Palaw Bridge by which
the Engineer is enabled
to determine the cause
a danger signal to
the nearest station.

of agent & manager

31. 19

Western bank of the river after having carefully examined the Bridge and returned to his station by merely moving a handle on the Instrument at his side of the river displays ^{either} a safety or danger signal to the Watchman on the East bank of the river. On receipt of this signal the Semaphore is placed either at danger or all right as indicated.

From agent 3.
Fellauager
to Com. Engr
No. 386 dated
28th June.

In the 9th paragraph of the letter under reference the Block system of signalling is recommended, the use of which does not entail the necessity for the employment of trained signallers. Any man who may be on duty at a station can see for himself whether the Instrument exhibits a red or a white signal - and a watchman on any part of the line by either cutting the wire or "putting on earth" causes the Block instruments at the stations at each side of him to indicate danger.

14. I conclude that it is unnecessary for me to say that the proposals referred to above have not yet been carried into effect and although Mr. Anderson's letter with which he submitted them for the sanction of Government is dated as far back as the 28th of June last, I have not yet been informed whether they have been approved or not, neither have I learned whether the explanation afforded by Mr. Anderson in the first portion of his letter was considered

of agent remaining

by His Excellency the Governor in Council
to have cleared the Officers of the Company
in regard to the alleged non-distribution
of Rules for the guidance of line Watchmen.

I have the honour to be
Sir
Your most Obedient Servant

W. J. White
Agent & Manager

No. *4138* GREAT SOUTHERN OF INDIA RAILWAY.

AGENT'S OFFICE,

NEGAPATAM,

From

THE AGENT,

Great Southern of India Railway,

 T_0

To The Acting Consulting Engineer
In Railways
Madras

SIR,

The enquiry contained in the first paragraph of your letter N^o 241 of the 3^o Instant having been referred to the Resident, Inq^r. I have now the pleasure to enclose a copy of that officers reply

In answer to your second question I have to state that no train is allowed to leave one station until indication (from another the station in which direction the train is proceeding) has been received by telegraph that the line is clear.

I have the honor to be
Your most obedt servant
William B. H.
agent

From Charles Conway
 The agent nearest
 to W. H. Co.
 the city: Concord?
 Portland?
 Dated 18th
 Decr 19th 1881
 No 767.
 Furnishing explanation
 in reference to the
 system of signalling
 proposed the appended
 at large charges.

Ar 6189

Trichinopoly 9th August 1871

No 12759.

31

William L. Betts Esq.
My Dear Sir,

In answer to your letter No. 6091
I have to inform you that the Rules and Regulations
to be observed by all Employes on this Railway, are
printed both in English and Tamil, and that a Copy
is handed to each Inspector, Sub Inspector, Gang-
maistry and Watchman. The Inspectors own Copy
is of course in English, and when a Sub Inspector
can read and understand English, his Copy is also
in English, if he cannot read English he is furnish-
ed with a Tamil Copy. All Gangmaistries and
watchmen have a Tamil Copy, but very few can
read it might be expected in men of their posi-
tion. Each Inspector is responsible that his
Sub Inspector and all his Gangmaistries and
Watchmen thoroughly understand the rules and regu-
lations, so far as their work is concerned and no
man is allowed to go on the Line as Gangmaistry
or Watchman until the Inspector has satisfied himself
that he understands the rules.

All our Permanent Way Inspectors
have served in the Capacity of Sub Inspectors
on this Line and have been familiar with
the rules and regulations for years.

There is no fixed time for
examining the Watchmen and Maistries as
to their knowledge of the rules and regula-
tions, but the Inspectors satisfy themselves
from time to time that they are understood
by

RE H 138

From

The Agent.

W. L. B.

to the Agent
for Railways

Dated 14th August 1871

Enclosure copy of
President's Circulars with
Regarding the eng-
contained in enclosure
Engineer letter No 241.

Yours truly,
 Sig^d Wm. Griffith
 Acting Resident Eng^r

True Copy

Geo. L. Krennan

Ap. Clerk

11. 8. 70.

