NOTE ON THE INSPECTION

OF THE

SOUTH INDIAN RAILWAY,

FOR THE

HALF-YEAR ENDED 31st DEC. 1887,

(*including the Nellore-Tirupati Section*).

THE inspection of the Nellore-Tirupati section was made on the 16th and 17th February in company with the Superintendent, Way and Works, Cuddapah-Nellore State Railway, and the Traffic Manager and Locomotive Superintendent, South Indian Railway. That of the South Indian Railway was made between the 18th and 29th February in company with the Chief Engineer, Traffic Manager, and Locomotive Superintendent; the Agent accompanied us over the Negapatam branch and southern extension.

SOUTH INDIAN RAILWAY.

2. **Permanent-way.**—The permanent-way is generally in good order and fully ballasted throughout. The maintenance of the lines at the Beach station, Madras, requires a little more attention, and between Villupuram and Panruti, and Vadamadura and Dindigul, it is not quite up to the usual standard. The new 50 lb. road is giving great satisfaction, and up to the date of the inspection an aggregate of 114 miles had been laid in.

3. The Harbour Superintendent proposes a loop to the south arm of the Madras Harbour (in order to avoid the back shunt), which would free a portion of the harbour lines beyond the limit of the Beach station to the South Indian Railway for shunting purposes without interfering with the harbour trains, which occurs occasionally at present. The Harbour Superintendent has no objection to this, and will submit a plan to the Chief Engineer, South Indian Railway, as to what he proposes; he will also state the amount of 75 lb. rails available for the new loop, which would be constructed by the South Indian Railway.

4. **Banks and Cuttings.**—The embankments and cuttings are in good order and well maintained. In the Pálár valley the pitching of the causeway has been completed, with the exception of the portion from 45-13 to 46-2 which will be taken in hand shortly.

5. **Fencing.**—The aloe fencing appears to be generally effective, excepting in the vicinity of Chingleput, Cuddalore, and on a portion of the Negapatam branch, where it has never been successful. Wire fencing is erected in all places where the vegetable fence is poor. The number of *cases of cattle trespass does not show any improvement notwithstanding the fact that nearly all gates are now self-closing.

*1st half of 1886	75
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6. **Bridges.**—The bridges throughout the line appear to be well maintained, and the weak links in the Whipple-Murphy girders have now all been replaced.

7. *Pálár Bridge.*—The girders of this bridge are now being raised by means of hydraulic presses, which seem to work very satisfactorily. The trains are running on a diversion in the bed of the river.

signals. The distant signal at St. Thomas' Mount cannot be seen from the lever, which will be moved more to the east where a view can be obtained. The repairs to the floor of the engine shed at Cuddalore Old Town, where water lies in front of the engine pits, have just been taken in hand; attention was called to this on the half-yearly inspection for the second half of 1886. At Pallúr there are only home signals and no distant signals. It was suggested, on the same inspection, that the former should be removed and the latter erected.

44. **Sanitation.**—Except where above noted, the sanitary arrangements are satisfactory. Extra latrines have been erected at Chingleput, Coleroon, Máyavaram and Koradáchéri stations.

45. **Watering arrangements.**—New wells are to be dug at Vikravándi and Villupuram, and a few have been or will be deepened where necessary. The water-supply, except between Koilpati and Tuticorin where water-trucks have to be used, will, it is hoped, be satisfactory when the above works are carried out.

46. **Dispensaries.**—The dispensaries are neat and well kept, except that at Negapatam which was not quite as clean as the others. A new dispensary is under construction at Tanjore.

47. **General.**—Notice boards at stations are being gradually mounted on tin, as at present the notices split and rapidly become illegible. Old stores and records at stations are being called in and sold by contract.

48. The sentry boxes alongside disc signals at sidings should be moved to the other side of the line, as they obscure the view of the discs from the trains.

49. The Chief Engineer will issue circulars regarding Deas' and Ransome's points, with reference to the lever handles, which in no case should be allowed to rest on the shoulders of the frames, and it is suggested that in future all reports on derailments should state definitely that the levers have been specially examined in this respect and that they have been found rightly adjusted.

NELLORE-TIRUPATI SECTION.

50. **Permanent-way, &c.**—The permanent-way is in very good running order, the line fully ballasted, and the banks all made up to full width. The side drains in some of the cuttings require to be cleared out, which will be done before the next monsoon.

Stations.

