

Public Works (1893) Department.

RAILWAY BRANCH.

G.O., No. 980 — 81 R

DATED 27th June

[Despatch Abstract.]

Pintsch's Patent Oil Gas light.

Estimate of Rs. 1,70,769 for adopting — on the Madras Railway together with an indent of Rs. 1,55,304 for stores required from England for the same ordered to be forwarded to the Govt. of India.

Forwarding estimate of Rs. 1,70,769 for adopting — on the Madras Railway together with an indent of Rs. 1,55,304 for stores required from England for the same.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

27TH JUNE 1893, No. 980 R., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Railway.

Read the following papers :—

From the Agent and Manager, Madras Railway, to the Consulting Engineer for Railways, dated Madras, 25th May 1892, No. 6135/415.

Referring to correspondence ending with your No. 949, dated 1st October 1891, I have the honour to forward copy of a report from the Locomotive Superintendent who recently visited Bombay to inspect the experiments in lighting of trains with Pintsch's oil gas now being carried out on the Great Indian Peninsula and Bombay-Baroda and Central India Railways.

2. As explained in Mr. Phipps' report one of this Company's carriages is now being fitted to run on the mail train between Madras and Bombay, and, when some experience has thus been obtained, the action to be taken on this railway will again be considered.

ENCLOSURE.

From the Locomotive Superintendent, Madras Railway, to the Agent and Manager, Madras Railway, dated 23rd May 1892, No. A. 13045/325.

[Gas lighting in trains on Madras Railway.]

With reference to correspondence and conversation, in accordance with instructions I left for Bombay on the evening of Saturday, the 14th instant, returning to Perambūr on Friday morning, the 20th.

2. On arrival in Bombay I inspected the gas works at Parel as well as the Victoria Station; had several interviews with Mr. Kershaw, the Agent of the Pintsch's Gas Company, the officers of the Bombay-Baroda and Central India and Great Indian Peninsula Railways; and I have to report as follows.

3. Contracts have been entered into between the Pintsch's Gas Lighting Company, the Bombay-Baroda and Central India Railway and Great Indian Peninsula Railway, respectively, that the Pintsch's Gas Company will erect gas works at Victoria for the use of the Great Indian Peninsula and at Parel for the use of the Bombay-Baroda and Central India Railway and also fit up certain carriages, maintaining the whole apparatus and lighting a train on each Company's service for six months free of all charge. On completion of this period, it will be decided whether the Railway Companies take over the gas works and other apparatus from the Pintsch's Company should the system of lighting be approved of; if not so, the Pintsch's Company will remove the whole of their gear and take it back to England.

4. The Bombay-Baroda and Central India Railway have a train running regularly between Colaba and Bandra; the Great Indian Peninsula are fitting up a train which will be completed in about a week to run on the Poona service.

5. I travelled in the Bombay-Baroda and Central India train and was exceedingly struck by the exceptionally clear and steady light given by the gas. The first-class carriages are lighted by one double burner 8" lamp in each compartment, the third classes being lighted by one, in

some cases two, single burner lamps. In the first-class carriages it is possible to read with comfort at any part of the compartment and in the third class, although this cannot be done, the carriages are thoroughly lighted up.

6. The gas is made from shale oil which is imported at a cost of about 4 pence a gallon in England. The operation of making the gas is very simple and the whole of the works and machinery have been carefully designed and all details thoroughly well thought out, so that, with ordinary care and supervision, there should be no difficulty whatever in keeping them going. The gas is carried in receivers underneath the carriage and these can be made of any size so as to store gas sufficient for 48, 60 or 72 hours' burning.

7. I arranged that our first-class carriage, A 12, shall be fitted up in the Great Indian Peninsula workshops with a double-burner lamp in each of the saloons (Pintsch's Company have not sufficient spare lamps available to put into the bath rooms also) and with two 9-feet receivers which will carry gas enough to last for about 70 to 72 hours at full pressure. This will be done at the expense of the Pintsch Company and free of charge to us if not finally taken over.

8. I further arranged that so soon as the work is completed and the lamps burning satisfactorily, the carriage shall be put on the Great Indian Peninsula through mail trains to Madras. It can then run backwards and forwards between Madras and Bombay for as long a period as may be necessary, the Pintsch Company undertaking to refill the receivers with gas each time the carriage arrives in Bombay. The carriage will, I was told, be ready to leave Bombay at the end of this week, and as I think, at any rate for the first few journeys, it would be well for it to be accompanied by one of our carriage examiners. I shall be glad if you will kindly, as I have already asked demi-officially, obtain a pass for a carriage examiner between Raichūr and Bombay available, say for a month, when I will arrange for one of our men to go to Bombay and be instructed by Messrs. Pintsch's agent in all details connected with the lighting, cleaning and regulating the lamps. This is exceedingly simple, but, as none of the Great Indian Peninsula nor our own guards know anything about it, it would be well, until they can be instructed, for the above proposal to be carried out.

9. With regard to the steps that should be taken by this Company for introducing the gas lighting, I am unable at present to put forward figures as to the comparative costs of lighting by gas and oil as the Bombay gas works have only been working for short periods of a few hours each time and no actual figures are yet available. The Locomotive Superintendent, Bombay-Baroda and Central India Railway, has however at my suggestion agreed with Messrs. Pintsch and Company that an experiment shall be made as early as possible to work the gas works continuously for a sufficiently long time to ascertain the cost of making the gas. There is at the same time I think no doubt whatever that gas lighting is cheaper than oil and the superiority of the former light is so great that even should it be found that gas is slightly more expensive I still think it should be adopted.

