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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	287-88	Press
B.P. No.		Mis.
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Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
2nd February 1875*

No 49. Read the following letter from Lieutenant Colonel J H M. SHAW-STEWART, R E, Consulting Engineer for Railways, to Colonel G W WALKER, R.E, Secretary to Government, Public Works Department, dated Madras, 9th January 1875, No 24.—

ADVERTING to the Proceedings of Government, under date the 3rd December 1874, No 3,389, I have the honor to submit, for the consideration of Government, letter No 28, dated the 8th instant, from the Agent of the Madras Railway, with accompaniments, among which is included a letter from Mr. Winter, the Company's Telegraph Engineer, commenting upon the observations made by the Director-General of Telegraphs on the proposed mode of inter-communication in trains

2 The result of the trial which it is proposed to make of Mr. Winter's invention during the next monsoon shall be reported in due course

From R B ELWIN, Esq, Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J H M SHAW-STEWART, R E, Consulting Engineer for Railways, dated Madras, 8th January 1875, No 28

WITH reference to your letters and the Orders of Government noted in the margin, I have

Letter No 1,150, dated 5th Dec 1874	
" " 1,155, " 7th "	
G O. " 1,784, " 3rd July "	
" " 2,559, " 9th Dec "	
" " 3,389, " 3rd "	

the honor to enclose you, herewith, for submission to Government, a copy of the Chief Engineer's letter, No 12, dated 5th instant, together with copies of the letters from Mr Winter alluded to therein, in which he replies to the observations

of the Government of India with regard to his invention for effecting inter-communication in moving trains

2 I have arranged that Mr Winter shall be provided with the rolling stock which he requires for the purpose of making a further trial with his invention during the next monsoon on the Western Coast, the result of which will be reported in due course

From B ANDERSON, Esq, Chief Engineer, to R B ELWIN, Esq, Agent and Manager of the Madras Railway Company, dated Madras, 5th January 1875, No 12

WITH reference to the Consulting Engineer's letters, Nos 1,150 and 1,155, dated 5th and 7th December, respectively, forwarding Orders of Government, Nos 1,784, 2,559, and 3,389, on the subject of inter-communication in trains, I beg to send you herewith copy of two letters, Nos 4 and 5, dated 4th instant, received from Mr Winter, in which he dwells at length on the observations made by the Director-General of Telegraphs with regard to his invention

2 I shall feel obliged if you will kindly arrange to let Mr Winter have seventeen carriages, three brake vans, and ten low-sided wagons as early as possible, to enable him to give his invention a further trial during the next monsoon on the Western Coast

From G K WINTER, Esq, Telegraph Engineer, to B ANDERSON, Esq, Chief Engineer, dated Arcunum, 4th January 1875, No 4

Your letter No 1,830, dated 10th ultimo, enclosing Government Orders regarding inter-communication in trains

2. There was unfortunately not sufficient time to collect the scattered vehicles, or to alter fresh ones so as to have a further trial of my system during the recent rains. Everything shall be ready, however, for a severe trial during the next monsoon on the Western Coast. For this purpose I should wish handed over to me in good time seventeen carriages, three brake vans, and ten wagons. As the high-sided wagons are at present in great demand, and as there is a large number of unused low-sided wagons lying at the Salt Cota, will you kindly arrange to have ten of these handed over to me. I have already ten carriages and one brake van, these, together with

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2nd February 1875.*

another brake van and the ten low-sided wagons, I should like to have permanently here. The other brake van and the seven other carriages need not be given me until, say, early in May.

