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(3) Initials of the Referencer _____

MADRAS RECORD OFFICE

Government of Madras

Public Works

DEPARTMENT

G.O. No.

783-84 (24)

Press

B.P. No.

Mis.

Dated

28.3.

1876.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
23th March 1876.*

No. 443. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 10th March 1876, No. 120 :—

I HAVE the honor to submit the following report upon the present condition of the works in progress upon the north section of the Northern Extension of the South Indian Railway, which have been inspected by me within the last few days, in company with Mr. Logan, the Chief Engineer of the Railway.

2. Between Madras and Chingleput, a distance of 35 miles, we travelled by engine. The bridge over the Cooum river is still unfinished ; but with that exception the line is everywhere in good condition. The delay at the Cooum bridge is due to the addition of one opening after the floods of 1874. When finished, the bridge will consist of five openings of 40 feet. There is reason to expect that the north abutment will be completed, and the last girder placed in position within a few days. The bridge over the Adyar, consisting of six openings of 66 feet, is finished, although it has not yet been tested and passed for traffic. The smaller bridges and culverts are all finished.

3. The 1st of April has latterly been named as the date for opening the line between Madras and Chingleput ; and the only thing which interferes with this arrangement is the very backward state of the station buildings, which have not yet been begun. It is difficult to explain the reason for this unfortunate delay more satisfactorily than is done in the papers printed with the Proceedings of Government, dated the 5th February 1876, No. 303. No one can regret it more than Mr. Logan does. This entire want of station accommodation makes it impossible to carry out the proposed opening upon the 1st April.

4. Between Chingleput and Tindivanam, a distance of 40 miles, the works are fairly advanced. Making allowance for all probable causes of delay, and for over-sanguine expectations, I see no reason to doubt that the line can be opened between Madras and Tindivanam upon the 1st July, the date last named for the Chingleput-Tindivanam section. The bridge over the Palar will not be finished by that date ; but that river can be crossed upon a temporary road pending the completion of the bridge ; and, with this exception, every work to the north of Tindivanam, necessary for the opening of the line, ought to be ready before the 1st July.

5. The Palar bridge will consist of eighteen openings of 120 feet, spanned by wrought iron lattice girders, resting on masonry piers. Each pier is founded upon two brick cylinders, 12 feet in external and 6 feet in internal diameter. These cylinders, when sunk to the required depth, are to be filled with concrete ; and, at $1\frac{1}{2}$ feet below the level of the lowest bed, a pavement of large stones is to be placed over the cylinders and the intermediate space. These stones are to be from 9 to 12 feet in length, and 12 inches square. Above this pavement the piers are to be carried up in solid masonry, 26 feet in length by 8 feet in width, relieving arches being turned over the spaces between the cylinders. Each abutment is founded upon six brick cylinders, 12 feet in diameter, as above described, and four small ones $8\frac{1}{2}$ feet in diameter.

The borings taken in the river-bed, when the line was surveyed, showed that the cylinders would have to go down to an average depth of 40 feet below the level of the lowest bed before reaching rock; and it seems probable that those anticipations will be verified. At the centre pier, No. 9, they were still working in sand upon the 7th instant at a depth of 32 feet below lowest bed-level; while at other piers stiff blew clay had been met with at smaller depths. The cylinders are all in position, and sunk to varying depths. The iron work is lying in the Madras goods yard. It is difficult to name a date for the completion of so large a work, subject to delay from so many causes; but I look to see it finished and ready for the passage of trains by the end of the next working season, say the 30th June 1877.

6. With this exception, all the large masonry works between Chingleput and Tindivanam are well advanced. The largest is the bridge over the Carangooly river, consisting of eleven openings of 40 feet. The masonry of this is finished, and the iron work is on the road from Cuddalore. The first section of District V is the most backward. The line runs here below the large Madrantikum tank, and many small culverts for irrigation purposes have to be provided; but these are being pushed on, and ought to occasion no delay.

