

South Indian Railway.

10 Inspection Report for the half year ending 31st December 1898 on

the following sections (by Mr. J. C. Dyle Deputy Consulting Engineer)

Madras (Beach) to Trichinopoly	— 251 miles
Pondicherry Branch	— 24 $\frac{1}{4}$ "
Arakonam "	— 39 "
Villupuram Shannassan section	— 280 $\frac{3}{4}$ "
Pakala to Gudim	— 84 "
Total	679 "

11. The inspection was carried out between the 16th and 21st January.

The Agent, Chief Engineer, Traffic Superintendent & Acting Locomotive Superintendent were present throughout. The District officers accompanied the train over their respective divisions.

12. Formation. Banks & cuttings are in good order throughout. The system of laying the line on a stone causeway below H.F.L. in places where there is a danger of rivers bursting their banks & topping the line is carried out & appears to be a success.

13. Bridges & Culverts. The bridges generally are in good order, in places more care might be given to keeping a good road over the girders.

At mile 213 a 3 foot arch is badly cracked, an estimate has been sanctioned for rebuilding it. A diversion has been laid with grades of 1 in 100 & 1000 feet radius curve. A temporary rail girder bridge on sleeper cribs has been constructed. This diversion may be now be opened. The work has been thoroughly well executed.

Ponnian bridge. The river in ~~low~~ approaches the Railway between protection bunds & its bed has apparently settled up above the level of the surrounding country. A heavy flood occurred last monsoon and breached the protection bund above the Railway bridge.

The consequent flood outflanked the existing causeway & breached the line seriously. The bund being made of pure sand will always be liable to breach ^{in high floods} & the only thing to do appears to be to extend the causeway. The existing Railway bridge 17-100 ft girders gives sufficient waterway.

Palan River 18-120 ft girders. The girders are not free to expand, care should be taken that the allowance for expansion at joint points is maintained, ^{rails} they appeared occasionally were butting up very closely against each other. I noticed this in other large girders also.

Culvert at mile $5\frac{1}{2}$. The tank water appears to escape through this small culvert before the water reaches the level of the tank discharge weir. There is no objection to put in a temporary bund up to H.W. to apparently the floor has been inadvertently built too low.

1-20 ft Girder M $30\frac{7}{10}$. The line was breached at this place last monsoon as previous breaches have also ~~been~~ occurred proposals for enlarging the waterway will be submitted.

14. The road. - On all the sections inspected the road was in excellent order. The section from Pakala to Sharmavaram especially so. In places, especially on the Pondicherry branch it appeared to me that the allowance for expansion between the ends of rails was excessive. The hammering of the wheels at the joints was noticeable & must diminish the life of the rails. As already noted under bridges the road over some girder bridges did not appear to me to be up to the usual standard of excellence.

15. Sleepers. - I took this opportunity of enquiring into the state of steel sleepers laid in locomotive yards in the proximity of ashpits. There is no doubt that these corrode very rapidly, but from what I saw those at present in use are too far corroded to be worth saving. Now that the ~~indirect~~ attention of the Engineers has been drawn to this point, doubtless care will be taken in future that steel sleepers are not laid in places where experience has shown that they will rapidly corrode. I saw some very excellent ~~pyramidal~~ sleepers at from the West Coast at one of the stations on the Pondicherry branch. There seems no doubt that excellent wooden sleepers can be got in Southern India, the difficulty always appears to be to get a sufficient quantity of them within a limited time.

16. Fencing. - As usual the above fencing gives trouble & gaps are noticeable. The Villupuram Sharmaduan section is unfenced except in isolated places. The traffic is so small that I do not consider it would justify any further fencing.

17. Stations. - The Stations are as a rule clean & well kept. The immense length of platform & siding at many of the stations on the Villupuram Sharmaduan section where little or no traffic appears to be done is very noticeable. Apparently in designing these stations the amount of traffic likely to be carried was not taken into account.

18. Individual Stations. -

Tanjore. - A very large scheme has been submitted for practically completely ^{rebuilding} ~~rebuilding~~ this station at an estimated cost of over 4 lakhs of Rupees. It would be impossible on an inspection like this to go into the merits or demerits of the scheme but it may be noted that the present buildings are mostly in an extremely bad condition and many of the rails within station limits are practically worn out.