Mr. 6/18/71

With reference to the 9th para of Government order No. 106 I have to report as follows:-

The opened portion of our line is 168 miles long and is divided into four lengths of about 42 miles each, the charge of each portion there is an Inspector of Permanent Way and under him a Sub Inspector. The Inspectors are in the first place responsible for the security of all Bridges and other works on their lengths, but as it would be impossible for an Inspector to examine all works under his charge every day the rule hitherto has been for each Inspector to examine every Bridge on his length once a fortnight and to send in a report in the form of a

certificate to the Resident Engineer with
any remark he may have to make as
to the state of the works under his
charge - All Bridges are examined
every morning before the passing of the
first train by the Gang Maistries who have
each charge of two miles. The Line
Watchman also goes over his two
miles in the morning to see that
all Keys and Bolts ~~are~~ are secure
and to make them so if they are
not before the first train arrives -

In the event of a Gang Maistry
or Line Watchman finding anything
defective with the works or way that
might endanger the safety of a train,
it is their duty to show a "danger
signal" up and down the line, and
to report the matter at once to the
station on each side, from which
points the news would be telegraphed
to the Inspector. When Special trains
are running it is some times found
advisable to put on a few extra
watchmen who are generally selected
from

3.
13
from the Gang coolies in preference
to employing entire strangers to the
line.

In conclusion I have only to say
that I consider the system a good
one for a line on which night
trains are not run, and that I
do not at present see how it
can be improved without adding
very considerably to the cost of
maintenance.

Sumo

CONSULTING ENGINEER'S OFFICE.

Railway Department.

From

To

No. 578

Major H. S. Pendergast M.C.

Consulting Engineer for Railways,

Colonel J. C. Pendergast M.C.

Secretary to Government,

Public Works Department,

Fort Saint George.

Sir,

With reference to
G.O. No. 569 of the 27th April
1871, in the Judicial Depart-
ment, I have the honour to
forward letter No. 586 of the
28th June from the Agent and
Manager of the Madras
Railway, giving explanations
regarding the arrangements
for the safety of traffic on
the North-West Line before
the Calcutta bridge accident,
and

Recd 22nd May 1871
with letter No 4005920

OT 6189/71
Recd 26th Feb 1872 in L 442

and as now proposed.

The statements made by the Resident Engineer, Mr. Stobbs, which are also supported by the Acting Chief Engineer, are, however, at variance with the conclusion arrived at by Mr. Master in para 11, that in respect of the Circular Memorandum for the instruction of the watchmen had not been supplied for use on the North West Line. The records of the Chief Engineer's office show that the books have been repeatedly issued to the North West Line and Mr. Goring affirms that the watchmen have been trained in strict conformity.

Conformity with the Rules. Mr. Stobbs also provides for the watchmen being instructed as to their duties when unable to read even the minimum copy of the Rules.

The Circular Memorandum was forwarded to the Government of India for confirmation of the Rules in July 1865, and George's edition was given in evidence of the same year. The Rules were first printed in May 1865 and have been kept in use ever since. A copy is enclosed.

I have personally examined the Railway Office books and found at Amritsar in the Resident Engineer's office an

an outline of the Receipt of some
note. N. 711, dated 10th August
1871, conveying to copies of the
Circular Memo. No. 20, in dated 20,
in Eng. No. 2, and in No. 28.
Also found in the Chief
Engineer's office at Nagpuram,
the same being quite filed.
It bears the signature of Mr. J. P. Smith
and a list of Mr. Jackson the
Inspector at Cuddalore who was
under the Inspector. Mr. Smith
and signed the note in a
recognition of Receipt of the
copies.

The Acting Agent is
unable to make any
suggestions as to the improvement
in these books but mentions
in

reference to that point that the
last the number of the
men had been directed to allow
a man for each mile and a
special watchman for the whole
length of each large bridge.
The Inspector being advised
a person to be in charge of the
watchmen and the Inspector
at night.