51. *Rénigunta.*—Siding to goods shed being on a radius of 300 feet is not fit for engines. This could be remedied by a set of 3 throw points being put in at the north end of platform, which would give a radius of 600 feet; the other two points would lead to main goods line and passenger platform siding. The goods platform is now 200 feet long; this is to be lengthened up to the goods shed by the Madras Railway; it is then proposed to reverse the crossing at the end and make it 600 feet radius to admit engines. One cross-over is still required to connect centre line with main line, which is the third from the platform.

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53. *Tirupati.*—Two propositions for a catch-siding were discussed:—

(1) To take off at north side of distant signal round the bund of a tank with 300 feet radius curve, to cost Rs. 2,500.

(2) To take off on south side of line just outside east station yard points 250 feet in length with rise of 1 in 100 and parallel to the main line, cost Rs. 500.

The second proposition appears to be the best in every way.

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55. Goods approach road, completed to bridge outside facing points, requires to be finished from there to main road (about a quarter of a mile,) which should be done by Local Fund, except 100 feet to be done at once by the Railway Company.

56. Buffer stop at dead end and fuel platform wanted. Level-crossing gates not yet up; waiting for stone posts, which are cut and lying at the Perur quarry $3\frac{1}{2}$ miles off. The line to this quarry which takes off inside station limits is nearly ready, and it was reported would be open for stone traffic in about a fortnight.

57. *Kálahasti and Venkatagiri.*—Goods sheds are required at these stations.

58. *Nellore.*—Level-crossing gates up, but no fencing through town as yet; waiting for straining posts.

59. As passengers wait for a large portion of the night at this station, a latrine at the back outside the station seems desirable. Passengers from Stonehousepet, &c., will have to go round the American Mission compound, and land is to be taken up between that and the station and a road made. A foot-path for people walking might be made from the level-crossing gate to the station alongside the line and fenced in, which would considerably lessen the distance.

60. The ground at the back of the goods shed should be levelled up from canal spoil bank, a boundary wall should be built along the edge of the canal,* and the ground between it and the engine-shed lines filled in and levelled for storage of fuel and stores.

*The canal is dry for three months in the year and cannot be looked upon as a fence.

61. Fuel stage required, and station yard wants a good deal more levelling up; two more cross-over roads wanted. Buffer stop required at end of main line, and one dead siding also at the end of the turn-table, and the earth wants making up round it for men to walk on when turning the engines.

62. No staff or officers' quarters of any description. Five blocks for Locomotive Department, each block supposed to hold two families, which gives one room and one bath-room to each. Out-houses badly constructed; no light of any sort; one in each block has been converted into a latrine.

63. The carriage and wagon shops are not yet estimated for, nor lines put in. These appear to be required at once.

Protective Works to Banks and Bridges.

64. *Madras Railway Over-bridge.*—Pitching on south side required.

65. *Ralayerro Bridge*—requires painting. Groynes would be advisable on right bank of river above the bridge about 300 or 400 yards up-stream, as the river is eating away the bank and may flow over the country across the line and leave its present bed.

66. A road bridge is required across nullah outside Kálahasti station limits, as it is impassable for road traffic in the rains; this nullah is crossed by the railway with two 25-feet spans. River Swarnamukhi is to be crossed by a ferry when there is sufficient water; two boats have been sold to the village authorities for this purpose by the Engineer-in-Chief.

67. *Yellacur Bridge*—requires painting badly. Refuges not built; should be done at once. Stone protection required round 2nd and 3rd piers from south end, which should be done before next monsoon.

68. 51/4-8, 46/1-2 *and* 46/6.—Pitching required; water too high at present.

69. *Gúdúr Valley.*—Refuges on bridges not yet put up. Slopes all made up, but pitching required round abutments and toes of slopes. Stone should be thrown in round the bases of all the piers of the bridges and made up to the level of the surrounding country; at present there is a hole round each pier, made for excavation of foundations, which will encourage scour.

70. *Kandeléru Bridge.*—Some scour holes require filling up. Two piers to be boxed in, but not yet commenced. Great deal of stone pitching and filling in required.

71. *Monobole Tank.*—Quite full, water only about 2 feet below bottom of girder of 40-feet bridge. No further sign of cracks. Loose pitching on both sides of bank in tank completed.

72. 18/12. — The Engineer-in-Chief suggests that a crossing station should be put in here, as, when floods are out, people cannot get to Gúdúr, and this station and Venkatachalam are 14 miles apart.

73. 15/19, *Ramdoss Valley*. — Bridge badly scoured. The two 40-feet bridge should be floored with stone.

74. 15/6, three 20-feet spans, should be floored right across with boulders.