Mayavaram. - A scheme has been matured for shifting the present Mayavaram - Muthupet line & laying a shunting rack on the line thus made available.

Villupuram. - The present Engine shed road runs directly into the through siding. This is objectionable & dangerous. Both the main line from Madurai & the line from Parola to the station from the East, & the line from the station to the back of the main line

Engine shed. A scheme was submitted on inspection for changing the ^{entrance} ~~approach~~ to the Engine shed & providing a shunting rack. It was however decided that this scheme was unsuitable as part of the main line had to be used to provide access to the shunting rack. It is important that the Engine shed line should be altered at once, the provision of a shunting rack might be separately investigated. The goods loading bank requires extending.

Pallavaram. - A quarry siding runs from this station round the hill. I understand that it was laid to obtain stone for the Madurai Harbour works & that as it will probably be required again it is not proposed to take it up.

Saidapet. - The goods shed here is ~~so~~ much too large for the traffic, it is proposed to remove it to Vallavaram & substitute a smaller one.

Tiruannamalai. - This has now been made a plague inspection station for passengers from the North.

Parola. - This is a large junction & hawking station for Engines. There is at present a very objectionable local fur & road which runs between the quarters of the R² staff. The Railway at their own expense have constructed an excellent road to replace the existing one. This new road appeared to me to be quite as short a route to the village as the old one & appeared very footpassenger one of the same

opinion as it was clearly being used.
However for some reason the Local Board
Engineer refuses to take it over & it
is barricaded against cart traffic.

Kadiri - Apothecary's compounders quarters
and a dispensary have been sanctioned
at this station, work has not yet
been commenced.

Tirupati West. The ~~Param~~ quarry siding
Junction. - The junction of the S.I.R.
with the E.C.R. It has been the
intention to construct an overbridge
for footpassengers to connect the broad
& narrow gauge passenger platforms.

I am very doubtful if the passenger
traffic at this station will be such
as to justify the expense entailed.
I am of opinion that a level crossing
will suffice for the present at all
events. I also see no objection to
continuing what seems the present
practice viz for the S.I.R. passenger
train to enter by & stop on the
narrow platform siding & to have what
is practically a rail level island
platform. As it is this has a row
of lamps down it & all it requires is
a little levelling off & lengthening.

For coal transhipping purposes two
laybys are required one broad &
one metre gauge. There is plenty of
room to put these in.

The hoth cross over road which was the
scene of a collision a short time ago
owing to the pointman setting the
points for the cross over road by
mistake should either be ~~abolished~~
have its points locked as soon as

guidance of drivers.

19. Quarry Sidings. - The Pallijarapati
quarry siding was in good order. There
had been a breach close to the
quarry & a temporary bridge had to
be constructed. It was suggested that
it might pay to open a regular
station at the quarry. I very much
doubt whether it would, but there
is no objection to the experiment,
always provided that proper platform
accommodation is given & passengers
are not allowed to ~~enter~~ enter on
sight from the train while it is
standing alongside the heaps of
road metal which are lying ready
to be loaded up.

Cappen Quarry Siding. - This siding is
in the same state as on the last
inspection. It is proposed to build
two small culverts & a causeway in
place of the existing temporary bridges.
This will certainly have to be done
if the Railway ^{authorities} wish the siding framed
for passenger traffic. But as the
quarry is solely for the use of the
Railway & ~~only~~ the siding only
about 3 furlongs long I do not see
what good object will be served by
opening for passenger traffic.

Param Quarry Siding. - Tirupati West Station.
This siding which has been preserved
for the last 3 years in order to
procure stone for bridges on the
Oeywada-Madras section of the E.C.R.
may now be taken up.

Jld
12/99

GOVERNMENT OF MADRAS.
PUBLIC WORKS DEPARTMENT.

Railway.

Read—the following paper:—

SOUTH INDIAN RAILWAY.

METRE GAUGE

Report of Inspection for the half year ending 31st December 1898.

Negapatam to Tuticorin, with Tinnevely and Erode Branches, and the
Mayavaram-Mutupet Railway.

