

MADRAS RECORD OFFICE.**Government of Madras.***Revenue* **DEPARTMENT.**

G.O. No. 2205	<u>Press</u>
69-170	<u>Mis.</u>
Dated 13	1862

Not to be folded or roughly handled

*Proceedings of the Madras Government, Revenue Department,
13th October 1862.*

No. 169. Read the following Proceedings of the Madras Government in the Financial
Railway Department, dated 8th October 1862, No. 558 :—

Forwarding letter from Acting Consulting Engineer for
Railways, submitting papers showing that the statement
made by Major Morgan respecting the preservation
of wooden sleepers used on the permanent way is not
borne out by the experience gained, not only in
England and in Egypt, but in India as well.

(Vide Financial Railway Proceedings, 8th
October 1862, Nos. 28, 29.)

No. 170. ORDER THEREON, 13th October 1862, No. 2,205.

Forwarded to the Officiating Conservator of Forests for communication to Major Morgan,
with reference to paragraph 99 of his report* on the operations of the
Forest Department for 1861-62.

* Dated 1st May 1862

(Signed) P. P. HUTCHINS,
Acting Deputy Secretary to Government.

MADRAS RAILWAY COMPANY,
AGENT AND MANAGER'S OFFICE,
MADRAS, 27th September 1862.

No. 660.

From R. B. ELWIN, Esq., Agent and Manager,
To Captain P. P. L. O'CONNELL, Acting Consulting Engineer for Railways.

SIR,

1. I have the honor to acknowledge the receipt of your letter, No. 614, dated the 25th instant, enclosing copy of the Report from the Conservator of Forests for the official year 1861-62:

2. Upon reading para. 99 of that document, to which you call my special attention, I was struck with a statement made by Major Morgan to the effect that "the want of elasticity of the Iron Pot Sleeper destroys the Rolling Stock, and unless some method of obviating the damage be discovered, Iron Sleepers must be abandoned." Major Morgan further states that "travellers at Home have given up their season tickets, sold their country houses, and returned to town, being no longer able to endure the concussion caused by travelling on Iron Sleepers."

3. I have been intimately connected with all the leading Railways in England for many years, and up to December last, when I left to take charge of this Railway, was not aware of the use of Pot Sleepers on the trunk lines of the kingdom.

4. So satisfied was I, that there was something erroneous in the statement made by Major Morgan, that I spoke to Mr. Smart, our Chief Engineer, who has just come out from England. He not only corroborates my statement, but speaks in very encouraging terms of his experience in the use of Pot Sleepers which were introduced by him upon the Londonderry and Enniskillen Railway in 1854, though of an inferior description to those adopted upon this line.

5. Mr. Smart goes so fully into the question that I will ask you to be kind enough to place his communication, a copy of which I have the pleasure to enclose, before the Government, together with the Report.

6. I think it may be interesting to Government to read a Report from Mr. Rouse, the Engineer of the Egyptian Railway, upon Greaves' Iron Pot Sleepers, a copy of which was forwarded to me by my Directors in May last. Mr. Rouse speaks after an experience of ten years' use of these Sleepers, and therefore I imagine his testimony is of great value.

I have, &c.

R. B. ELWIN,
Agent and Manager.

No. 662.

MADRAS RAILWAY,
MADRAS, 26th September 1862.

DEAR SIR,

With reference to letter No. 614, 25th September 1862, of the Acting Consulting Engineer, and para. 99 of the Report of the Conservator of Forests, I will merely quote my own experience of Iron Permanent way.

2. In 1854, the year before I came to India, I laid 45 miles of Permanent way on the Londonderry and Enniskillen Railway with Mr. Peter Barlow's Iron chairs. Iron Permanent way was at that time in its infancy and the form of road we are now using on this line is a great improvement on Barlow's, of the success of which I myself at that time entertained doubts. About six months ago, I happened to be in the North of Ireland, and I availed myself of the occasion to ascertain how the Permanent way of the Londonderry and Enniskillen Railway had turned out. I obtained the opinions of several of the Officials, Engine Drivers and Permanent

way Inspectors connected with the line, and all agreed in reporting most favorably on it, both as regards running and maintenance. I myself rode over the line several times, and I never travelled on a smoother road. You are aware that the Egyptian Line is laid with Greaves' Sleepers; when I was in London, I saw the report of the Engineer and it was couched in terms of unqualified praise. I passed over the line a few weeks since, and can corroborate his statement as to its smoothness.