75. 14/15.—Large slip on west side of line, bank has moved out about 60 feet and keeps moving, evidently a spring underneath; suggested that piles and sheeting should be driven in before next monsoon.

76. 14/6, six 40-feet bridge requires flooring with rough stone boulders right across; good deal of scour.

77. **General.**—It is not intended to put in gates at third-class road crossings, but it would be advisable to put up wire fencing for 100 yards on each side.

78. All distant signals show white and red instead of green and red. All the lever handles of these signals are to be moved out to the facing points so as to be under control of pointsman.

79. Lay-byes at small stations are now laid in with 300 feet radius crossings which do not admit engines; these should be taken up, and crossings of 600 feet radius, or such as will admit engines, should be substituted.

(Signed) SIDNEY SMITH, Major, R.E.,
Dy. Consulting Engineer for Railways.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Railway.

Read the following paper:—

From the Consulting Engineer for Railways, dated Madras, 7th April 1888, No. 107.

Note on the inspection of the South Indian Railway (including Nellore-Tirupati section) for the half-year ended 31st December 1887.

Submitted to Government with the following observations:—

Paragraph 14.—It would be satisfactory to receive from the Revenue Department an authoritative statement of the circumstances which rendered the construction of this bridge desirable and which now necessitate its retention.

Paragraph 16.—The indents for the iron work of this bridge were sanctioned in February 1887 on the understanding that the estimate would be sent forward at once for sanction. The estimate has not yet been submitted.

Paragraphs 21 *and* 22.—The expediency of extending these spurs has been suggested on several half-yearly inspections. The Chief Engineer however accepts the responsibility for the present arrangements.

Paragraph 29.—The estimates have now been received and sanctioned and it is hoped that no further delay will be permitted.

Paragraph 45.—No action, as far as is known, has been taken on the suggestions made in paragraph 63 of report for half-year ending 30th June 1887 which ran as follows:—

> "A report is current that good water could be obtained at no great distance from the line in the neighbourhood of Kadambúr, the 416th mile. It is to the interest of the Company to investigate thoroughly the question of the water-supply between Tuticorin and Koilpati, between which station (41 miles) water-trucks now carry the Tuticorin requirements, and no expense should be spared to make the investigation effective and conclusive."

2. I would suggest that the Agent's special consideration of this matter be invited and that his attention be also drawn to paragraphs 2, 15, 20, 32, 38, 39, 40, 41, 42, 43, 48, and 49.

Paragraph 31 should be communicated to the Public Works Department, General Branch.

Nellore-Tirupati Section.

Paragraph 57.—It will be sufficient if small corrugated iron sheds usually supplied in the first instance on the South Indian Railway, be erected here pending further development of traffic.

Paragraph 63.—Estimates should be prepared for light-shedding and lines required for present repairs of rolling-stock; the extent of the accommodation hereafter will depend on what locomotive arrangements are finally decided upon at Pakal junction.

Paragraph 66.—The nullah referred to, will, I am afraid, form a serious impediment to traffic. The cost of bridging it must, I conclude, fall on the Local Fund Board of North Arcot.

Paragraphs 69 *to* 76.—I consider the present condition of the bridges referred to in these paragraphs as very critical. They want floors and stone protection. Without these, they will certainly fail in the flood season. I have addressed the Director-General of Railways on the subject.

ORDER—dated 19th April 1888, No. 311 R., Public Works.

The Agent's attention will, as suggested, be drawn to paragraphs 2, 15, 16, 20, 32, 38, 39, 40, 41, 42, 43, 45, 48, and 49.

2. Paragraph 14 will be referred to the Revenue Department and paragraph 31 to the Public Works Department, General Branch.

3. Paragraph 66 will be referred to the Local and Municipal Department.

4. The note on the Nellore-Tirupati section, together with the Consulting Engineer's observations, will be forwarded to the Director-General of Railways for his information.

(True Extract).

(Signed) C. J. SMITH, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Railway Branch.

To the Consulting Engineer for Railways.
„ Public Works Department, General Branch.
„ Revenue Department.
„ Director-General of Railways.
„ Local and Municipal Department.

Exd. J. Moses.
Spare Copies

RAILWAY.

No. 1412 dated 14th May 1888

Communicated to the S.E.V circle for attention with reference to para 31 of the inspection notes.

(Sd) J.O.H.

W

Govt. of {1888} Madras.

PUBLIC WORKS.

Dated April, 19th.

Recd. *Encl.*

G.O., 19th April 1888, No. 311 R.

No. 1412 dated 14th May 1888

APRIL.