This section was inspected by the Senior Government Inspector on January 1st to 6th in company with the Agent and his principal officers.

2. *Formation.*—This seems everywhere to be all right.

3. *The Road.*—The Negapatam-Tanjore section and the Trichinopoly-Erode section, where the old 68 lb. iron rail on pots still survives conversion from broad gauge, are in excellent order. In order to enable the worn out 68 lb. rails to be removed as may be necessary 10 miles of a modified section of 50 lb. rail is being procured, to fit the old pots. On the Erode branch though there are seven pairs of pots per 21 feet rail, there are only four tie bars per rail, two of course being at the ends. Between Maniyachi and Madura the platelaying is not up to a high standard of maintenance, parts of it are distinctly bad. Between Mutupet and Peralam the road is so badly kept up that I had to seriously consider whether speed had not better be reduced below 20 miles per hour; but the Agent promised to take immediate steps to have it set right. The cause is slovenly platelaying and insufficient supervision of the maintenance gangs, and also I imagine some defect in the system. The Company would be well advised to get a better class of foreman platelayer, for a road falls to pieces very quickly, once it is allowed to drift into the state to which the greater part of the Mayavaram-Mutupet line and the Madura-Maniyachi section had drifted.

4. *Particular Stations.*—A waiting shed for passengers and some sort of platform at the pier at Tuticorin badly wanted. I was told that two or three wagons lengths of additional goods shed roofing was wanted here, also more waiting shed accommodation for local passengers. I was told at Tataparai that a few rail lengths of extra siding accommodation is wanted. The approach road to the goods shed at Tinnevely, within station limits, badly needs being put in order, but there will be less traffic here when the commencement of the Tinnevely-Quilon Railway allows of extension to the business part of the town. I was told that additional staff quarters are very much wanted at Maniyachi. More goods shed accommodation seems likely to be needed at Satur. A new waiting room and store room have lately been added at Tirumangalam, a station which is doing very heavy business. At Madura, the best arrangements for the junction of the Pamban branch were discussed. It was agreed that two platforms will be necessary with five lines of rail between them. The Chief Engineer, South Indian Railway, is to send in plans and estimates for Madura station, Mr. T. Michell starting his estimates at the south points of the station. At Dindigul the station master's quarters are said to want a courtyard at the back of them. The platform wall at Dindigul wants straightening. There is a large scheme for the improvement of Trichinopoly yard; it seems a well thought out scheme, and when carried out it will undoubtedly facilitate working. Just west of Nidamangalam station and across the bridge is a lay-bye for Messrs. Arbuthnot and Company's paddy mill. This ought to be protected by a disc signal and a Scotch block, interlocked with the points and fastened with an Annett's lock of which the station master should keep the key. The whole arrangement of sidings at Nidamangalam would be the better for being redesigned. At Kivalur a small goods godown and approach road are being made. At Tirunellikaval the inhabitants in this neighbourhood want a station. The estimate is believed to be in hand. The Board of Directors have approved of an estimate amounting to over 4 lakhs for improving Tanjore station, inclusive of interlocking. The estimate is under consideration. The scheme seems a well thought out one.

5. *Negapatam Workshops—Design of vehicles.*—There is a good deal of complaint throughout the South Indian Railway about the violent swaying of certain carriages, not the bogies but old four wheelers, at certain speeds. There is no doubt that the motion is to say the least very uncomfortable, and for an invalid it might be unsafe. So far as I could ascertain by enquiry and experiment the motion does not occur in newly erected vehicles, but only when axle guards get loose in their grooves and when bolts in spring hangers are worn. I am of opinion that both the wear, and its after effects in the shape of excessive swaying of the carriage bodies are very much aggravated by a special feature in the design of the vehicles of this line which I have seen nowhere else. The springs are nested in the ~~bosom~~ of the channel sole bars of the underframe, and are propped up on the axle box by a high sort of stilt which passes through a gap cut in the lower flange of the channel iron. In the State Railway type of vehicle, of which there are a few on this line, the spring lies beneath instead of inside the channel, and rests directly, without the intervention of a stilt or packing block, on the top of the axle box. Thus there is far less scope for swaying about which first results in and then greatly aggravates wear and tear. I strongly recommend that all future passenger stock of the four wheel type which is got out of the State Railway pattern. If a nine inch channel bar is strong enough for a waggon it is unnecessarily strong for a carriage, especially if its flange is not cut away. Thus plenty of room can be got for the spring if the channel is made 8" instead of 9" and if the wheel diameter of four wheel passenger stock is made the same as on State built lines.