3. I am at a loss to conceive what lines in England the Conservator of Forests alludes to when he says that Iron Sleepers have caused season ticket holders to throw up their tickets; certainly not the London and North Western or the Great Western, or the Great Northern, or the South Western, or the London and Brighton; or any other great line with which I am acquainted, for all these lines are laid with Wooden Sleepers for the simple reason that in England Wood Sleepers are cheaper than Iron.

4. Referring to the latter part of para. 99, we find that the Wood Sleepers give way not only under the chair but every where else, and I very much doubt the efficacy of the remedy suggested by the Conservator of Forests.

Yours &c.

(Signed) W. G. SMART,
Chief Engineer.

To the Agent and Manager.

(True Copy.)

ROBERT B. ELWIN,
Agent and Manager.
LONDON, 23rd February 1862.

To G. P. BIDDER, Esq.,
DEAR SIR,

With a view to affording the fullest amount of information concerning the results which have attended the use of Greaves' Cast Iron Sleepers in Egypt, I venture to think the following copy of letter will not be considered out of place:—

LONDON, 7th July 1856.

To ROBERT STEPHENSON, Esq., M.P.
DEAR SIR,

In compliance with your request that I should forward you a statement of the result of any observations on Greaves' Cast Iron Pot Sleepers as used on the Railway in Egypt, I have to observe that after more than 4½ years' experience of the vicissitudes of climate and temperature in that country, and of 3 years practical observation both in the laying and maintenance of Greaves' Pot Sleepers, I have no hesitation in saying that the use of them has been attended with complete success.

There certainly were some few instances of breakage during the period when the line was first subjected to the weight of Locomotive Engines, but examination proved that the failing sleepers could be almost invariably traced to light or defective castings which their fracture alone made evident, or (and this was by far the more frequent cause), to some injury which the sleepers had sustained from the very rough handling of our Native labourers in the frequent transshipments and weighing incidental to all importation of materials, on account of the Egyptian Government.

These defective materials however once re-placed, the line has been in constant use and in excellent order for public traffic during upwards of two years, and with a striking economy of maintenance.

One European Platelayer with a gang not exceeding twenty Fellah men and boys sufficing for the charge of six miles of line, and it has been found no inconsiderable advantage of the pots as compared with the ordinary form of Wooden Sleepers in a country such as Egypt where the Native labour is necessarily of a rude and unskilled character; that whereas the latter can only be packed up by men capable of standing to their work and using the long handled tool alone suitable

for the purpose; the Pot Sleepers can be very solidly punned up through the holes cast for the purpose by boys furnished with short iron punners who thus are enabled to squat to their employment, after the working fashion of the country and the larger employment of boys thus afforded has proved both economical and otherwise advantageous.

In conclusion, I may state, that having superintended the laying both of Wooden and Cast Iron Sleepers, of other forms than that of Mr. Greaves for some years in England previous to my experience with the Pot Sleepers, I have, as yet, seen no other form so well suited to the light alluvial soil of lower Egypt as the bell-shaped or "Pot Sleepers" known as Greaves' patent, and the sole improvement of which those we now have in use seem to be susceptible, is in a slight increase of weight to fit them better to resist the unavoidable hazards of transport.

I am, &c.,

(Signed) HENRY J. ROUSE.

Since the date of that letter, another 5½ years of experience with Pot Sleepers in Egypt may be superadded to the 4½ years named in it, and I may assert an unhesitating confidence thus after 10 years' use of them—that had a system of Permanent way to be again selected for adoption in the fine alluvial soil of Egypt, no more fitting choice could be now made, than was in fact made by Mr. Robert Stephenson in 1851, when he determined the adoption of Greaves' Cast Iron Pot Sleeper rod.

With a 65 lbs. rail in 20 feet lengths and fished joints, four tie-rod sleepers and three intermediate sleepers, seven bearings in all, under such length of rail, the system has proved a complete success, and I am obliged thus to repeat the wording of my letter of July 7th, 1856, because it emphatically marks the sense I entertain of the entire propriety of their use in Egypt.

The fine soil so completely fills each bell or Pot Sleeper, that when occasion has required a well consolidated portion of the road to be removed a perfect casting of the underneath or inside of the removed bell is found in the fine alluvial soil showing how complete has been the bearing throughout, and as perfect an impression is left in the ground, as once existed in the sand or loam of the foundry floor where the sleeper was cast.

