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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	1508	Press
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Dated	31. 5	15/5
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Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
31st May 1875.*

No. 591. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Colonel G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 11th May 1875, No. 268 :—

I HAVE the honor to forward, for the information of Government, a note by the Deputy Consulting Engineer upon the North-West Line of the Madras Railway which was inspected by him at the end of last month.

2. The attention of the Railway authorities has been drawn to those portions of the report which require notice.

3. It will be observed that Lieutenant Conker anticipates that, during this month, the repairs to all the damaged bridges will be completed.

Note on an Inspection of the North-West Line of the Madras Railway from 25th to 30th April 1875.

1. *Permanent-way.*—The permanent-way was in excellent order throughout, and the road generally well ballasted up. Between Goondacul and Adoni the tie-bars and sleepers were exposed in places (notably at 287-8, 289-4, 296-3, and 299-4 miles), but a ballast train was working between these stations. The black cotton soil in this locality renders it difficult to keep the line thoroughly up to the usual standard, as the bank cracks and the ballast running down into the openings thus formed the road becomes hollow.

2. *Fencing.*—The fencing was in good condition. Aloes are planted throughout a large portion of the line, but wherever these have not grown freely, wire has been added. The grass has been cleared for a space of about one yard from the aloes, in order to protect them against fire. I noticed between the Pennair river and Ghooty that the grass on the slopes has been burnt for nearly the whole distance. Engine No. 40, which took the mail from Cuddapah to Ghooty on the 25th, threw out sparks almost continuously, from which I conclude its spark-arrester must be out of order. As, under the reduced rate, it is probable that considerable quantities of loose cotton will be carried over this section of the line, it appears desirable that the spark-arresters of all engines should be made as efficient as possible.

3. *Sanitary arrangements.*—The latrines were generally in good order, and the station compounds clean. At Goondacul station, on the morning of the 26th, the work had not been properly performed, owing, as the Station-master stated, to the sweeper being sick. At Tirupetty on the 30th the European latrines had not been attended to after the departure of the up mail train before the arrival of the down mail, a space of nearly three hours.

4. By the mail trains to Raichore and Bellary, one, two and three barrels of drinking water were conveyed to Nuncherla, Auspree and Veerapore stations. At Adoni, I noticed that water was distributed to passengers by a man paid by the Tahsildar, and at Auspree a reddy employs a waterman who, I was told, obtains his supply from a distance of six miles.

5. Several of the station clocks were out of order (notably Kosgec, Auspree and Veerapore), some requiring repair, while others did not show correct time. I noticed this also in the month of March when up the line.

6. The gatemens' or platelayers' huts at 287-14 and 303-10 have partially fallen down, and others are badly cracked. The work being comparatively new, it looks as if the walls were too thin to support the semi-terraced roof. The cook-room of Station-master's house at Auspree appears to have gone in the same way.

7. At Raichore everything was in very good order. The planking under the station verandah is in progress, and the lamp room nearly completed. The quarters lately sanctioned for firemen have also been commenced.

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I took the opportunity of inspecting the Great Indian Peninsula mail trains, which I found carry passengers only and have reserved accommodation for all classes. Conveniences appear to be provided in all carriages of the first and second-classes, and also in the new third-class carriages. I examined the closets on the arrival of the train, and found them to be clean and free from smell. All the third-class carriages I saw were provided with sliding shutters for protection from sun and rain.

8. *Huggry Bridge.*—The state of progress here is as follows:—

Piers 1 to 2½ have been embedded in rock by the European divers, and are ready for filling. The divers have also worked in piers 2½ to 5, and these have now to be sunk by weight-
ing with rails, after which any further work that may be found necessary will be completed by the same agency.

Piers 6 to 15 have been sunk through the sand, and rest mostly on boulders or clay. The moplabs who work the excavators by which these piers will be got down somewhat deeper have been employed in screwing piles at the damaged bridges, but will soon return to their work at the Huggry.

In piers 16 to 24 the cylinders have been sunk as far as is possible with the excavators, and, as these are all shallow, it is hoped that the pneumatic apparatus can be successfully used for embedding them. At the time of my inspection the apparatus was working in the left cylinder of pier 24, in which the rock on one side has to be cut away to a depth of 2 feet before an even bearing will be obtained. This is a slow process, as there is only one relief working four hours a day; but moplabs are being trained to this work, and it is hoped that a good number of them will be available in a few months. For piers 25 to 33 the cylinders have not yet been received from England.

9. I observed the following works in progress:—

106-3.—New 9-foot girder opening to replace 2 feet culvert: one abutment completed up to ground level: foundations for the other being taken out. Depth of foundation 6 feet on hard bunker; protective works included in the design.

173-4.—A diversion has been put in to allow of the construction of the new 20-foot girder opening to replace 6 feet culvert destroyed in October last. Materials collected, but work not yet commenced.

263-4.—Protective works to a bridge of 4-50 feet openings: speed limited to five miles per hour.