Vehicle Springs.—So far as I could ascertain there is no picture on the South Indian Railway of sorting vehicle springs in pairs. On the Madras Railway this very necessary work is done very carefully under a regular system. All that is done at Negapatam is to press all springs down on a block and see that they are not set or injured thereby. There is no attempt at measuring the set for definite loads, or at sorting out pairs accordingly.

My belief is that many of the mysterious derailments which occur on this railway are due to unequal spring, which is very much the same so far as concerns the balance of a vehicle and its liability to mount at a defect in the road, as unequal loading. I recommend the South Indian Railway Company to obtain a good spring-tester and standardizer. That used in the Madras Railway shops is Hind's patent, by Kitchen of Warrington.

6. *Negapatam Municipal Roads.*—The Agent and I were met by Mr. Rātnā Sabābathā Pillay, the Chairman of the Negapatam Municipality, who was good enough to promise to arrange for the raising up to proper level of the municipal road at the north side of the level crossing at the entrance of the yard, and also of about 200 feet in length for a height of from one to two feet of a road parallel to and south of the line near the same place. He also promised to arrange whatever may be necessary to enable the Negapatam-Nagore extension to be located on its present alignment at a place where, if the 30 feet broad of municipal road is to be maintained, part of a private building will have to be taken away and altered at the cost of the railway.

7. *General Stores, Negapatam.*—Considerable reductions have been made of the rather heavy accumulations of little used stores. The store appears to be very well arranged.

8. *Locomotive requirements.*—At Tuticorin there is no slip siding from the engine shed to prevent an engine coming out on to the salt siding or to the main line. The Tuticorin ashpit wants draining if possible. The engine staff complains of want of shade in their quarters. There is some hope of getting water at Manyachi and of so getting rid of all that carrying of water about in tanks between that place and Tuticorin. The watering arrangements at Tulukapati have lately been completed. If the railway can get 30,000 gallons per day of municipal water at Madura their present supply will serve for washing out, and the two supplies will serve the main line and the Paumban branch. At Tiruvalur junction some alterations of ashpit and water column are necessary.

9. *Miscellaneous.*—An out agency is said to be wanted at Arupakottai about 12 miles east from Viruṇṇatti station, but if established the cart road will, I understand, want improvement from a recently repaired tank at mile 349/18 is

in the wrong place, and a source of menace to the line; the repairing of the tank having been carried out as part of a scheme for safeguarding the line, the outfall might advantageously be located at another part of the ~~precincts~~ of the tank where there is an equally good site and whence the line will not be menaced. Certain level-crossing gates of main roads, notably at 346/5 and 348/13, ~~close~~ across the line; this is quite unnecessary, and a source of greater danger to the public than if they were arranged to close across the road only. The defect should be remedied. I inspected the Engineering workshops at Trichinopoly. Now that the Paumben and Travancore branches are to be proceeded with, every effort should be made to utilize surplus accumulation of old stores here and elsewhere. I was shown the plan for increasing the office accommodation at Trichinopoly; it is proposed to add a third storey over the whole of the office: the proposals at first sight appear somewhat excessive, but I await plans and estimates. On November, 14th 1898, a string of 22 small tanks, under the district authorities, breached and flowed into a 12-foot culvert at 329/7 giving a 10 feet afflux: this is on the Erode branch.)

perimeter / shut /

The Agent complained that much encroachment on railway land is going on on the Erode branch. The Engineer survey party was about to start on the Mutupet-Avadaiyarkovil survey. The Agent promised to discuss with the Collector the proper alignment near Adirampatnam and Pattukkottai.

10. Inspection report for the half-year ending 31st December 1898 by Mr. J. C. Lyle, Deputy Consulting Engineer, on the following sections.

