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(2) Date of repair_____

(3) Initials of the Referencer_____

MADRAS RECORD OFFICE.

Government of Madras.

Public (Misc.) DEPARTMENT.

G.O. No. 90—91 Press Mis.

158-89-90

Dated 12—1— 1890.

Not to be folded or roughly handled

...ceedings of the Madras Government, Public Works Depart...
12th January 1869.

No 188 Read the following letter from the Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, dated Madras, 11th December 1868, No. 450 —

In compliance with the Order of Government, No 3,733, dated the 30th ultimo, I have the honor to submit the accompanying papers received from the Agent of the Madras Railway Company, affording the information required by the Chief Commissioner of Oudh regarding the results of the use of cast-iron bowl-sleepers on the Madras Railway

From Agent, Madras Railway Company, No 545, dated 10th December 1868
Do Chief Engineer, to Agent, No 458, dated 4th December 1868
Do Acting Locomotive Superintendent, to Agent, No 265, dated 10th December 1868

From the Agent and Manager of the Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 10th December 1868, No 545

In accordance with the request contained in your letter of the 2nd instant, No 394, I have the honor to forward copy of two communications received from the Chief Engineer* and Acting Locomotive Superintendent,† furnishing the information required by the Chief Commissioner of Oudh, regarding the use of cast-iron bowl-sleepers

* No 458, dated 4th December 1868
† „ 265, „ 10th „ „

From the Chief Engineer, to the Agent and Manager of the Madras Railway Company, dated Madras, 4th December 1868, No 458.

Consulting Engineer's letter, No 394, of the 2nd instant, forwarding copy of G O, No 3,733, of the 30th ultimo

The replies to the questions demanded are herewith appended —

1 Diameter of bowl bottom rim, 1 foot 10¼ inches.
Weight of bowl, 85 lbs.
Name of Patentee, " Greaves "

2 There are six pairs of pots to a 20-feet rail, weighing 75 lbs to the yard Each pair is furnished with a tie bar

The distances apart from centre to centre of bearing surface are 4 feet (centre of rail) 3 feet 9 inches, 3 feet, and 2 feet 6 inches (at the joint)

3 Length of rail seat 6 inches

4 Our first supply had thick edges and radical strengthening ribs, those recently sent out are perfectly plain, and appear to be quite as serviceable

5 Keyed from outside.

6 I am not in a position to state positively how bowls are packed in a ship's hold, but I believe on their edge, athwart ship, with the chair of one inside the bowl of the other.

7 Delivered from the ship into Masulah boats care being taken not to throw the bowls down upon each other, but to stow them by hand The same precautions are observed in unloading and packing in Railway waggons

8 They are all examined prior to being laid

9 & 10. We allow no bowls with any apparent injury to be admitted

11 We use several descriptions of ballast, viz, river sand, moorum or decayed granite, gravel, and laterite The former is, in my opinion, the only ballast adapted to the bowl-sleeper, and all other ballast is being gradually replaced by it

The coarser the sand the better, as fine sand in very dry weather is apt to injure the works of engines The bowls are carefully filled

12 Our per-centage of renewals has been at the rate of No. 7-91 pots per mile per annum

Fast trains ordinarily run at a speed of forty miles per hour. Goods Trains at from fifteen to twenty

13 The injuries which have in almost every case necessitated removal are a splitting of the bowl or fracture, commencing at the bottom rim and extending upwards towards the sole of the chair I know of no instance in which a bowl has been removed owing to a breakage of the jaw of the chair I believe the fracture abovementioned to be due, in the majority of instances, to loading and unloading, as coolies, unless carefully watched, will throw the bowls down instead of stowing them by hand The result is that minute fractures occur in the bottom rim, not readily detected, and which when the bowls are placed in the road, gradually extend and ultimately cause their removal.

14 The detailed expenditure of a pot-sleeper road per mile is as follows —

		RS	A	P	RS	A	P
Pots, 6 per rail of 20 feet,	No 3,168, at	2	7	0 =	7,722	0	0
Tie bars ..	,, 1,584, at	1	10	10 =	2,656	8	0
Gibs	,, 3,168, at	0	0	3 =	49	8	0
Cotters .	,, 3,168, at	0	0	6 =	99	0	0
Laying at ..	,, 1,760, at	0	8	0 =	880	0	0
					11,407	0	0

Rails and wooden keys are not included, as they are common either to an iron or wooden road

15 The comparative cost of labour, materials, &c , in keeping up our iron and wooden roads from September 1867 to August 1868, both months inclusive, is shown as under —

First Division, North-West Line, Iron road, 153¼ miles

	RS	A	P
Inspectors			
Watchmen . .	4,013	0	2
Labour	9,533	9	8
Tools	39,354	14	9
Materials .. .	3,323	3	10
Ballast	4,052	1	11
. . ..	17,062	9	4
	77,339	7	8

$\frac{77,339}{153\frac{1}{4}}$ equals Rupees 503-13-5 per mile per annum

Fourth Division, South-West Line, Wooden road, 104¼ miles

Inspectors			
Watchmen	5,313	15	6
Labour .	5,737	1	2
Tools .. .	28,140	6	5
Materials	2,727	14	1
Ballast	1,14,560	2	4
	9,952	9	1
	1,66,432	0	7

