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(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 1901	Press Mis.
370-71	
Dated 18. 6	1866 .

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
18th June 1866.*

No. 370. Read the following Endorsement of the Acting Consulting Engineer for Railways, dated Madras, 4th June 1866, No. 243 :—

Read the following letter from the Deputy Consulting Engineer for Railways, to the Acting Consulting Engineer for Railways, dated Madras, 31st May 1866, No. 10.

1. I have the honor to report that in May I inspected the Great Southern of India Railway.

The principal engineering works that have been carried out since the commencement of 1866 are the walls of the Carriage Shop at Negapatam Terminus; the corrugated iron for its roof has, however, not arrived, and a light temporary roof is under construction; 31,807 cubic yards of earth-work have been done towards levelling the Negapatam station ground.

Station Masters' Bungalows have been built at Sickle, Keevalore, Kulikery, and Needamungalum. The station grounds at Sickle, Keevalore, Kordacherry, and Boodalore have been much improved by levelling.

The Negapatam Workshops are in good working order, the steam hammer has been set up, and is an object of veneration to the workmen, who decorate and otherwise pay it honor on festive occasions.

2. A culvert on the 6th mile is under repair, it was built on black cotton soil, and as the ground cracked in the dry weather the crown of the arch opened out from end to end.

3. The Passengers' sheds at Trivalore, Kordacherry, and Needamungalum were all built on made ground, and iron tie rods have lately been introduced to counteract the thrust of the arches (bearing a heavy roof) upon piers insufficiently founded.

4. It would seem advisable to increase the number of lines of rail at Tanjore, for during the Trivial feast the trains were considerably delayed by the difficulty of shipping and unshipping the passengers.

5. Chock blocks are not used for the sidings at all stations. Semaphore signals are not used at all the stations.

6. The sides of a cutting between Tanjore and Boodalore require attention, to prevent slips occurring after rain.

7. The road is in good order; the permanent way consists of 66 lbs. double flanged rails, laid on creosoted wooden sleepers with ordinary chairs and fish joints; but in many of the sidings Carr's patent sleepers are used, they are of larger scantling than ordinary sleepers, and are of iron-wood, the rails are keyed into them, and neither chairs nor fish joints are employed; a line so formed appears excellent for temporary purposes and sidings, but is hardly strong enough for a main line.

8. On the Errode Extension Carr's patent sleepers, Griffin's and Graves' iron sleepers will be used, the two first experimentally. The Graves' sleeper consists of ribbed iron pots, each pair or alternate pair of pots being tied together by a wrought-iron rectangular tie fixed by cotters. Griffins' sleeper has instead of pots shallow iron bowls, two feet three inches long, rectangular in plan, and each pair of rectangles tied together by two square wrought-iron ties; fish joints are said to be superfluous when these sleepers are used, and the rails are secured to the sleepers by wooden or

Proceedings of the Madras Government, Public Works Department
18th June 1866.

iron keys. The faults of the system appear to be, first, in the tie rods, many of those used have been broken, and some bent by trains passing over them to a convex form, so as to nip the gauge. The best form of tie rods is rectangular in section, with the longer side vertical, as they cut through clods more easily than square bars possessing equal resistance to torsion; second, in the method of fixing the rails into the chairs, which does not seem perfect, as at joints the rail at the thick end of the key is necessarily more firmly held than the other. On a well made road, ballasted with sand and gravel, and if fish joints be used between the sleepers, Griffin's patent would probably answer as well as any system of permanent way, but it is not good for rough work before the road is fully ballasted. Eight varieties of permanent way have now been laid in the Madras Presidency, and it will be interesting to compare their merits after sufficient experience has been gained.

9. The Trichinopoly Station is under construction. The main walls are within two feet of full height, the platform walls are nearly finished, the salt godowns are ready for roofing, the turn-tables and ash pits are ready for use, and the other buildings are commenced, the over-bridge close to the station and its approaches are finished.

10. Of the first District of the Erode extension all the masonry work is finished; the girders of the six-span bridge over the Wyacondum channel having been lost at sea, a very neat temporary wooden bridge has been so constructed that the girders can be laid on their arrival without taking up the line. Twelve miles of road are fully ballasted and lifted, and ten miles more of rails are laid so as to carry trains, nine miles of uprights have been put down on both sides of the line for wire fencing, the turving of 20 miles is finished. The masonry of Elamanur Station is nearly finished.

11. The second District commences at Kahthalai, 23 miles 6 chains from Trichinopoly old station. All the earth-work except in the 3rd, 17th, and 18th miles is done, and nearly all the bridges are finished, the turf has suffered much from drought. Three miles of rail are laid, but they are not fully ballasted.

12. The piers of the Ambravutty bridge at Caroor are finished except their caps, the girders are not brought to the work yet. The masonry is magnificent; the stone used is from the quarry that supplied the material of the Caroor Pagoda, the mouldings of which except where they have been destroyed by shot and shell are almost as sharp as when they were executed upwards of one thousand years ago.