7. The station buildings between Chingleput and Tindivanam are in the same backward condition as to the north of Chingleput; but the work will now be pushed on with energy; and I have no doubt that all necessary requirements will be provided before the end of June. At the Tindivanam station, which will form a temporary terminus, a triangle will be laid down, to serve the purpose of an engine turn-table. A temporary engine-shed will also be provided. A weak point in connection with this station has been removed in a satisfactory manner. The line was laid out with a falling gradient of 1 in 200 upon each side of the station yard, commencing immediately beyond the points to the north and south. By a slight and inexpensive alteration in the levels, it is now arranged so that the gradient towards the north is struck out, and that towards the south removed to some distance.

8. At the time of my inspection the rails were laid from Madras to the Carangooly river, a distance of 49 miles. Between that river and Tindivanam, a distance of 26 miles, rails were laid for 7 miles only, at detached points. There were also 4 miles of permanent-way lying on the line; so that 15 miles, besides what will be required for sidings, have still to be sent forward. Mr. Logan undertook to have this done as soon as possible. Across the bed of the Palar a temporary road is now in existence; but this has been laid upon the uneven sandy bed, and is available only for trucks. Before traffic can be undertaken, it will be necessary to construct such a road as was used during the early part of 1875 across some of the large rivers on the North-West Line of the Madras Railway; well raised above the river-bed, pitched with dry stone, and provided with temporary girder openings to pass the water during small floods in the river.

9. With the exception of the Coom bridge, alluded to in paragraph 2, all the girders are in position between Madras and Chingleput. To the south of Chingleput they are being rivetted together and placed in position as fast as possible. District No. 5 is the most backward in this respect also, owing in great measure to its being the furthest removed from Madras and Cuddalore, the two landing ports; but I

entertain no doubt that everything will be ready for the opening of the line before the end of June.

10. To the south of Tindivanam the works are also making fair progress. Some of the foundations in the large bridges are giving much trouble, especially at the Chendoor river, which it is now determined to span with two openings of 100 feet; but the work is not yet begun. The Gingee bridge, consisting of eleven openings of 30 feet, is making good progress, excellent foundations having been obtained at a depth of about 12 feet. The Vicravandy bridge, consisting of five openings of 30 feet, is being founded on brick cylinders 8 feet in diameter. One of these cylinders has gone down 22 feet through sand. At the Pombay bridge, consisting of three 30 feet openings, the masonry is finished. Most of the small masonry works to the north of Villapoorum are completed. I was not able to go further south; but I cannot see any probability of the line being opened beyond Tindivanam during the current year. Upon this point, however, I will write more fully when replying to the Order of Government, dated the 17th ultimo, No. 439.

11. The attention of the Railway authorities has been drawn to every point of importance which was observed by me during the inspection.

No. 444. ORDER THEREON, 28th March 1876, No. 783.

RAILWAY, No. 44.

In the papers recorded with G.O., No. 303, dated 5th February 1876, the date named for the opening of the Madras Chingleput section of the Northern Extension of the South Indian Railway was 1st April. The inspection of the line which the Consulting Engineer has now made shows that owing to the backward state of the station buildings, many of which are not even commenced, further delay must occur before this portion of the line can be made available for traffic. The Chief Engineer, when reporting on the matter in

January* last, although admitting the incompleteness of the station arrangements, did not apparently anticipate that the opening of the line would be delayed thereby; but considered that if the Coom bridge could be got ready by the 1st April—and in regard to this no difficulty was apprehended—there was nothing to prevent the opening of the line by that date. Now, however, there seems no prospect of this section being ready before the 1st July, the date named for the completion of the Chingleput-Tindivanam section. His Grace the Governor in Council is very much disappointed. The forecasts which have hitherto been made have proved so unreliable that His Grace the Governor in Council is unable to look forward with any confidence to the realization of those now made. Even these depend upon the crossing of the Palar river by a temporary road similar to those which have been used on the North-West Line of the Madras Railway, as the bridge itself will, it is observed, not be completed before June 1877.