Tirupetty Station.—Walls of Engine-drivers' bungalow raised 5 feet; of refreshment room, godown, &c., 2 feet.

The arrangements sanctioned for working the block system between Goondacul station and the junction of the Bellary branch have not yet been introduced, but the well at the junction is nearly completed.

10. *Traffic.*—I had not much opportunity of inquiring into the state of the traffic, but, so far as I could learn, it was fairly good. There did not appear to be so much as usual doing in cotton. At Veerapore where 15 or 20 wagon loads per month are often sent, the number now is only 5 or 6. At Moodanoor the Station-master informed me that he had as yet received none. Between Ghooty and Goondacul I observed a long string of laden carts, and above the Paupugnee bridge a large number of carts crossed on the 29th. It was stated that a similar number crossed here daily.

11. The progress made in the restoration of the damaged bridges was as follows:—
Cheyair.—All work completed with the exception of pier 37, which is now being re-built for a single way. It was found impossible to carry out the revised design which provided for sinking wells, owing to the foundation of the overturned pier being so compact that it could not be removed or broken up. The top of the masonry was found at 7 feet below river bed, and it was resolved to build upon it in the best way possible consistent with expedition. The masonry did not extend quite far enough on one side, and in order to obtain a sufficient base for the new

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pier, 7 or 8 stout piles have been driven in on that side close to the old work, and on top of the masonry and piles a coffer dam has been sunk and filled with Portland cement concrete to a height of 3 feet, thus reaching the lowest level to which the water can be reduced by a steam pump. After this has set, the masonry for the temporary pier was laid upon it, and carried up to the proper height. The total depth of this foundation will be about 15 feet, and it will probably be considered as good as that of the old piers which are now standing. These measures were adopted in order to ensure the bridge being ready before the probable arrival of the monsoon, and the work is expected to be completed by the 15th May.

12. *Paupugnee.*—The single pier destroyed in the train accident has been replaced by piles screwed in the same position as the old ones, and the girder was being raised into position. For the four piers destroyed in October, five new ones have been placed at the centres of the former openings, as it was found impossible to screw piles at the sites of some of the old ones. There are consequently two spans of 35 feet in the present work. All that remained to be done on the 29th was the rolling of 2½ pairs of girders and the laying of the road. The bridge will probably be ready for traffic by the 20th instant, if not earlier.

13. *Chittravutty.*—All work completed except the laying of the roadway which is being got on with. The whole of this bridge was stripped to provide sleepers for temporary piers at the Pennair, and the relaying occupies some time. The work will, however, be completed by the 15th May at the latest. One set of girders has been recovered, and another is now being lifted out of the sand. The latter is much strained, and being deeply embedded, great difficulty is experienced in raising it. The piles in this bridge as well as at the Paupugnee are screwed well into the hard; three out of each trestle are jointed and screwed as far as they can be made to go, while the other two are the longest procurable single piles, so as to break joint as it were and prevent any lateral play of the piers. Altogether the work at both these rivers may be considered very reliable, and the bridges are probably stronger than before the damages occurred.

14. *Pennair.*—This bridge has presented greater difficulties than any of the others owing to traffic having been continued over it. As matters have turned out, it would probably have been better to have put in a diversion across the bed of the river in the first instance. It was found impossible to carry out the original design of supporting the girders on screw piles and building up the piers between the latter, and it was then resolved to construct temporary piers of sleepers to support the girders. The joint of two continuous girders was to be supported by a 70-foot girder resting on two of the sleeper piers, and as these piers were at the centres of the bridge openings, it was considered that with this arrangement the masonry of the new piers could be proceeded with. Instead of building these solid from the bottom, it was resolved to sink wells down to the hard and build on them. Some delay occurred in procuring bricks, and when these were ready a doubt arose as to whether it would be wise to remove the temporary piers built up on the debris of the masonry and to trust altogether to the sleeper piers in the intermediate spaces. These were of considerable height (13 to 20 feet) and being in the middle of the bridge openings, the centre or heavy portion of the girder was not directly supported, and the deflection was consequently large, 1½ inches. The result was that new piers were not commenced, and it became necessary to make such temporary arrangements as should secure the bridge against the coming monsoon. It has been determined to use for the purpose screw pile trestles to support cross girders (26 feet long) from the new Cheyair bridge. These cross girders will carry short girders (70 feet) to support the joints of the main girders. For pier No. 20, which was cracked and has fallen about 3 inches out of the perpendicular, it is proposed to sink iron cylinders on each side of it carrying cross girders, and under girders to support the joint of main girders. The pier will then be removed and its re-construction commenced. It is difficult to explain these arrangements clearly, but a plan will doubtless be submitted by the Agent soon. In the meantime the work is being pushed on vigorously, and will, it is hoped, be completed by the 20th May.

(Signed) W. H. COAKER, Lieutenant, R.E.,
Deputy Consulting Engineer for Railways.