13. In the third District all the banks and cuttings and 16 miles of ballasting are done, and 13 miles of vegetable fencing are planted, and about 9 miles of turving has been put down, but the turf has suffered severely from drought. The masonry of the Noyel bridge is nearly finished.

14. In the fourth District about 11½ miles of bank and cutting have been done. The masonry of the first section is well advanced, but on the second section many of the bridges are scarcely commenced. The work has been kept back by delay in handing over the land, by the dispersion of the work people owing to scarcity of water, and to disease in the forms of fever and measles which are still prevalent.

15. The work all along the line is creditable to the Engineers. The Chief Engineer hopes to complete the Extension by May 1867. Non-arrival of permanent

Proceedings of the Madras Government, Public Works Department,
18th June 1866.

way expected from England has prevented the work from being finished as soon as was anticipated.

1. Submitted for the information of Government.
2. Paragraphs 4 to 6 have been communicated to the Agent and Traffic Manager of the Great Southern of India Railway, and his attention has been drawn to the remarks made therein.

(Signed) J. H. M. SHAW STEWART, Major, R. E.,
Acting Consgr. Engr. for Railways.

No. 371. ORDER THEREON, 18th June 1866, No. 1,901.

RAILWAY, No. 29.

The Government are gratified to learn from this letter that the works on the Great Southern of India Railway have been carried out in a most satisfactory manner. They will be glad to receive hereafter a report on the relative advantages of the eight varieties of permanent way which are stated to have been adopted in this Presidency.

(True Extract.)
(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

To the Consulting Engineer for Railways.

Exd. S. T. Augustin.

Railway Department

Consulting Engineers Office
No 10 -

From Major A. N. D. Pendergast V.I. R.E.
Deputy Consulting Eng for Railways
To Major J. A. Mc Shaw Stewart R.E.
Acting Consulting Eng for Railways

Sir,

I have the honor to report that in May I inspected the Great Southern of India Railway - The principal engineering works that have been carried out since the commencement of 1886 are the walls of the Carriage Shop at Negapatam Terminus the Corrugated iron for its roof has however not arrived and a light temporary roof is under construction. 31,807 Cubic Yards of Earthwork have been done towards leveling the Negapatam Station ground -

Station Masters Bungalows have been built at Sickle, Rewalore, Kulikery & Kudamungalam. The Station grounds at Sickle, Rewalore, Rordacherry and Brodalore have been much improved by leveling.

The Negapatam Workshops are in good working order; the Steam Hammer has been set up and is

is an object of veneration to the workmen who decorate and otherwise pay it honor on festive occasions -

2 A Culvert on the 6th mile is under repair it was built on black cotton soil and as the ground cracked in the dry weather the crown of the arch opened out from end to end.

3 The passengers Sheds at Trivalore, Kodachery and Nedamangalam were all built on made ground and iron tie rods have lately been introduced to counteract the thrust of the arches (bearing a heavy roof) upon piers insufficiently founded.

4 It would seem advisable to increase the number of lines of rail at Tanjore for during the Trivial fest the trains were considerably delayed by the difficulty of shipping and unshipping the passengers.

5 Locomotive blocks are not used for the Sidings at all Stations. Semaphore Signals are not used at all the Stations.

6 The Sides of a Cutting between Tanjore and Boodaloor require attention to prevent slips occurring after rain.

7 The road is in good Order, the permanent way consists of 66 lbs double flanged rails laid on creosoted wooden Sleepers with ordinary chairs and fish joints but in many of the Sidings Larrs patent sleepers are used. They are of larger scantling than

Ordinary Sleepers and are of iron wood the rails are keyed into them and neither chairs nor fish joints are employed a line so formed appears excellent for temporary purposes and Sidings but is hardly strong enough for a main line.

8 On the Grade Extension Larrs' patent Sleepers, Griffins and Granes' Iron Sleepers will be used the first experimentally. The Granes' Sleeper consists of ribbed iron pots each pair or alternate pair of pots being tied together by a wrought iron rectangular tie fixed by collars. Griffins' sleeper has instead

of pots shallow iron bowls 2' 3" long rectangular in plan and each pair of rectangles tied together by 2 Square wrought iron ties. fish joints are said to be superior when these Sleepers are used and the rails are secured to the Sleepers by wooden or iron keys. The faults of the system appear to be - 1st in the tie rods many of those used have been broken and some bent by trains passing over them to a convex form so as to nip the track.