South Indian Railway

Orders on note on the inspection of the — (including the Nellore-Tirupati section) for the half-year ended 31st December 1887.

S.E.V circle
Consg. Engr for Rys.

With order

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8. 44/17, twelve 25-feet bridge. The north abutment which has settled is to be rebuilt at once, and the timber tops on the new spans are to be replaced by girders which are now on the ground.

9. *Karanguli Bridge.*—Eleven cross-girders have to be put in in the two south spans, which will be done shortly. The whole of the diversion has now been demolished, and the ground in the bed of the river cleared. The speed board might be removed.

10. 77/1 and 77/17 girders are to be substituted for the timber tops now in use. Whilst this is being carried out, trains will run over the diversions which have been retained.

11. *Thondayar Bridge.*—Two 100-feet spans to be doubled. The new pier wells are nearly completed, and the abutment wells well advanced. The bank between the old bridge and the new pier has been left for the erection of the new girders, which will go on simultaneously in the building of the pier. It is expected that traffic will be resumed over it in about three months.

12. *Ponniár Bridge.*—A hand rail is required on the east side. The gauge throughout the bridge is $\frac{3}{16}$ inch wide. Stone has been collected to floor the four southern spans, which will be commenced as soon as the water is low enough.

13. 108/9, one 25-feet bridge. The parapet wall at the north-eastern corner has been pushed out and should be rebuilt. The pitching at the south-east side requires to be completed, and the ballast walls should be rebuilt.

14. 111/9. The new 10-feet bridge south of Panruti station, applied for by the Collector and the Department of Public Works against the wish of the Railway Company in order to pass water into a tank, has been found to be no longer required as a bridge, and has been bunded across.

15. 117/16, 10-feet culvert. The top of the south abutment has moved forward, and it is now 4 inches out of plumb. It has been strutted and should be carefully watched.

16. *Gadilam Bridge.*—Over-head bracing not yet put up. Plans and estimates for the extra spans are being prepared, and land has been taken up on the south side for storage of materials.

17. 134/10 four spans to be added to existing one 40-feet bridge, and 134/15 four spans to be added to existing three 40-feet bridge. The foundations for these spans are being excavated; in the former bridge the foundations are to be open, in the latter on wells.

18. *Paravanar Bridge*—two 150-feet girders. Preparations are being made to raise this bridge by means of jacks without interruption to traffic. The banks have been made up to full width on each side and the pitching is well in hand.

19. 153/0, three feet arched culvert. The face wall on west side has cracked; this will be rebuilt and the culvert lengthened.

20. 202/11, three 30-feet spans. The river shows slight signs of encroaching on the line, but no danger is to be apprehended at present. The bed of the river should be carefully watched and surveyed, and the bund at south-east side should be made up to prevent water running down the side ditch.

21. 299/11, two 30-feet spans. The jungle has been cleared away on the spur bank, but the Chief Engineer does not consider it necessary to strengthen it. Curtain walls and aprons are to be added to the flooring during the present season.

22. *Mooloopadi Bridge.*—Retaining walls are being added to the existing floor. The Chief Engineer does not consider it necessary to extend the spur bank, but only to pitch it on the south side.

23. 387/8, five 20-feet bridge. This bridge is already floored and has curtain walls down to the hard; there is a slight scour below down stream curtain wall, but the Chief Engineer does not think that it is necessary to add aprons.

24. 392/4, one 25-feet and one 12-feet bridge. An apron is required on the down stream side, which will be put in this season.

25. 408/3 and 424/6 culverts cracked. The latter will be rebuilt during the current half-year, and the former next half-year.

26. **Stations.**—The station yards and buildings have, as a rule, been well maintained, and sanitation attended to.

27. *Egmore.*—Coal depôts have been erected in the new portion of the yard, which will save annas 3 per ton in stacking the coal. The new goods shed extension is well in hand and will be completed in about two months; new sidings are being laid down in the extension of the yard.

28. The question of moving the present unsightly carriage-repairing sheds was discussed, and it was suggested to put them at the side of the engine shed, utilising a portion of the public road which it is said the Municipality no longer require.

29. The repairs of the buildings which were handed over by Government with the land required for the extension of the yard in June 1887 are not yet commenced. The new road in lieu of Ritherdon's road is completed, but not yet handed over to the Municipality.

30. *Acharapakam.*—Goods traffic is steadily increasing. The Traffic Manager asks for an open goods shed in lieu of the small temporary corrugated iron one now in existence.