3 I have replied to Colonel Robinson's remarks in a separate letter

From the same Office, _____

From the same Officer, dated Arcunom, 4th January 1873, No 3

Your letter, No 1,830, dated 10th ultimo, enclosing Government orders regarding inter-communication in trans
Refer

Before proceeding to notice the three points in the letter of the Director-General of Tel-graphs, which, I think, call for some reply from me, I have much pleasure in acknowledging the courteous manner in which he has criticised my plan

2 The three points I wish to notice are—
1st—The omission of

1st — The omission of the tell-tale to show the carriage from which a signal has been made

3rd —The suggestion that an additional coupling be added to the carriage from which a

3rd — The suggestion that an additional coupling would improve matters. With regard to the omission of the tell tale, I would like to mention that the invention is the same as the one in the first patent.

1st — With regard to the omission of the tell tale, I would observe that as the only original point in my invention is the method of joining the carriages together electrically, I have not described in detail, with the exception of the battery, any of the apparatus to be used, which must necessarily be merely modifications or adaptations of existing forms. Two forms of tell-tale key were used in the experimental train, one of which, a modification of Preece's, seems well adapted for use in India.

2nd—With regard to the most important point, viz., insulation, I need scarcely say it was not overlooked by me, and a little consideration will show that the fear of cross leakage affecting the strength of the signals to an appreciable extent is entirely groundless.

3rd — With regard to the

3rd — With regard to the suggested improvement of employing an additional coupling for completing the main circuit, while still using my arrangement for the return circuit, I consider that the small decrease in the cross leakage which might be caused by the introduction of greater insulation resistance in the form of a lengthened melted surface would not be sufficient to justify the employment of an additional coupling, moreover, if a doubt remained as to the harmlessness of any amount of cross leaking likely to arise, I do not think that doubt would be removed by the extra length of melted surface that would be gained thereby.

3 I have had such good opportunities of learning the ideas of Railway Managers, that I am sure I am right in saying that they would all agree with me that any small advantage which we might gain electrically by the extra coupling would be far more than neutralized by the extra risk involved of the circuit being broken by carelessness.

4 As regards the extra expense of Preece's couplings, but I

4 As regards the extra expense of applying an extra coupling, I have not the price list of Preece's couplings, but I have Walker's, and if his form were used, I find the extra cost would be for each carriage

2 Carriage hooks, at 2s 6d
1 Coupling, at 1s 6d

2 Carriage hooks, at 2s 6d
1 Coupling, at 4s 3d

9 Shillings and 3 pence

... .. s d
... .. 5 0

9 Shillings and 3 Pence extra cost per carriage, exclusive of freight, duty, difference of exchange,	s	d
labor for fixing, etc., or about one-half the average cost per carriage of the whole of my apparatus,	5	0
including batteries, instruments, keys, bells, and switches	4	3
	<u>9</u>	<u>3</u>

I may here point out that, in the event of its being considered desirable to decrease the cross leakage, a small sloping case above the buffer-plank would, by keeping the wood work between the chains comparatively dry, be far more effectual than any amount of extra length of melted surface that could be gained by the employment of the extra coupling suggested by the Director-General of Telegraphs.

*Proceedings of the Madras Government, Public Works Department,
2nd February 1875*

I wish to add, in conclusion, that though generally my plan of working the circuit follows those of Walker, Preece, and Varley, yet having been desired to produce an arrangement which would allow the passengers only to communicate with the guards and still give the guards power to communicate with each other and with the driver, I have arranged this with a far simpler system of switches than Walker's, while Preece's arrangement does not provide for it at all, and Varley requires, as far as I am aware, two wires in addition to the wheels and rails, that is to say, three lines of communication