To ensure this entire filling of each bell with the material destined to support it, or at least to enable the workmen to fill and pun up a bell as rapidly as possible, I strongly advise the use of Cast Iron Bells or Pots with two holes for punning up, and which were indeed the original pattern as determined by Mr. Stephenson in 1851 as contradistinguished from the sleepers since introduced with one hole only which admit but one boy or punner to each sleeper at one time, and which present a decided greater difficulty in giving to each bell a Pot Sleeper that entire and solid filling of soil or sand upon which its success as a permanent bearing depends.

Out of 170 miles of Railway in Egypt only 20 miles are ballasted, but the Pot Sleepers succeed equally in the ballast or gravel as in the alluvial soil, the larger and coarser stones becoming completely pulverized in the action of punning up, and thus well and sufficiently filling the bells and presenting a perfect casting upon removal.

Of course broken rock ballast or chalk could not be fairly used with this class of Permanent way, but I should not hesitate to use it with any description of coarse gravel however large the stones, if the same gravel contained sufficient sand and small particles to make good concrete.

For use in any country where the soil is permanently alluvial, Greaves' Pot Bell or Cup Sleepers (for they pass under all of these names), cannot be surpassed. I think more especially if the Native labour be less skilled than that of our Platelayers in England or largely composed of boys or under grown men as in Egypt.

The only improvement which Mr. Robert Stephenson felt inclined to suggest after himself seeing the result of their use for about eight years in Egypt was a desire to increase their weight, perhaps so much as 10 per cent. but perhaps also that amount of addition would carry a rail and class of traffic both heavier than the Egyptian.

Mr. George Robert Stephenson has all the latest drawings and specifications for this system of Permanent way as applied to Egyptian Railways, and I subjoin, in conclusion, a table of the weight of materials and their quantity required for one mile of single line—say 280 tons which may be useful.

I am, &c.,
(Signed) HENRY J. ROUSE.
(True Copy.)

ROBERT B. ELWIN,
Agent and Manager.

1862
Oct 13/62
No. 2205
1862-1900

Exd. T. O'Connor.

FINANCIAL RAILWAY DEPARTMENT.
PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following letter from Captain P. P. L. O'CONNELL, Acting Consulting Engineer for Railways; to T. PYCROFT, Esq., Chief Secretary to Government, Fort Saint George, dated 1st October 1862, No. 172.

On the receipt of the Order of Government, No. 532 of the 25th ultimo, I forwarded to the Agents of the Madras Railway, and Great Southern of India Railway, copies of the Report of the Conservator of Forests for 1861-62, and requested their attention to the remarks in para. 99, respecting the preservation of Wooden Sleepers used on the Permanent way; remarking to the Agent of the Great Southern of India Railway, that the experience on the Madras Railway was very different from what Major Morgan states the English experience to be.

2. The Agent and Manager of the Madras Railway has replied to my letter* and to the statement made by Major Morgan, forwarding a copy of a communication from the Chief Engineer, and of a Report from Mr. Rouse, the Engineer of the Egyptian Railway, respecting the use of Greave's Cast Iron Pot Sleepers.

3. I would recommend that these papers be printed and circulated, as they clearly show that the statement made by Major Morgan is not borne out by the experience gained, not only in England, and in Egypt, but in India as well.

4. The suggestion made by Major Morgan for preserving Wooden Sleepers, "by fitting small pieces of galvanised sheet under the chairs," might perhaps answer if the Sleepers failed only "under the chairs," but as shown by Mr. Smart, the Chief Engineer, the Wood Sleepers give way not only under the chairs, but every where else," and he doubts "the efficacy of the remedy suggested: an opinion in which I concur.

ORDER THEREON, 8th October 1862, No. 558.

Ordered that a copy of the foregoing letter be furnished to the Revenue Department, in reference to para. 24 of the Proceedings in that Department, dated the 19th ultimo, No. 2,040; and that the papers therewith submitted be printed and circulated as recommended by the Consulting Engineer.

(True Extract.)

Chief Secretary.

To the Revenue Department.
Consulting Engineer for Railways.
Superintendent of the Government Press,
(with papers to be printed.)

Exd. T. O'Connor.