It is also the Master and
Regulations for the
Railway Company in Section
XVIII. It is said that in
that each Government of India
must watch over the
the Government way in his charge
every day before the departure
of the first train and
para 20 that each Government

"The Master is required in the
event of a flood to examine
carefully the action of the water
through the culverts and bridges
on his route while he is in
charge. He is also to see that
of watchmen is to walk daily
at least four times over the
respective lengths, to see that
the line is in proper order."
In these rules nothing is said
about night watchmen, nor
of inspection by night; and
it is to be advised that
the rules should be submitted
for the approval of the Govern-
ment, defining the duties
of night watchmen, both
at the large bridges, and
on other parts of the line,
and

12430

and also the manner in which
the inspection should be conducted
with reference to the inspection
of the line. It is to be seen that
of the 19th July, the Bengal Government
a report from the Bengal
Engineers explaining the system
of the black signal of signalling
which he would propose to
adopt in the line.
The Bengal Government
the line is considered to be
blackened between two stations
that no one train can come upon
that part of the line until
a signal is given that the
line is clear. The Bengal
Government of the Bengal
Government is to be seen that
the Bengal Government

cannot be given, that the Line
is clear; and therefore no train
coming from either direction
would be allowed to pass the
station, between which the
wire has been broken. We
would further however suggest
a plan of sliding adaptation
by which a danger signal
would be exhibited at each
station, by red discs, the wire
being already at Liphavik. A
man would by this means
be able to convey information
from any point on the line, to
the nearest station in both
directions, not merely that
the line is not clear, but that
something has happened causing
the

the line to be blocked.
Mr. Mott has further
devised a plan of self acting signals
for the large bridges; in the event
of a bridge giving way, the wire
would cause a signal to be
exhibited at each end of the
bridge. A full description of
this method of protecting a bridge
with reference to Liphavik, the
Government of India of the 14th
June 1871 No. 1078, is given in the
Engineer's last letter No. 7 of the
18th December 1871.

Under Secy. 1881.
7th July 1871.

The arrangements proposed
by the Telegraph Engineers are not
at present submitted for sanction
they would involve a heavy outlay
and will have to be considered
when

when the estimates were prepared.
The same line, as indicated above,
each large bridge is protected by
a waterway, and each mile of line
is secured.

Mr. Andrew Records
his opinion in his letter of the
28th June, page 10, that might have
been secured by conducted with perfect
safety on the North West Line,
under the existing state of the line.
As regards the responsibility of
the owner of the line. The statement
accompanying shows that the
line has been damaged on several
occasions by the burning of tanks.

Measures have been taken
by the Railway Officers to add to
the security of the masonry works in
general: and in conformity with the
N^o.

N^o 1849, dated 13th July 1871.
every bridge over the line is inspected
and that there is no expectation
of a flooring and retaining
walls. The Railway will
thus be placed in an efficient
condition with respect to
flooding, but there is still
the liability to damage from
the tanks along the line.

I hereby recommend
for the consideration of the
Government that one or more
competent officers should be
deputed to examine all the
tanks that might affect
the North-West Line, with
a view to their present state
being ascertained, and necessary
repairs or improvements
carried

carried out. It is in my
 opinion, desirable, that not
 only the land for and adjacent to
 the Railway should be
 protected, but also others, at the
 same drainage basin,
 for it may happen that a tank
 which is itself in good order,
 will be dashed by the bursting
 of a tank above, that has
 been neglected.

In the year 1858, when the
 South-West Line was injured
 by the bursting of a tank,
 the Government gave orders for
 immediate repairs to all tanks
 to secure the Railway from further
 damage - and in the following year the Chief Engineer
 furnished

G. R. 577
 26 October 1858.

G. R. 577
 11th April 1859.

furnished reports of the District
 Engineer of the Bangalore
 and Coimbatore.

I do not object to a
 general notice as to the condition
 of tanks along the South-West
 Line, of recent date, and
 thus after a lapse of 10 years,
 it would probably be satis-
 factory to the Government,
 and according to the Railway
 Company, if an inspection were
 made in each District of the
 present state of the tanks.

Many tanks on both
 Lines are owned by Zemindars,
 and private holders of land,
 who are not liable to direct
 interference, but I would sug-
 gest that all tanks should be
 examined

examined and, external repairs
 of it repairs that may be needed
 without regard to the source from
 which the funds may have to
 be procured. And arrangements
 would at the same time have
 to be made by the Madras
 Engineer with the Government
 and other, regarding the execution
 of repairs at the expense of
 funds.

The Agent has again
 brought to the notice of the
 Government, the subject of liability
 to danger from lands, near the
 line, viz. Little & Big N. of
 the 29th Marches which have
 been recorded in G.O. No. 3751
 dated 16th December 1871.