DURING the three days' rain which began on Friday, the 11th December, frequent readings were taken of the insulation of carriages hastily fitted with communicating apparatus. The lowest reading was taken on Sunday morning, when the insulation resistance of ten carriages was 2,300 B. A. units. There had been almost continuous, and at intervals very heavy, rain for twenty-four hours. The guard vans had small pools of water in them, and circumstances were, I think, as unfavorable as they are ever likely to be in practice. This would give 23,000 units as the average insulation per carriage. The longest trains we are likely to run will scarcely exceed sixty carriages, thus our insulation might possibly be reduced by cross leakage to 383 units in the extreme case of one brake van being next the engine, and the other at the rear of the train. Now, the average resistance per carriage, including resistance to passage at the hooks, has been found to be 15 units when the hooks are fairly clean. Supposing this resistance to rise in time to 5 units in consequence of the tarnishing of the gun-metal contact surfaces, we shall get 30 units as the 'metal resistance of sixty carriages. Only one bell is worked by each battery at a time according to the plan proposed, and taking the resistance of the bell at 15 units, we shall get 45 units as the total resistance of the circuit, exclusive of the battery. The current will divide between the two paths open to it inversely as their resistance, so that roughly we shall have 45 parts of current leaking and 383 parts usefully employed, or 45 parts lost out of a total of 428, in the case of speaking from end to end of a train of sixty carriages in the wettest weather.

ARCONUM,
17th December 1874.

(Signed) G K WINTER,
Telegraph Engineer.

No 50.

ORDER THEREON, 2nd February 1875, No 287.

RAILWAY, No. 11.

ORDERED that these papers be forwarded to the Government of India in anticipation of the further promised report.

(True Extract)

(Signed) G W. WALKER, Colonel, R.E.,
Secretary to Government.

No 51.

(DOCKET No 288, dated 2nd February 1875)

COPY of the above forwarded to the Government of India, with reference to their docket, No 2,762 R., dated 2nd November 1874.

. (True Extract)

Colonel, R E ,
Secretary to Government.

Exd E C Shunker
Spare Copies

C/12

Madras Railway Company
Chief Engineer's Office
Madras 5th Jan'y 1875

The Agent and Manager,
Dear Sir,

With reference to the Consulting
Engineer's letters C/1150 and 1155 dated
5th and 7th December respectively forwarding
Orders of Government C/1784, 2559 and
3389 on the subject of intercommunication
in trains, I beg to send you herewith copy
of two letters C/4 and 5 dated 4th instant,
received from Mr Winter, in which he details
at length on the observations made by
the Director General of Telegraphs with
regard to his invention

2 I shall feel obliged if you will
kindly arrange to let Mr Winter have 17
Cavalry, 3 Bunker Boxes and 10 low sided
wagons as early as possible to enable
him to give his invention a further
trial during the next monsoon on the
Western Coast

Yours faithfully
H. D. Anderson
Chief Engineer

True copy

W. J. W. W.
Agent & Manager

W. J. W. W.

No 4

Madras Railway Company
Telegraph Engineer's Office
Madras 4 January 1875

My dear Sir,

Your letter No 1030 dated 10th ultimo enclosing Government Orders regarding intercommunication in Trains.

There was unfortunately not sufficient time to collect the scattered Vehicles or to alter fresh ones so as to have a further trial of my system during the recent rains. Every thing shall be ready however for a severe trial during the next monsoon on the Western Coast. For this purpose I should wish handed over to me in good time 17 Carriages three Brake Cars and 10 Wagons as the high sided wagons are at present in great demand and as there is a large number of unused low sided wagons lying at Salt Cotes, will you kindly arrange to have ten of these handed over to me. I have already ten Carriages and one brake Car, these together with another brake Car and the ten low sided wagons I should like to have permanently here. The other brake Car and the seven other carriages need not be given me until a year or so in time.

I have replied to Colonel Robinson's remarks in a separate letter.
Yours faithfully
Theobald Engesser
Madras Railway Company
Telegraph Engineer
J. H. Walker
J. H. Walker
J. H. Walker

Copy

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of 1944

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request of which will be reported in
due season.

I have the honor to be,
Sir,
Your most Obedient Servant

Wm. J. K. Wm
Agent and Manager

Railway Department.

CONSULTING ENGINEER'S OFFICE.