2. The Governor in Council equally with the Government of India are anxious† that the whole Northern Extension should, if possible, be opened for traffic during this year; but the report of Consulting Engineer shows that it is not probable

† Letter, No. 357-R., dated 5th February 1876, recorded with G.O., No. 439, dated 17th February 1876.

*Proceedings of the Madras Government, Public Works Department,
28th March 1876.*

that any portion of the line south of Tindivanam will be ready by that date. Upon this subject, however, a further report is promised.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 445.

DOCKET No. 784, dated 28th March 1876.

COPY of the above forwarded for the information of the Government of India.
(True Extract.)

Major-General, R. E.,
Secretary to Government.

RAILWAY DEPARTMENT

CONSULTING ENGINEER'S OFFICE.

Madras, 10th March 1876.

No. 120

From

LIEUT.-COLONEL J. H. M. SHAW-STEWART, R.E.,

Consulting Engineer for Railways,

To

MAJOR-GENERAL G. W. WALKER, R.E.,

Secretary to Government,

Public Works Department,

Fort Saint George.

SIR,

I have the honour to submit the following report upon the present condition of the works in progress upon the north section of the Northern Extension of the South Indian Railway which have been inspected by me within the last few days, in company with Mr. Logan, the Chief Engineer of the Railway, &c. &c. &c. Between Madras and

and Chingput, a distance of 35 miles, we travelled by engine. The bridge over the Lacum river is still unfinished; but with that exception the line is everywhere in good condition. The delay at the Lacum bridge is due to the addition of one opening after the floods of 1874. When finished, the bridge will consist of five openings of 40 feet. There is reason to expect that the north abutment will be completed, and the last girder placed in position within a few days. The bridge over the Adyar, consisting of six openings of 66 feet, is finished, although it has not yet been tested and passed

passed for traffic. The smaller bridges and culverts are all finished.

3. The 1st of April has latterly been named as the date for opening the line between Madras and Chingput, and the only thing which interferes with this arrangement is the very backward state of the station buildings, which have not yet been begun. It is difficult to explain the reason for this unfortunate delay more satisfactorily than is done in the paper printed with the Proceedings of Government dated the 5th February 1876, No. 303. No one can regret it more than Mr. Logan does. This entire want of station accommodation makes it impossible

impossible to carry out the proposed opening upon the 1st April.

Between Chingleput and Sindivanam, a distance of 40 miles, the works are fairly advanced. Making allowance for all probable causes of delay, and for over sanguine expectations, I see no reason to doubt that the line can be opened between Madras and Sindivanam upon the 1st July, the date last named for the Chingleput-Sindivanam section. The bridge over the Palur will not be finished by that date, but that river can be crossed upon a temporary road, pending the completion of the bridge, and with

with this exception, every work to the north of Sindivanam, necessary for the opening of the line, ought to be ready before the 1st July.

The Palur bridge will consist of eighteen openings of 120 feet, spanned by wrought iron lattice girders, resting on masonry piers. Each pier is founded upon two brick cylinders, 12 feet in external and 6 feet in internal diameter. These cylinders, when sunk to the required depth, are to be filled with concrete, and, at $1\frac{1}{2}$ feet below the level of the lowest bed, a pavement of large stones is to be placed over the cylinders and the intermediate space. These stones are to be from 9 to 12 feet in length, and 12 inches square.

Shaw

Above this pavement the piers are to be carried up in solid masonry, 26 feet in length by 8 feet in width: relieving arches being turned over the spaces between the cylinders. Each abutment is founded upon six brick cylinders, 12 feet in diameter, as above described; and four small ones, $8\frac{1}{2}$ feet in diameter.