From the
 11/12/71
 12/12/71
 13/12/71
 14/12/71

8 The Agent of the Great Southern
 of India Railway explains in the
 paper marginally noted, the system
 in force on his line.

The Inspector sends a report
 once every fortnight, of the state
 of the works under his charge.
 All bridges are examined every
 morning by a Gang Maistry, appoin-
 ted to two miles of the line. The
 watchman also goes over his two
 miles in the morning, to see that
 the works are sound, before the
 trains pass.

The Rules as per copy for-
 warded, are printed in English
 and Tamil, and given to Inspectors,
 Sub-Inspectors, Gang Maistries
 and watchmen. The Inspector
 is held responsible that every

I have the honor to be
Your most obedient Ser.
Wm. B. Lewis

0/3.

John Lin,

I beg to report that in altering the meeting (Station) of the 8.15 at all from Bayport and the 5.40 at N. Special Express Train from Alhambra this morning, Signal Box Station Master of Alhambra, who was deputed to perform this duty, omitted to stop the 5.40 Train which was late (as prescribed in the Rules printed at Page 34 of the Working Time Table dated 1st October 1871) before he directed the 8.15 at all to proceed, and the consequence was that both Trains were between Tunstall and Thimbleton Station at the same time. Fortunately the Trains were stopped about one mile apart when within 2 miles of Thimbleton, and the 8.15. was backed into that station to allow the 5.40 Special to pass.

I have withdrawn from Vegas East
the power of altering the meeting stations
of trains, and do not think it is desirable
that he should be again entrusted with the
important

Five

The Agent and Manager

70

Introduction

Dr. 217/72, Dallas

Miss Mary

3

Nothing can ever
get into such little
shallow puddles as
there is the
abundance of
nothingness of
nothingness.

important duty

Yours &c
H. E. Church
Traffic Manager

10 June 1917
W. H. Church
Agent and Manager

P. M. 21/7/17

Submitted to the Government

The special troop train did not get away from Madras till some time after the hour fixed for its departure viz 5.40 A.M. on the 6th instant, and the station master at Madras failed to give notice to the guard and driver of the troop train to stop before he signalled to the ordinary train coming in the opposite direction to proceed from Trivellore. According to the rules given in the

3 - The Agent has reduced
the position of Veyus Ras
the station master, and
directed that he shall not
again be entrusted with
the duty of altering trains.

Madras { Thursday 13th June } Major R.E.
1872 Ag Cons Com for Railway

To
The Secretary to Government
P W Department
Fort St George

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In submitting the
 result of his inquiries in
 connection with the Chicago
 bridge accident on the
 night of the 20th Oct. he
 has the Magistrate of
 Cuddalore pointed out
 certain particulars in
 which he considered
 the Company liable to
 be deficient and offered
 suggestions for the more
 safe and efficient
 conduct of the traffic in
 disputation of his opinion.
 Mr. Madras, in particular
 has recommended the
 Judicial Dept. require the
 Agent to be more careful

G.O. No. 369 of 27th April 1907

Mr. J. B. 72 West
 11th April 1907

Mr. C. J. 11th April

Mr. J. B. 11th April

Mr. J. B. 11th April

Mr. J. B. 11th April

Mr. J. B. 11th April

Mr. J. B. 11th April

Mr. J. B. 11th April

of the Madras Railway to
state his opinion through
the Consulting Engineer
to the G. W. Dept. on the
practicability of the proposals
made, and on the papers
above recorded these
instructions are complied
with.

Mr. Maister reported
that the latest rules
issued for the guidance
of the watchmen were
now distributed on the
H. W. line, and that
even those rules contained
no instructions as to the
precautions to be taken
in bad weather or on
particular occasions
regarding the protection
of large bridges by signals
or otherwise. He has
strongly suggested that
a series of rules should
be framed and promulgated
that should be
thoroughly adopted.

expressed for the
provision of the night
watchmen and the inter-
diction of any improper
system of signalling on
occasions of special
emergency. Mr. Maister
further recommended that
the employment of a
night staff for every
station in the section
in which would be avail-
able for carrying out the
provisions of the rules
which requires that
no engine shall be per-
mitted to leave a station
for another until it
shall have been ascer-
tained by means of the
electric telegraph that
the line between is clear
of all impediments.
The papers were
before us when that
Mr. Maister was desired
to have in copy for
reference that

that the rules devised for
the guidance of line riders
were not applied
to them on the N. W. line,
and that their instructions
in this regard had been ne-
glected.