No. 24

From

LIEUT. COLONEL J. H. M. SHAW STEWART, R.E.,

Consulting Engineer for Railways,

To

COLONEL G. W. WALKER, R.E.,

Secretary to Government,

Public Works Department.

Fort Saint George.

SIR,

Adverting to the Proceedings of Government under date the 3rd of December 1874, N^o. 3389, I have the honour to submit, for the consideration of Government, letter N^o. 28, is dated the 8th instant, from the Agent of the Madras Railway, with accompanying documents, among which is included a letter from Mr. Winkler, the Company's Telegraph Engineer, commenting upon the observations made by the Director General of Telegraphs on the proposed mode of intercommunication in transit.

2. The result of the trial which it is proposed to make of Mr. Winkler's invention

MADRAS RAILWAY

From

The Agent and Manager

To

The Consulting Engineer

for Railways

Dated

Recd.

8th January 1875
G. W. W. 28

According to the copy of letter from the Telegraph Engineer in which he refers to the observations of the Agent of Madras Railway on the proposed mode of intercommunication in transit.

G. W. W. 28

I have the honour to be
Sir

Wm. Stewart
Lieut. Col., 89

Nadras

9th January
1875

Kenn. Engineer for Railway

The first of these is the
 fact that the population
 of the world is increasing
 at a rapid rate. This is
 due to a number of factors,
 including improved medical
 care, increased food supply,
 and a general increase in
 living standards. The result
 is that the world is becoming
 more crowded, and this has
 led to a number of problems,
 including pollution, over-
 crowding, and a shortage
 of natural resources. These
 problems are likely to become
 even more serious in the
 future, unless we take steps
 to control the population.
 The second of the factors
 mentioned above is the
 fact that the world is becoming
 more integrated. This is
 due to the development of
 modern transportation and
 communication systems, which
 have made it easier for people
 from different parts of the
 world to interact. This has
 led to a number of benefits,
 including increased trade, cultural
 exchange, and a greater
 understanding of different
 peoples and customs. However,
 it has also led to a number
 of problems, including the
 spread of disease, the
 loss of local customs, and
 the exploitation of natural
 resources. These problems
 are likely to become even
 more serious in the future,
 unless we take steps to
 control the integration of the
 world.

[illegible]

P W 1875 10 Sept.
 Pro. of book for February

RAILWAY DEPARTMENT

From

The Consulting Engineer
for Railways.

To

The Secretary to Government,
P W Department,
Fort Saint George

Dated

Recd

23 January 1875

En. / No 24

Submitting letter

From the edge into the ³ of your diary
report from also Winter
the Del: Berquins upon
the treat of the invention
recently made by him

With an Order

ordered that these papers be forwarded to the Secy of India in anticipation of the further promised report.

⁷⁰
promised report -
Confidence for B.P.C. V.S. H. S. H. S.
~~M.D.~~ August 4/1875 Copy of the above forwarded to the Genl. Secy
India with reference to their clocked N. 2762 1875
9th Nov 1874
Signed by Secy. & Secy. d.d. 11/12/75
—
H. M. J. —
10-13-1875

designated 4306, Co. 1000, 2/2/50.

[Signature]

613-1-75-

for effecting communication between
Passengers & guards
forwarded to the
Govt of India in
anticipation of the
further promised
report—

To Mrs. Cargill
Dee Hunt of Austin
Rec E. O. L. 4
G. O. 2 Feb 1875, No. 28

.. Nos. 49-57.

For-aiding copy
of Proceedings passed
on papers submitted
by the Capt. Surgeon
Pro-Containing the
replies of Mr. Brink
to the observations of
the Dr. Genl of Legation
with regard to his method
for effecting intercourse
between Passengers and Guards.

Communications
between Passengers &
& Conductors of Trains in
Motion Papers con-
municated by the Cong. Sur.
for Pps containing the
replies of Mr. Nibbs
to their observations, his
reply to telegraph, his
reply to the Congress
and to his invention.

...and the ...

[illegible]