31. At *Kandamangalam* the custom-house floor in charge of the Department of Public Works is in very bad repair.

32. *Villupuram.*—The fuel stage which at present interferes with the shunting has not been moved. Cleaning pits in the engine-shed should be made shallower.

33. *Negapatam.*—Flooring is required in the verandah of the wood-cutting machine shops; this has delayed the erection of the necessary protection round machinery in motion. The Locomotive Superintendent was asked to put up temporary railings at once. The louvre boarding to keep out sun and rain is not yet put up, but is awaiting the sanction of the Directors.

34. *Tiruvá'úr* on the Negapatam branch. The station master's quarters are immediately under the station latrine. Either new quarters should be constructed or the latrine removed.

35. *Tanjore.*—Ladies' room and booking office have been altered on account of the erection of a third-class waiting shed, the foundations of which are in.

36. *Trichinopoly Junction.*—Extra latrine accommodation is asked for by natives employed at the general offices. A building capable of accommodating half the present number might be added.

37. *Ammayanáyakanúr.*—The new waiting-rooms ought, if possible, to have been completed and furnished in time for passengers going to the hills this season. A cook-room would be useful.

38. It is questionable whether a catch-siding is not necessary near the south points, as there is a falling gradient beyond for some miles, which commences just inside the points.

39. *Madura.*—The sanitation in front of the station is improved, but more might be done in removing rubbish and weeds. A latrine is required outside south-west corner of station yard for guards and drivers, and the existing ones should be improved.

40. Pandals of a uniform design are essential in front of the verandahs of the bungalows, which the Chief Engineer promised should be attended to at once. Flooring of No. 10 bungalow verandahs discreditable. There is no reading-room at this station, which seems to be much wanted.

41. The Traffic Manager wished road in front of station to be widened by 30 feet in order to make a bandy-stand, as when the mails are in, the present space is inconveniently crowded; this could be easily done, as the land required is waste.

42. *Kalligudi.*—A telegraph pole on the goods platform infringes standard dimensions.

43. **Station Machinery.**—With a few exceptions* the signals were in good working order; the points and crossings and turn-tables (except that at Cuddalore where the brickwork requires pointing) worked well, and all sidings in use outside station yards are now protected by disc

* At Vandalúr, Titte, Tiruparankundram.

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(Signed) SIDNEY SMITH, Major, R.E.,
Dy. Consulting Engineer for Railways.

GOVERNMENT OF MADRAS.

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Read the following paper:—

From the Consulting Engineer for Railways, dated Madras, 7th April 1888, No. 107.

Note on the inspection of the South Indian Railway (including Nellore-Tirupati section) for the half-year ended 31st December 1887.

Submitted to Government with the following observations:—

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(True Extract).

(Signed) C. J. SMITH, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Railway Branch.

To the Consulting Engineer for Railways.
" Public Works Department, General Branch.
" Revenue Department.
" Director-General of Railways.
" Local and Municipal Department.

Exd. J. Moses.
Spare Copies

No. 1412 W d/11th May 1888

Communicated to the S.E. Vcircle for attention with reference to para 31 of the inspection notes.

(Sd) J.O.H.
W

RAILWAY.

Govt. of {1888} Madras.

PUBLIC WORKS.

Dated April, 19th.

Recd. *Encl.*

G.O., 19th April 1888, No. 311 R.

No. 1412 W d/11th May 1888

APRIL.

South Indian Railway

Orders on note on the inspection of the — (including the Nellore-Tirupati section) for the half-year ended 31st December 1887.

S.E. Vcircle
Consg. Engr. for Rys.

With order

NOTE ON THE INSPECTION

OF THE

SOUTH INDIAN RAILWAY,

FOR THE

HALF-YEAR ENDED 31ST DEC. 1887,

(*including the Nellore-Tirupati Section*).

THE inspection of the Nellore-Tirupati section was made on the 16th and 17th February in company with the Superintendent, Way and Works, Cuddapah-Nellore State Railway, and the Traffic Manager and Locomotive Superintendent, South Indian Railway. That of the South Indian Railway was made between the 18th and 29th February in company with the Chief Engineer, Traffic Manager, and Locomotive Superintendent; the Agent accompanied us over the Negapatam branch and southern extension.

SOUTH INDIAN RAILWAY.

2. **Permanent-way.**—The permanent-way is generally in good order and fully ballasted throughout. The maintenance of the lines at the Beach station, Madras, requires a little more attention, and between Villupuram and Panruti, and Vadamadura and Dindigul, it is not quite up to the usual standard. The new 50 lb. road is giving great satisfaction, and up to the date of the inspection an aggregate of 114 miles had been laid in.