An official meeting
of railway officers which
was held at Jersey last
to consider the pre-
liminary measures necessary
to insure safety in
working night trains
on the N. W. line it
transpired that the
number of night machines
had been increased
as to their number
for each mile of railway
and a special watch-
man for the barbed
chain of each bridge,
two additional inspectors
having been appointed
to do the necessary
night supervision and
supervise

inspected the stations
and their facts. And
there was occasion
the Telegraph Engineer
of the Pennsylvania
to be called out
for signalling devices
large bright lights
in the night of the
damages and to be
a danger signal to be
displayed at the
ends; and it was de-
cided that the object
ought to be effected
by the use of
night signalling
at stations and to be
more completely attained
by the use of
signalling with some
improvements suggested
by Mr. H. H. H. H.
should be made
passage of trains
and particularly of the line
that night he had
noted a signal
showing

showing the line to the river.
The Government approve
of the principles of the
proposed measures
and direct that designs
and estimates of the
cost of carrying them
into effect be submitted
as early as practicable.
The staff of
watchmen now provided
by the Company along
the line and on the
large bridges are
to be sufficient for all
ordinary purposes of
regulation for the con-
duct and management of
freight traffic and with
the duties of the
charge of bridges clearly
defined should be
submitted for approval.
The Government
are inclined to doubt
the gravity of the danger
apprehended

a special deduction from the
budgeting system to allow
the Railway of the bridge
by which it is a permanent
supply of material designed
and with respect to the
but they do not think it
improbable that the
a special inquiry should
be made into the state
of all the bridges from
which damaged cars
of freight might come
to the Railway. The
Staff of Engineers of the
3rd and 4th Divisions
will accordingly designate
competent officers to
be assigned all stations
which might affect the
safety of the line
within the limits of
their respective divisions
with view to the
preliminary conditions being
ascertained and the
necessary repairs being
carried out

Examination of the Great
 Northern Railway and
 its connection with the
 Great Northern Railway
 and the Great Northern
 Railway. The Great
 Northern Railway is
 a joint stock company
 and the Great Northern
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The Commission
 of the Great Northern
 Railway is a joint stock
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 and the Great Northern
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 company.

To the ag. Comptroller
 of the Great Northern
 Railway
 1/3/72

Despatch 1/3/72
 1/3/72

The London

In reporting the
 result of the inquiries
 into the accident which
 occurred at the Chiswick
 Bridge on the night of
 the 20th October last
 the Commission
 of the Great Northern
 Railway is a joint stock
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 company. The Great
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 a joint stock company
 and the Great Northern
 Railway is a joint stock
 company.

I would also
 report that the
 Commission of the
 Great Northern
 Railway is a joint stock
 company.

requested the Agent and
 Manager of the Great
 Northern Railway

Railway to report his
opinion through the
Chief Engineer to the
Public Works Department
on the practicality of
the suggestions made
by the Inspectors.

These instructions
are complied with in
the papers which are
now circulated. I must
bring to notice that the
Rules for the guidance
of line watchmen con-
tained in a Circular
Memo: were never dis-
tributed on the North
West Line and that
even those rules con-
tained no instruction
as to what should be
done in bad weather
or

the self acting danger
signal which would
appear when the cable
is broken in case of
rupture.