The best form of tie rods is rectangular in section with the longer side vertical as they cut thro' chords more easily than square bars possessing equal resistance to torsion - 2nd - In the method of fixing the rails into the chairs which does not seem perfect as at joints the rail at the thick end of the Key is necessarily

9.9
necessarily more firmly held than the other. On a well
made road ballasted with sand and gravel and if
fish joints be used between the sleepers. Griffins patent
would probably answer as well as any system offer-
-manent way but it is not good for rough work
before the road is fully ballasted. Eight varieties
of permanent way have now been laid in the Madras
Presidency and it will be interesting to compare their
merits, after sufficient experience has been gained -

9. The Trichinopoly Station is
under construction. The main walls are within 2
feet of full height, the platform walls are nearly
finished, the Salt Godowns are ready for roofing, the
turn tables and ash pits are ready for use and the other
buildings are commenced, the overbridge close to the
Station and its approaches are finished -

10. Of the 1st District of the Cuddalore Ex-
-tension all the masonry work is finished, the girders
of the 6 Span bridge over the Wyacundam Channel having
been lost at sea a very neat temporary wooden bridge
has been so constructed that the girders can be laid on
their arrival without taking up the line. 12 miles
of road are fully ballasted and lifted and 10 miles more
of rails are laid so as to carry trains, nine miles of
uprights

uprights have been put down on both sides of the line
for wire fencing, the turfing of 20 miles is finished
The masonry of Channarayana Station is nearly finished
11

The 2nd District commences at Kallai
23 miles 6 chains from Trichinopoly old Station.
All the harkwork except in the 3rd 17th and 18 miles
is done and nearly all the bridges are finished, the turf
has suffered much from drought, 3 miles of rail
are laid but they are not fully ballasted -

12. The piers of the Anttravutti Bridge
at Caroor are finished except their caps, the girders
are not brought to the work yet. The masonry is
magnificent the stone used is from the Quarry that sup-
-plied the material of the Caroor Pagoda, the mouldings
of which except where they have been destroyed by shot
and shell are almost as sharp as when they were exe-
-cuted upwards of 1000 years ago -

13. In the 3rd District all the banks
and cuttings and 16 miles of ballasting are done
and 13 miles of vegetable fencing are planted and
about 9 miles of turfing has been put down, but the
turf has suffered severely from drought. The
masonry of the Noyel Bridge is nearly finished
The

14

In the 4th District about 11 1/2 miles of bank and Cutting have been done. The masonry of the 1st Section is well advanced but on the 2nd Section many of the bridges are scarcely commenced. The work has been kept back by delay in handing over the land, by the dispersion of the work people owing to scarcity of water and to disease in the forms of fever and measles which are still prevalent -

15

The work all along the line is creditable to the engineers. The Chief Engineer hopes to complete the extension by May 1864. Non arrival of permanent way expected from England has prevented the work from being finished as soon as was anticipated -

I have the honor to be

Sr

Yours Most Obedt Servant

Wm Stewart. Major R.E.

Deputy Consulting Engineer for Railways

No 243-

Submitted for the information of

Government -

Paragraphs 2 to 6 have been communicated to the Agent and Traffic Manager of the Great Southern of India Railway, and his attention has been drawn to the remarks made therein -

Madras
4 June
1863

Wm Stewart. Major R.E.
Acting Consulting Engineer for Railways

To The Secretary to Government
D. P. W.
Fort Saint George

Madras
31 May
1863

1866

Dear

2989

The City Counting Engineer
for Milwaukee.

For

The Counting Engineer
for Milwaukee.

Patented 27th May 1866
No. 2111

to the

Submitting the
Blank of Disposition
on the 9-1-9-18-1866.

Recd - 28th May/86 P. W. Dept.

P. W. Dept.

Press No. 3850, G. M. - 27.2.66-100

1866. 2301

RAILWAY DEPARTMENT.

From

The Consgr. Engineer for Railways,

To

The Secretary to Government,
P. W. Dept.

Dated 4th June 1866.
Received 5th June 1866.

No. 24.

Enclosures, No.

Submitting for
the information of Govt.,
a Report of Inspection
from Major Pendergast
on the G. I. & G. R. -

11 June 1866 2 1302

1901-18 June 1866

Public Works Department.

No 1901

PROCEEDINGS of the MADRAS GOVERNMENT

Under date the 18th June 1866.
Read the following

From the Consgr. Engineer
for Railways

(Here enter No. 213 dated 4th June 1866)

The Government are gratified to learn from this letter that the works on the Great Southern of India Railway have been carried out in a most satisfactory manner. They will be glad to receive hereafter a report on the relative advantages of the eight varieties of permanent way which are stated to have been adopted in this Presidency.

The Consgr. for Railways, 19th June 1866.

P. W. 1862. Department.
Proc. of Govt for June
No. 1901

PROCEEDINGS OF GOVERNMENT, *Madras*

Dated *18 June 1862*

The Consulting
Engineer informed that the
inspection report on Great
Southern of India Railway
for May 1862 is satisfactory
and requested to submit
a report on the relative
advantages of the eight
varieties of permanent
way adopted in this
Presidency.

No. 340-871