The borings taken into the river bed when the line was surveyed, showed that the cylinders would have to go down to an average depth of 40 feet below the level of the lowest bed before reaching rock; and it seems probable that these anticipations will

be

11 4
be verified. At the centre pier, No. 9, they were still working in sand upon the 7th instant at a depth of 32 feet below lowest bed level; while at other piers stiff blue clay had been met with at smaller depths. The cylinders are all in position, and sunk to varying depths. The iron-work is lying in the Macbrac goods yard. It is difficult to name a date for the completion of so large a work, subject to delay from so many causes, but I look to see it finished and ready for the passage of trains by the end of the next working season, say the 30th June 1877.
b. With this exception, all the large masonry works between

between Chingliput and Sindivani are well advanced. The largest is the bridge over the barangash river, consisting of eleven openings of 40 feet. The masonry of this is finished, and the iron-work is on the road from Kusdolalere. The first section of District V is the most backward. The line runs here below the large Machantekum tank, and many small culverts for irrigation purposes have to be provided; but these are being pushed on, and ought to occasion no delay.

The station buildings between Chingliput and Sindivani are in the same backward

13 5
backward condition as to the north of Chingliput; but the work will now be pushed on with energy, and I have no doubt that all necessary requirements will be provided before the end of June. At the Sindivani station, which will form a temporary terminus, a triangle will be laid down, to serve the purpose of an engine turn-table. A temporary engine-shed will also be provided. A weak point in connection with this station has been removed in a satisfactory manner. The line was laid out with a falling gradient of 1 in 200 upon each side of the station yard, commencing immediately beyond the points

to

to the north and south. By a slight and inexpensive alteration in the levels, it is now arranged so that the gradient towards the north is struck out, and that towards the south is removed to some distance.

8. At the time of my inspection the rails were laid from Masdrao to the Barangashy river, a distance of 49 miles. Between that river and Lindivanum, a distance of 26 miles, rails were laid for 7 miles only, at detached points. There were also 4 miles of permanent way lying on the line, so that 15 miles, besides what will be required for sidings, have

have still to be sent forward. Mr. Logan undertook to have this done as soon as possible. Across the bed of the Palae a temporary road is now in existence, but this has been laid upon the uneven sandy bed, and is available only for trucks. Before traffic can be undertaken, it will be necessary to construct such a road as was used during the early part of 1895 across some of the large rivers on the north-west line of the Masdrao Railway: well raised above the river bed, pitched with dry stone, and provided with temporary girder openings to pass the water during small floods in

in the river

9. With the exception of the Coom bridge, alluded to in paragraph 2, all the girders are in position between Madras and Chingleput. To the south of Chingleput they are being rivetted together and placed in position as fast as possible.

District N. 5 is the most backward in this respect also, owing in great measure to its being the furthest removed from Madras and Cuddalore, the two landing ports; but I entertain no doubt that everything will be ready for the opening of the line before the end of June.

10. To the south of Sindivanam the works are also making

17
making fair progress. Some of the foundations in the larger bridges are giving much trouble, especially at the Chendla river, which it is now determined to span with two openings of 100 feet, but the work is not yet begun. The Gingee bridge, consisting of eleven openings of 30 feet, is making good progress, excellent foundations having been obtained at a depth of about 12 feet. The Viravandy bridge, consisting of five openings of 30 feet, is being founded on brick cylinders 8 feet in diameter. One of these cylinders has gone down 22 feet through sand. At the Pombay bridge, consisting of three 30 feet openings, the masonry is finished. Most of the small masonry works to

to the north of Villapazum are
completed. I was not able to go
further south; but I cannot
see any probability of the line
being opened beyond Tindiv-
num during the current year.

Upon this point however I
will write more fully when
replying to the Order of Government
dated the 17th ultimo, N. 439.

The attention of the
Railway Authorities has been
drawn to every point of im-
portance which was observed
by me during the inspection.

I have the honour to be
Yours most obedient servant
Maurice L. G. C. B.,
Genl. Engineer for Railways.