Proceedings of the Madras Government, Public Works Department,
31st May 1875.

No. 592.

ORDER THEREON, 31st May 1875, No. 1,508.

RAILWAY, No. 68.

ORDERED to be recorded.

(True Extract.)

Major, R.E.,

Offg. Joint Secretary to Government.

Note on an inspection of the North-
West line of the Madras Railway, from
25th to 30th April 1875.

Permanent
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1. The permanent way was in
excellent order throughout, and the
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Between Gaonolacul and Adoni
the tie-bars and sleepers were ex-
posed in places, (notably at $\frac{287}{4}$,
 $\frac{289}{4}$, $\frac{296}{9}$, and $\frac{299}{4}$ miles), but a
ballast train was working between
these stations. The black cotton
soil in this locality renders it diffi-
cult to keep the line thoroughly
up to the usual standard, as
the bank cracks and the ballast
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hollow.

2. The fencing was in good condition. Alces are planted throughout a large portion of the line, but wherever there have not grown freely, wire has been added. The grass has been cleared for a space of about one yard from the alces in order to protect them against fire. I noticed between the Pennair river and Ghaty that the grass on the slopes has been burnt for nearly the whole distance. Engine N^o 40 which took the mail from Gundlupah to Ghaty on the 25th threw out sparks almost continuously, from which I conclude its spark arrester must be out of order. As, under the reduced rate, it is probable that considerable quantities

Fencing

Sanitary arrangements.

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3. The latrines were generally in good order, and the station compounds clean. At Gundlupah station on the morning of the 26th the work had not been properly performed, owing as the Station Master stated, to the sweeper being sick. At Tirupetty on the 30th the European latrines had not been attended to after the departure of the up mail train, before the arrival of the down mail, a space of nearly three hours.

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Paisare

Paihere and Bellary; one, two, and three barrels of drinking water were conveyed to Vankhila, Aupree and Veerapare stations. At Adoni, I noticed that water was distributed to passengers by a man paid by the Sahildar, and at Aupree a Reddy employed a waterman who, I was told, obtains his supply from a distance of six miles.

5. Several of the station clocks were out of order, (notably Raage, Aupree, and Veerapare) some requiring repair while others did not show correct time. I noticed this also in the month of March when up the line.

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8. The state of progress here is. Huggri bridge as follows.

Piers 1 to $2\frac{1}{2}$, have been embedded in rock by the European divers and are ready for filling. The divers have also worked in piers $2\frac{1}{2}$ to 5, and these have now to be sunk by weighting with rails, after which any further work that may be found necessary will be completed by the same agency.

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Tirupetty station: Walls of engine drivers' kitchen raised 5 feet: of refreshment room godown 2 feet.

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Traffic.

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All work completed with the exception of pier 37, which is now being rebuilt for a single way. It was found impossible to carry out the revised design, which provided for sinking wells, owing to the foundation of the overturned pier being so compact that it could not be removed or broken up. The top of the masonry was found at 7 feet below river level and it was resolved to build upon it in the best way possible consistent with expedition. The masonry did not extend quite far enough on one side and in

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10
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Railway Department.

Madras 11th May 1875.
CONSULTING ENGINEER'S OFFICE.

No. 268

From
LIEUT.-COLONEL J. H. M. SHAW-STEWART, R.E.,
Consulting Engineer for Railways,

To
COLONEL G. W. WALKER, R.E.,
Secretary to Government,
Public Works Department,
Fort Saint George.

SIR,

I have the honour to forward,
for the information of Government, a note by
the Deputy Consulting Engineer upon the
N.W. line of the Madras Railway which was
inspected by him at the end of last month.

2. The attention of the Railway Authorities
has been drawn to those portions of the report
which require notice.

3. It will be observed that Lieutenant
Cooker anticipates that, during this month, the
repairs to all the damaged bridges will be
completed.

I have the honour to be,
Sir,

Your most obed^t. Servant.

W. H. M. Stewart
Lieut. Col. R.E.
Consulting Engineer for Railways.

W. H. M. Stewart

11th May 1875
G. W. Walker
11th May 1875

Q. Co. 2101 Nov 1873 4.30 AM

P. W. 1875 20th

307

RAILWAY DEPARTMENT.

No. 3231

From

The Consulting Engineer,
for Railways,

To

The Secretary to Government,
P. W. Department,
Fort Saint George.

Dated

Reed

11/3/75

1875

2101

No. 268

Subcommittee for

the investigation of

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month

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PUBLIC WORKS.

The Consulting Engineer

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Reed

11/3/75

1875

No. 591-592

North West Line. Meeting

Secretary. - setting of

the Consulting Engineer

submitting for information

a Note by the Deputy Consulting

Engineer, upon the

which he inspected at

the end of each month, with

for use

by Comd: 157/2/3/11/11/75

Ordered the record

11/3/75

11/3/75