	Miles.
Madras (Beach) to Trichinopoly	251
with Pondicherry Branch	24 1/2
and Arkonam Branch	39
Villupuram-Dharmavaram section	280 1/2
and Pakala to Gudur section	84
Total	679 1/2

Pres. Board
sanctioned
the proposed
a fig. 1.

11. The inspection was carried out between the 16th and 21st January. The Agent, Chief Engineer, Traffic Superintendent and Acting Locomotive Superintendent were present throughout. The district officers accompanied the train over their respective divisions.

Mr. J. C. Lyle
Chief Engineer
B. L. G.

12. Formation.—Banks and cuttings are in good order throughout. The system of laying the line on a stone causeway below H.F.L. in places where there is a danger of rivers bursting their bunds and topping the line is carried out and appears to be a success.

13. Bridges and culverts.—The bridges generally are in good order in places more care might be given to keeping a good road over the girders.)

but /

At mile ²¹³/₁ a 3-foot arch is badly cracked, an estimate has been sanctioned for re-building it. A diversion has been laid with grades of 1 in 100 and 1,000 feet radius curves a temporary rail girder bridge on sleeper cribs has been constructed. This diversion may now be opened, the work has been thoroughly well executed.

curves 4 /
if
T /

Ponniar bridge.—The river approaches the railway between protection bunds and its bed has apparently silted up above the level of the surrounding country. A heavy flood occurred last monsoon and breached the protection bund above the railway bridge. The consequent flood outflanked the existing causeway and breached the line seriously. The bund being made of pure sand will always be liable to breach in high floods and the only thing to do appears to be to extend the causeway. The existing railway bridge 17-100 feet girders gives sufficient waterway.

Palar river 18-120 feet girders.—The girders are not free to expand, care should be taken that the allowance for expansion at rail joints is maintained, the rails occasionally were butting up very closely against each other. I noticed this in other large girders also.

+ out

58/2
Culvert at mile 58 1/2.—The tank water appears to escape through this small culvert before the water reaches the level of the tank discharge weir. There is no objection to put in a temporary bund up to H.W.L.; (apparently) the floor has been in advertently built too low.

Twenty-foot 14 2/10 girder, M. 307/10.—The line was breached at this place last monsoon/as previous breaches have also occurred, proposals for enlarging the waterway will be submitted.

14. The road.—On all the sections inspected the road was in excellent order. The section from Pakala to Dharmavaram especially so. In places, especially on the Pondicherry branch it appeared to me that the allowance for expansion between the ends of rails was excessive. The hammering of the wheels at the joints was noticeable and must diminish the life of the rails. As already noted under bridges the road over some girder bridges did not appear to me to be up to the usual standard of excellence.

15. Sleepers.—I took this opportunity of enquiring into the state of steel sleepers laid in locomotive yards in the proximity of ashpits. There is no doubt that these corrode very rapidly, but from what I saw those at present in use are too far corroded to be worth saving. Now that the attention of the Engineers has been drawn to this point, doubtless care will be taken in future that steel sleepers are not laid in places where experience has shown that they will rapidly corrode. I saw some very excellent pynkadu sleepers from the west coast at one of the stations on the Pondicherry branch. There seems no doubt that excellent wooden sleepers can be got in Southern India, the difficulty always appears to be to get a sufficient quantity of them within a limited time.

16. Fencing.—As usual the aloe fencing gives trouble and gaps are noticeable. The Villupuram-Dharmavaram section is unfenced except in isolated places. The traffic is so small that I do not consider it would justify any further fencing.

17. Stations.—The stations are as a rule clean and well kept. The immense length of platform and siding at many of the stations on the Villupuram-Dharmavaram section where little or no traffic appears to be done is very noticeable. Apparently in designing these stations the amount of traffic likely to be carried was not taken into account.