3. The Harbour Superintendent proposes a loop to the south arm of the Madras Harbour (in order to avoid the back shunt), which would free a portion of the harbour lines beyond the limit of the Beach station to the South Indian Railway for shunting purposes without interfering with the harbour trains, which occurs occasionally at present. The Harbour Superintendent has no objection to this, and will submit a plan to the Chief Engineer, South Indian Railway, as to what he proposes; he will also state the amount of 75 lb. rails available for the new loop, which would be constructed by the South Indian Railway.

4. **Banks and Cuttings.**—The embankments and cuttings are in good order and well maintained. In the Pálár valley the pitching of the causeway has been completed, with the exception of the portion from 45-13 to 46-2 which will be taken in hand shortly.

5. **Fencing.**—The aloe fencing appears to be generally effective, excepting in the vicinity of Chingleput, Cuddalore, and on a portion of the Negapatam branch, where it has never been successful. Wire fencing is erected in all places where the vegetable fence is poor. The number of *cases of cattle trespass does not show any improvement notwithstanding the fact that nearly all gates are now self-closing.

*1st half of 1886	75
2nd ,, of ,,	39
1st ,, of 1887	70
2nd ,, of ,,	55

6. **Bridges.**—The bridges throughout the line appear to be well maintained, and the weak links in the Whipple-Murphy girders have now all been replaced.

7. *Pálár Bridge.*—The girders of this bridge are now being raised by means of hydraulic presses, which seem to work very satisfactorily. The trains are running on a diversion in the bed of the river.

8. 44/17, twelve 25-feet bridge. The north abutment which has settled is to be rebuilt at once, and the timber tops on the new spans are to be replaced by girders which are now on the ground.

9. *Karanguli Bridge.*—Eleven cross-girders have to be put in in the two south spans, which will be done shortly. The whole of the diversion has now been demolished, and the ground in the bed of the river cleared. The speed board might be removed.

10. 77/1 and 77/17 girders are to be substituted for the timber tops now in use. Whilst this is being carried out, trains will run over the diversions which have been retained.

11. *Thondayar Bridge.*—Two 100-feet spans to be doubled. The new pier wells are nearly completed, and the abutment wells well advanced. The bank between the old bridge and the new pier has been left for the erection of the new girders, which will go on simultaneously in the building of the pier. It is expected that traffic will be resumed over it in about three months.

12. *Ponniár Bridge.*—A hand rail is required on the east side. The gauge throughout the bridge is $\frac{3}{16}$ inch wide. Stone has been collected to floor the four southern spans, which will be commenced as soon as the water is low enough.

13. 108/9, one 25-feet bridge. The parapet wall at the north-eastern corner has been pushed out and should be rebuilt. The pitching at the south-east side requires to be completed, and the ballast walls should be rebuilt.

14. 111/9. The new 10-feet bridge south of Panruti station, applied for by the Collector and the Department of Public Works against the wish of the Railway Company in order to pass water into a tank, has been found to be no longer required as a bridge, and has been bunded across.

15. 117/16, 10-feet culvert. The top of the south abutment has moved forward, and it is now 4 inches out of plumb. It has been strutted and should be carefully watched.

16. *Gadilam Bridge.*—Over-head bracing not yet put up. Plans and estimates for the extra spans are being prepared, and land has been taken up on the south side for storage of materials.

17. 134/10 four spans to be added to existing one 40-feet bridge, and 134/15 four spans to be added to existing three 40-feet bridge. The foundations for these spans are being excavated; in the former bridge the foundations are to be open, in the latter on wells.

18. *Paravanar Bridge*—two 150-feet girders. Preparations are being made to raise this bridge by means of jacks without interruption to traffic. The banks have been made up to full width on each side and the pitching is well in hand.

19. 153/0, three feet arched culvert. The face wall on west side has cracked; this will be rebuilt and the culvert lengthened.

20. 232/11, three 30-feet spans. The river shows slight signs of encroaching on the line, but no danger is to be apprehended at present. The bed of the river should be carefully watched and surveyed, and the bund at south-east side should be made up to prevent water running down the side ditch.

21. 299/11, two 30-feet spans. The jungle has been cleared away on the spur bank, but the Chief Engineer does not consider it necessary to strengthen it. Curtain walls and aprons are to be added to the flooring during the present season.

22. *Mooloopadi Bridge.*—Retaining walls are being added to the existing floor. The Chief Engineer does not consider it necessary to extend the spur bank, but only to pitch it on the south side.