4021st Sept 75 No 2739
 Ch: Engin No 76 of 16 Jan 76 orig
 4025 Jan 76 No 197
 5 Feb 76 No 303 & 304
 17 " " 439-

No 783
 Public Works Department

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 28th March 1876

Read the following:—

From
 The Consulting Engineer
 for Railways } (W.E. No 120 of 10 March 76)
 Print

In the papers
 recorded with G. O. No 303
 dated 5 February 1876
 the date named for the
 opening of the Madras-
 Chingleput section
 of the Northern exten-
 sion of the South In-
 dian Railway was
 1st April. The inspection
 of the line which the
 Consulting Engineer has
 now made shows that
 owing to the backward
 state of the Station
 building

Rec

11/11

P. M. 1876 Dept
 RAILWAY DEPARTMENT.
 From
 The Consulting Engineer
 for Railways,
 To
 The Secretary to Government,
 P. W. Department,
 Fort Saint George.
 Dated 10th March 1876
 Recd

No 120

Submitting as
 report upon the present
 condition of the works
 in progress upon the
 North section of the
 Madras & Chingleput
 of the South Indian
 Railway

14/10 March 76 1876

No 443

14-2-76

many of which must be commenced

buildings ~~and~~ further
delay must occur before
this portion of the line
can be made available The Chief Engineer
for traffic. When reporting
on the matter in January ^{Letter No. 168}
last ~~the Chief Engineer~~,
although admitting the
incompleteness of the
station arrangements,
did not apparently
anticipate that the
opening of the line would ~~be~~
be delayed thereby; but
considered that if the
Coorn bridge could be
got ready by the ~~1st~~
April and in regard to
this no difficulty was
apprehended. there was
nothing to prevent the
opening

opening of the line by
that date. Now however
there seems no prospect
of this section being
ready before the 1st
July, the date named
for the completion of
the Chingleput. Since
various sections. His
Grace the Governor in
Council ~~views with~~
is very much disappointed
~~regret the existence~~
of these causes of con-
tinued delay, and the
Government of India '76
will doubtless be dis-
~~appointed~~. The forecasts
which have hitherto
been made have proved
so unreliable that
His Grace the Governor
in

is unable to ~~place~~ ^{be} ~~presented~~ ^{presented} with
in Council ~~accepts the~~ ^{any confidence to}
~~statements which are~~ ^{the realisation of}
~~now made with con-~~ ^{then now made}
~~siderable hesitation.~~

~~During completion~~ ^{has then opened}
of the permanent bridge
over the Palar, about
9 miles below Chingleput,
~~it is proposed to cross~~ ^{upon the crossing of the}
~~the river by a temporary~~ ^{Palar}
road similar to those
which have been used
on the North West line
of the Madras Railway: as
the bridge itself will,
it is observed, not be
completed before June 1877.

The Government of ^{with}
India are anxious
that the whole Northern
Extension should, if
possible,

Letter No 357 P of 5th Sept 76
recorded with ^{to} No 39 of
11th Sept 76.

during this year

report of

possible, he opened for
traffic in December
~~next~~, but the Com.
sulling Engineer ^{than the} does
^{is not}
~~not consider it proba-~~

ble that any portion
of the line South of
Sivdevanur will be
ready by that date.
Upon this subject
however a further
report is promised.
~~and this will be awaited.~~

N. E. No. 784 dated 28/3/76

N. 784.
Copy of the above
forwarded for the in-
formation of the
Government of India.

To the Com. Engrs for Ryos. 2/
8th April 76

1804
 Govt. of 1876 Illinois.
 PUBLIC WORKS.

To

The Com^r Eng^r for Rail^{rs}.

29/3

Dated

Issued

Recd.

Encl.

G. O. 28th March 1876, No.

783

784

Not 443rd 445

Forwarding copy of Rep.
 on report submitted by the
 Com^r Eng^r for Rlys regarding
 the present condition of the
 works in progress on the
 Northern Section of the
 I. & D. Rys.

Northern Section of the I. & D. Rys.
Extension of the I. & D. Rys.
 Passing Orders on the report
 submitted by the Com^r Eng^r for
 Rlys regarding the present
 condition of the works in
 progress on the

Not in file
 29-4-76