I am inclined to doubt
the priority of the
design attributed
from the history of
London from the
history of the
bridges by which an
escape is supplied
are well designed
small but in order
that I don't think
it unreasonable that
a special enquiry
should be made into
the State of the
the grounds from
which damage
= care of history

Engl. Harrow - The
Harrow. -

In the case of Banks
belonging to Gov.
exemptions for the repair
sums of the
lands excepted by
in the case of Banks
belonging to Government
the collector excepted
be made to be his
authority to the
Secretary to State
the repair of such
lands who defers.

in any order relating to
large bridges or other
matters in which
signals should be
consulted at or on them.
He was therefore of opinion
that a fresh set of Rules
should be prepared,
their provisions being
made known to the
workmen. The further
suggestion made by
the Master was that
men who should be
adopted for the super-
vision of the night work-
men who he stated
in most frequent in-
stances were practically
inefficient, and for
the introduction of
some more permanent
method

method of signalling than
at present exists on
occasions of special
emergency. Mr. Master
also recommended
the employment of a
night staff for every
station, even though
trains may not stop
at them and urged
the necessity for en-
forcing strict com-
pliance with the rule
that no engines with
or without trains
shall be permitted
to leave one station for
another until it shall
have been ascertained
by means of the telegraph
that the line between
is clear of all impediments.
The

The papers circu-
lated show that
Mr. Master was mistaken
in supposing that the
Circular Memo containing
rules for line watchmen
were not distributed
on the North West Line,
and it also appears
that the precaution
of instructing the
watchmen in their
duties had not been
suggested. At a special
meeting of Railway
Officers which was
convened on June
last to consider what
measures were necessary
to ensure the safety
of night trains running
on the North West Line,
it

it was explained that
from the 1st of that
month the number
of night watchmen
had been increased
in order to allow a
man for each mile.
A special watchman
had also been appointed
for the sole charge
of each large bridge
and two inspectors
were appointed to
visit to accompany
the night train to
see that the watchmen
were at their posts at night.
At the meeting the
Telegraph Engineer
described an apparatus
for signalling across
large bridges which
the

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the Committee were of
opinion should be
adopted in addition
to erecting a lamp
signal on each side
of a large bridge. It
was believed that the
object sought to be at-
tained by the employ-
ment of night signals
at all stations would
be more completely
attained by the block
system of signalling
with some additions
suggested by Mr. Ginter,
by which no train could
come upon the portion
of the line that is
blocked until the
signal is given that
the line is clear.
There

These suggestions have
not been carried out.
They will be taken
into consideration
when estimates are
prepared.

The Com Engineer
is of opinion that as
the rules in force do
not make any allusion
to night watchmen
or to inspectors by
night a draft of rules
defining the duties of
night inspectors and
watchmen should be
submitted for approval.

The Railway Agent
points out that night
traffic can never be
conducted with perfect
safety under the present
state

21
state of the law as re-
gards the responsibility
of the owner of tanks
and he forwards a
statement to show
how frequently damage
has been caused by the
bursting of tanks.
Providing that the com-
-missioner that one or
more competent officers
should be deputed to
examine all tanks
that might affect
the North West line
with a view to their
present condition
being ascertained
and the necessary
repairs carried out
and this examination
he would extend
not

not only to landward.
ground to the Railway
but to all along in
the same drainage
basin. He further
recommends that all
trunk along the South
West Line should be
inspected and the
necessary repairs
carried out without
regard to the source
from which funds
may have to be pro-
vided, the necessary
arrangements being
made by Revenue
officers with Zamindars
and others.
There is ^{an} night
service of trains on
the

91
the Great Southern
of India Railway.

H. L. 10th

(20)

From the Ag. Council: Ingr.
J. H. H. H. H.

Reporting that a serious
accident on the Madras Railway
was imminent, owing to notices
made in the alterations of meeting
station of trains, and recommending
the issue of Orders for the
introduction of the Block System
of working.

10.17.13. Jan. 3/72.

Circulated for orders.

The papers in con-
nection with the intro-
duction of the Block System
of working the traffic
on the Madras Railway
are now in circulation

I have not seen the
 letter of the 17th
 but I have seen the
 letter of the 18th.

The Black Legion
is organized in
the Districts of
the U.S. Dept.
of Justice. It is
organized in
every State
in the Union.

Sept 17th

12.6.18: Lang/12 Ch. 23
12.6.18: Lang/12 Ch. 16

571519
27-11-19

217
GOVT. OF INDIA
PUBLIC WORKS.

Chief-Commissioning Engineer for
Railways
and
Secretary to the Govt
of India.

28-11-1919 535-536

No. 1452 1453 1455

Chief-Commissioning Engineer for
Railways
and
Secretary to the Govt
of India.

Chief-Commissioning Engineer for
Railways
and
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of India.