23. 387/8, five 20-feet bridge. This bridge is already floored and has curtain walls down to the hard; there is a slight scour below down stream curtain wall, but the Chief Engineer does not think that it is necessary to add aprons.

24. 392/4, one 25-feet and one 12-feet bridge. An apron is required on the down stream side, which will be put in this season.

25. 408/3 and 424/6 culverts cracked. The latter will be rebuilt during the current half-year, and the former next half-year.

26. **Stations.**—The station yards and buildings have, as a rule, been well maintained, and sanitation attended to.

27. *Egmore.*—Coal depôts have been erected in the new portion of the yard, which will save annas 3 per ton in stacking the coal. The new goods shed extension is well in hand and will be completed in about two months; new sidings are being laid down in the extension of the yard.

28. The question of moving the present unsightly carriage-repairing sheds was discussed, and it was suggested to put them at the side of the engine shed, utilising a portion of the public road which it is said the Municipality no longer require.

29. The repairs of the buildings which were handed over by Government with the land required for the extension of the yard in June 1887 are not yet commenced. The new road in lieu of Ritherdon's road is completed, but not yet handed over to the Municipality.

30. *Acharapakam.*—Goods traffic is steadily increasing. The Traffic Manager asks for an open goods shed in lieu of the small temporary corrugated iron one now in existence.

31. At *Kandamangalam* the custom-house floor in charge of the Department of Public Works is in very bad repair.

32. *Villupuram.*—The fuel stage which at present interferes with the shunting has not been moved. Cleaning pits in the engine-shed should be made shallower.

33. *Negapatam.*—Flooring is required in the verandah of the wood-cutting machine shops; this has delayed the erection of the necessary protection round machinery in motion. The Locomotive Superintendent was asked to put up temporary railings at once. The louvre boarding to keep out sun and rain is not yet put up, but is awaiting the sanction of the Directors.

34. *Tiruvá'úr* on the Negapatam branch. The station master's quarters are immediately under the station latrine. Either new quarters should be constructed or the latrine removed.

35. *Tanjore.*—Ladies' room and booking office have been altered on account of the erection of a third-class waiting shed, the foundations of which are in.

36. *Trichinopoly Junction.*—Extra latrine accommodation is asked for by natives employed at the general offices. A building capable of accommodating half the present number might be added.

37. *Ammayanáyakanúr.*—The new waiting-rooms ought, if possible, to have been completed and furnished in time for passengers going to the hills this season. A cook-room would be useful.

38. It is questionable whether a catch-siding is not necessary near the south points, as there is a falling gradient beyond for some miles, which commences just inside the points.

39. *Madura.*—The sanitation in front of the station is improved, but more might be done in removing rubbish and weeds. A latrine is required outside south-west corner of station yard for guards and drivers, and the existing ones should be improved.

40. Pandals of a uniform design are essential in front of the verandahs of the bungalows, which the Chief Engineer promised should be attended to at once. Flooring of No. 10 bungalow verandahs discreditable. There is no reading-room at this station, which seems to be much wanted.

41. The Traffic Manager wished road in front of station to be widened by 30 feet in order to make a bandy-stand, as when the mails are in, the present space is inconveniently crowded; this could be easily done, as the land required is waste.

42. *Kalligudi.*—A telegraph pole on the goods platform infringes standard dimensions.

43. **Station Machinery.**—With a few exceptions* the signals were in good working order; the points and crossings and turn-tables (except that at Cuddalore where the brickwork requires pointing) worked well, and all sidings in use outside station yards are now protected by disc

* At Vandalúr, Titte, Tiruparankundram.

signals. The distant signal at St. Thomas' Mount cannot be seen from the lever, which will be moved more to the east where a view can be obtained. The repairs to the floor of the engine shed at Cuddalore Old Town, where water lies in front of the engine pits, have just been taken in hand; attention was called to this on the half-yearly inspection for the second half of 1886. At Pallúr there are only home signals and no distant signals. It was suggested, on the same inspection, that the former should be removed and the latter erected.

44. **Sanitation.**—Except where above noted, the sanitary arrangements are satisfactory. Extra latrines have been erected at Chingleput, Coleroon, Máyavaram and Koradáchéri stations.

45. **Watering arrangements.**—New wells are to be dug at Vikravándi and Villupuram, and a few have been or will be deepened where necessary. The water-supply, except between Koilpati and Tuticorin where water-trucks have to be used, will, it is hoped, be satisfactory when the above works are carried out.

46. **Dispensaries.**—The dispensaries are neat and well kept, except that at Negapatam which was not quite as clean as the others. A new dispensary is under construction at Tanjore.