$\frac{1166,432}{104\frac{1}{4}}$ equals Rupees 1,596-7-6 per mile per annum

It must be distinctly understood that these figures simply include maintenance of way, not works

16 There can be no doubt that the comparative absence of noise and vibration renders the wooden road a more agreeable one to travel over , but, on the other hand, the iron possesses great advantages in durability and economy of maintenance

17 We have now about 515 miles of our Railway system laid with Greaves' bowl-sleepers, but have not found it necessary to issue any orders restricting speed

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From the Acting Locomotive Superintendent, to the Agent and Manager of the Madras Railway Company, dated Perambore Works, 10th December 1868 No 265

With reference to your letter No 3,531, of the 9th instant, and to question XVI of the Chief Commissioner of Oudh, embodied in the Order of Government, No 2,733, dated the 30th ultimo, on the results attending the use of cast-iron bowl-sleepers on the Madras Railway, I think I cannot do beter than forward herewith a copy of Mr Wright's report to you on the same subject, No 100, dated the 29th March 1866 In doing so, I have only to say, that since that date, nothing has occurred to induce me to modify the opinion expressed by Mr Wright

From the Locomotive Superintendent, to the Agent and Manager of the Madras Railway Company dated Perambore, 29th March 1866, No 100

1 With reference to your letter, No 58 of 20th February, forwarding a printed Order of Government, having reference to the use of cast-iron pot sleepers, I beg to inform you that since their general introduction on this line the wear and tear on engines and rolling stock has been perceptibly increased, the amount of injury being, however, confined to the wear of tyres, so far as it is appreciable

2 On the opening of a portion of the North-West Line, where the pot road was particularly good, the results seemed, at first, very favorable, and we scarcely ever had a broken spring , whilst on the South-West Line they were continually breaking This, however, was no doubt entirely due to the bad state of the wooden-sleeper road between Madras and Vellore, and at that time the pot-sleeper road, judging from such limited statistics as I possessed, appeared to offer advantages as regards general wear and tear over the wooden-sleeper road which then existed

3 There can, however, be no question as to the superiority of the wooden-sleeper road over the pot-sleeper road as regards smooth running, both being alike equally well maintained, but the difficulty and expense of preserving and maintaining the wooden sleeper road in this country is so great that, practically, I believe the pot-sleeper road to be, on the whole, the best and safest, and, undoubtedly, the cheapest description of road , and I think that these advantages will probably be found to outweigh the extra cost of repairs to rolling stock

4 I see no danger whatever in running trains at express speed, say at fifty miles an hour, upon a pot sleeper road Indeed, I have frequently run over it at this speed with special trains conveying His Excellency the Governor and others, and never experienced any indication that would go to support the supposition of its being an unsafe road for trains running at high speeds.

5 In those parts of the road where the ballast or material of which the road is formed, is of a yielding nature, there is little if any difference perceptible between it and the wooden-sleeper road , but laterite, unless frequently opened up, is apt to cake and become very solid, in which case a harsh and unpleasant action is transmitted to the rolling stock

6 Upon the whole, however, the pot-sleeper road appears to me to be particularly suitable for India

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No. 189. ORDER THEREON, 12th January 1869, No 90

CIVIL WORKS, No. 23

Ordered that the papers be forwarded to the Chief Commissioner, Oudh, with reference to his letter, No 203 R, of the 10th November 1868.

(True Extract)

Colonel, R E.,
Secretary to Government

To the Consulting Engineer for Railways

Exd S. T. Augustin.

Govt. of 1869.

PUBLIC WORKS.

To

THE CONSULTING ENGINEER FOR

RAILWAY

Dated January 12th

Read

G. O., January 12th 1869, No. 90

JANUARY.

Nos. 188-189

Bowl Sleepers (Railway).—Passage of the on the letter from the Consulting Engineer furnishing the information called for regarding the bowl sleepers in use on the Madras Railway.

Public Wks
No 90 89

Proceedings of the Madras Govt
Under date the 12th January 1869
Read the following

From The Cons. Engr for Railways. No. 460 dated 11th December 1868

Ordered that the papers be forwarded to the Chief Commissioner Mysore, with reference to his letter No. 203 T, of the 10th Novr 1868.

To the Jun Engr for Railways. ✓
Desp. 14/1/69

Docket No. 91 dated 12th Jany 16

Copy of the above forwarded to the Chief Commissioner, Mysore.

14

Desp. 14/1/69

Rec 4849

Govt. of {1868} Madras.

PUBLIC WORKS.

To *The Superintending Engineer for Railways*

&c, &c, &c

Dated

Recd *Encl.* 3

G O, 12 Jany 1869 No 90691

Nos. 188-189-4190

Bowl Sleepers (Railway) Passing orders on the letter from the Army Corps furnishing the information called for regarding the Bowl Sleepers in use on the Madras Rly.

Bowl Sleepers (Rly) Copy of the letter from the Army Corps regarding the Bowl Sleepers in use on the Madras Railway, forwarded by the Govt of Oudh.