18. Individual Stations—Tanjore.—A very large scheme has been submitted for practically completely recasting this station at an estimated cost of over 4 lakhs of rupees. It would be impossible on an inspection like this to go into the merits or demerits of the scheme, but it may be noted that the present buildings are mostly in an excessively bad condition and many of the rails within station limits are practically worn out. Mayavaram.—A scheme has been matured for shifting the present Mayavaram-Mutupet line and laying a shunting neck on the bank thus made available. Villupuram.—The present engine shed road runs directly into the through siding. This is objectionable and dangerous. The main line from Madras and the line from Pakala enter the station from the east, trains constantly have to cross and this may block the entrance to the engine shed. A scheme was submitted on inspection for changing the line to the engine shed and providing a shunting neck. It was however decided that this scheme was unsuitable as part of the main line had to be used to provide access to the shunting neck. It is important that the engine shed line should be altered at once, the provision of a shunting neck might be separately investigated. The goods loading bank requires extending. Pallaveram.—A quarry siding runs from this station round the hill. I understand that it was laid to obtain stone for the Madras Harbour works and that as it will probably be required again it is not proposed to take it up. Saidapet.—The goods shed here is much too large for the traffic, it is proposed to remove it to Vallavanur and substitute a smaller one. Tiruvannamalai.—Now been made a plague inspection station for passengers.

Tiruvannamalai.—This is a large junction and homing station for engines. There is at present a very objectionable Local Fund road which runs between the quarters of the railway staff. The railway at their own expense have constructed an excellent road to replace the existing one. This new road appeared to me to be quite as short a route to the village as the old one and apparently many foot passengers are of the same opinion as it was clearly being used. However for

5
some reason the Local Fund Engineer refuses to take it over and it is barricaded against cart traffic. *Kadiri*.—Apothecary's, compounders' quarters and a dispensary have been sanctioned at this station, work has not yet been commenced. *Gudur*.

f The junction of the South Indian Railway with the East Coast Railway. It has been the intention to construct an overbridge for foot passengers to connect the broad and narrow gauge passenger platforms. I am very doubtful if the passenger traffic at this station will be such as to justify the expense entailed. I am of opinion that a level crossing will suffice for the present at all events. I also see no objection to continuing what seems the present practice, viz., for the South Indian Railway passenger train to enter by and stop on the non-platform siding and to have what is practically a rail level island platform. As it is this has a row of lamps down it and all it requires is a little levelling off and lengthening. For coal transshipping purposes two laybys are required, one broad and one metre gauge. There is plenty of room to put these in. The north cross over road which was the scene of a collision a short time ago owing to the pointsman setting the points for the cross over road by mistake should have its points locked as soon as line clear has been given to an incoming train or a point indicator should be attached for the guidance of drivers.

f *18 19* *Quarry Sidings*.—The *Pulliyaxpati* quarry siding was in good order. There had been a breach close to the quarry and a temporary bridge had to be constructed. It was suggested that it might pay to open a regular station at the quarry. I very much doubt whether it would, but there is no objection to the experiment, always provided that proper platform accommodation is given and passengers are not allowed to enter or alight from the train while it is standing alongside the heaps of road metal which are lying ready to be loaded up. *Capper quarry siding*.—This siding is in the same state as on the last inspection. It is proposed to build two small culverts and a causeway in place of the existing temporary bridges. This will certainly have to be done if the railway authorities wish the siding passed for passenger traffic. But as the quarry is solely for the use of the railway and the siding only about 3 furlongs long, I do not see what good object will be served by opening for passenger traffic. *Parur quarry siding*.—*Tirupati West station*. This siding which has been preserved for the last three years in order to procure stone for bridges on the Bezwada-Madras section of the East Coast Railway may now be taken up.

J. C. LYLE,
Senior Government Inspector.

Remarks of the Senior Govt. Inspector. The Company's Agents' attention is invited to the matter brought to notice in the report on demanding attention, especially the bad running on parts of the system.

13/2/47

FWS

Papers to be read in Proceedings:—

Again G.O., dated	189	, No.
Again G.O., dated	189	, No.
Current No.	of 189	, dated
" "	" 189	, "
" "	" 189	, "

*Clear proof of the
Complete 189
J.M.*

ORDER.

*Communicated
to the Agent P. & R. for
information & necessary
action, and to the Local
& Municipal Depts with
reference to para 17 of the
report.*

*2. A copy of these
Proceedings will be forwarded
for the information of the
Government of India.*

*The Agent P. & R.
" Comr Genl for R.
" Local & Municipal Depts*

*N^o 41
Forwarded*

*J.M.
14/2/99*