47. **General.**—Notice boards at stations are being gradually mounted on tin, as at present the notices split and rapidly become illegible. Old stores and records at stations are being called in and sold by contract.

48. The sentry boxes alongside disc signals at sidings should be moved to the other side of the line, as they obscure the view of the discs from the trains.

49. The Chief Engineer will issue circulars regarding Deas' and Ransome's points, with reference to the lever handles, which in no case should be allowed to rest on the shoulders of the frames, and it is suggested that in future all reports on derailments should state definitely that the levers have been specially examined in this respect and that they have been found rightly adjusted.

NELLORE-TIRUPATI SECTION.

50. **Permanent-way, &c.**—The permanent-way is in very good running order, the line fully ballasted, and the banks all made up to full width. The side drains in some of the cuttings require to be cleared out, which will be done before the next monsoon.

Stations.

51. *Rénigunta.*—Siding to goods shed being on a radius of 300 feet is not fit for engines. This could be remedied by a set of 3 throw points being put in at the north end of platform, which would give a radius of 600 feet; the other two points would lead to main goods line and passenger platform siding. The goods platform is now 200 feet long; this is to be lengthened up to the goods shed by the Madras Railway; it is then proposed to reverse the crossing at the end and make it 600 feet radius to admit engines. One cross-over is still required to connect centre line with main line, which is the third from the platform.

52. The wire fence on western side of station should be replaced by a wall, as passengers now cross the rails instead of using the over-bridge.

53. *Tirupati.*—Two propositions for a catch-siding were discussed:—

(1) To take off at north side of distant signal round the bund of a tank with 300 feet radius curve, to cost Rs. 2,500.

(2) To take off on south side of line just outside east station yard points 250 feet in length with rise of 1 in 100 and parallel to the main line, cost Rs. 500.

The second proposition appears to be the best in every way.

54. The Traffic Manager asks for a cross-over between main line and goods siding (agreed to at joint inspection) and for the cross-over from goods line to goods platform line to be moved from its present position to east end of goods platform.

55. Goods approach road, completed to bridge outside facing points, requires to be finished from there to main road (about a quarter of a mile,) which should be done by Local Fund, except 100 feet to be done at once by the Railway Company.

56. Buffer stop at dead end and fuel platform wanted. Level-crossing gates not yet up; waiting for stone posts, which are cut and lying at the Perur quarry $3\frac{1}{2}$ miles off. The line to this quarry which takes off inside station limits is nearly ready, and it was reported would be open for stone traffic in about a fortnight.

57. *Kálahasti and Venkatagiri.*—Goods sheds are required at these stations.

58. *Nellore.*—Level-crossing gates up, but no fencing through town as yet; waiting for straining posts.

59. As passengers wait for a large portion of the night at this station, a latrine at the back outside the station seems desirable. Passengers from Stonehousepet, &c., will have to go round the American Mission compound, and land is to be taken up between that and the station and a road made. A foot-path for people walking might be made from the level-crossing gate to the station alongside the line and fenced in, which would considerably lessen the distance.

60. The ground at the back of the goods shed should be levelled up from canal spoil bank, a boundary wall should be built along the edge of the canal,* and the ground between it and the engine-shed lines filled in and levelled for storage of fuel and stores.

* The canal is dry for three months in the year and cannot be looked upon as a fence.

61. Fuel stage required, and station yard wants a good deal more levelling up; two more cross-over roads wanted. Buffer stop required at end of main line, and one dead siding also at the end of the turn-table, and the earth wants making up round it for men to walk on when turning the engines.

62. No staff or officers' quarters of any description. Five blocks for Locomotive Department, each block supposed to hold two families, which gives one room and one bath-room to each. Out-houses badly constructed; no light of any sort; one in each block has been converted into a latrine.

63. The carriage and wagon shops are not yet estimated for, nor lines put in. These appear to be required at once.

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(True Extract).

O'Sullivan

Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Railway Branch.

To the Consulting Engineer for Railways.
" Public Works Department, General Branch.
" Revenue Department.
" Director-General of Railways.
" Local and Municipal Department.

Exd. J. Moses
Spare Copies

PWC No. 418

No. 1412 W dt/14th May 1888.
B

Communicated
to the Supdg. Engineer
V circle for attention
with reference to para
31 of the inspection
notes.

W.W.
7.5.88

RAILWAY.

Govt. of {1888} Madras.

PUBLIC WORKS.

Dated April, 19th.

Recd. 5-5-88 *Encl.* /

G.O., 19th April 1888, No. 311 R.

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