10. I would recommend that, in the event of the experiment with regard to A 12 being found, as I feel sure it will be, satisfactory, steps shall at once be taken to order a gas works from England and erect it at the Central Station obtaining further the necessary lamps and fittings for introducing gas lighting in the whole of our stock. Works of the same size as those now in Bombay will, I understand, from figures I have obtained, make an ample supply for all our carriages. The through carriages could all be charged at Central Station and could then run from Madras to Bombay and back or from Madras to Calcutta, Méttupálaiyam or Bangalore and back.

11. For the lighting of the few outlying carriages which do not come to Madras it will be necessary to send travelling gas-holders to such out-stations. I do not know at present how many of these would be required but probably a couple or three would suffice for the whole line.

From the Agent and Manager, Madras Railway, to the Consulting Engineer for Railways, dated Madras, 23rd December 1892, No. 1084.

With reference to the proposed lighting of this Company's carriages with oil gas on Pintsch's system, I have the honour to forward, herewith, in duplicate, indent No. 687 on the Board of Directors for a complete set of gas making and supplying plant and the requisite number of lamps with recipients, amounting to Rupees 1,55,304-6-0, and to request that you will be so good as to countersign and return the original authorising me to send it forward for compliance.

I enclose two letters received from the Acting Locomotive Superintendent, in which the subject is fully dealt with. I also forward an estimate of the total outlay including the cost of erecting and fitting the gas apparatus, lamps, &c., and of the shed for sheltering the gas plant and other work to be done by the Engineering Department, which shows a total estimated expenditure of Rs. 1,70,774.

ENCLOSURES.

INDENT for stores to be obtained from England.
No. 687.

Number of item.	Description of article.	Unit.	Stock in hand at date of indent.	Stock already indented for but not yet received.	Consumption during previous 12 months	NOW INDENTED FOR.	
						Quantity.	Approximate value.
							RS. A. P.
	<i>Gas plant.</i>						
1	Duplicate gas apparatus, complete, with necessary retorts, compressing engine, purifiers, gasometers, pumps, &c., equal to making gas for 1,500 lights	Set. No.				1	18,000 0 0
2	Portable store holders, 18" 0" x 4' 3"	..				4	4,080 0 0
3	Cast-iron trap boxes with tripods, valves and fittings	Set.		NIL		30	1,170 0 0
4	Special high pressure lead piping for conveying gas	Feet.				4,500	2,587 8 0
5	Carriage gas lamps, double burner, 8", complete, with necessary recipients and fittings for 24 hours' burning	No.				314	* 98,406 0 0
6	Carriage gas lamps, single burner, 8", complete, with necessary recipients and fittings for 24 hours' burning	No.				1,177	
	Add freight at 25 per cent. on total cost of above	..	..	..	..	..	31,060 14 0
	Total	..	..	..	..	..	1,55,304 6 0

* Distributed to 678 carriages.

Certified that the surplus stores lists of all the other Guaranteed Railway Companies have been carefully scrutinized and the stores are not suitable by reason of there being none available.
(Signed) L. S. MOSS,
Agent and Manager.

ABSTRACT.

INDENT for stores required for use by the Locomotive Department.
[Indent No. 687.]

	RS.	A.	P.
Gas-making plant and carriage gas lamps and fittings	1,55,304	6	0
Estimated amount	1,55,304	6	0
BUDGET, 1892-93.			
Provision for stores from England	13,34,400	0	0
Already charged including this indent	12,21,264	4	8
Balance available	1,13,135	11	4

Locomotive, store and workshop account Dr. balance at 30th September 1892, Rs. 13,31,186-12-5.

From the Acting Locomotive Superintendent, Madras Railway, to the Agent and Manager, Madras Railway, dated 28th November 1892, No. A. 13045/690.

[Gas lighting in trains.]

With reference to para. 11 of my last half-yearly report and to this office letter No. A. 13045/325 of the 23rd May 1892, I think I may safely say that every one concerned is of the opinion that the experiment in gas lighting conducted in our saloon, A. No. 12, has proved a decided success, and taking into consideration the fact that, while the proposal to light our carriages with gas has been before us, our oil lamps have not been maintained in so high a state of efficiency as they would have been had there been no question of their being superseded, I think no time should be lost in coming to a decision as to whether or not we are to adopt the Pintsch system of gas lighting on this railway.

2. During the time that our saloon, A. No. 12, has been lit by gas there has not been, as far as I know, a single complaint from either the public or the Traffic Department, and, while there has been nothing reported against the system, much has been said regarding the comfort of travelling in the carriage due to the efficient bright and steady light.

3. I understand that the Pintsch system of gas lighting is about to be adopted universally on the East Indian Railway and that the Great Indian Peninsula and Bombay-Baroda and Central India Railways are in treaty with this Company for the erection of gas works and the purchase from them of fittings for a large number of their carriages.

4. For my own part I am strongly in favour of the introduction of gas lamps in our carriages not only on account of their efficiency as carriage luminants but also on the score of economy in the actual cost of burning the light in the carriages, which, as I show by figures later

From the Agent and Manager, Madras Railway, 18th April 1893, No. E. 341/321,
forwarding estimates for adopting Pintsch's patent oil gas light on the
Madras Railway.

ENCLOSURE.

ALLOCATION of estimate for gas making plant, lamps and fittings.

Description.	Cash to be expended in India.	Value of materials.	Total value of work to be done.	Chargeable to Capital.	Chargeable to Revenue.
<i>Line open for traffic.</i>	RS.	RS.	RS.	RS.	RS.
V. Stations and buildings—					
2. Workshops, store buildings, &c. ..	2,128	867	2,995	* 2,995	..
VII. Plant—					
4. Station and office furniture ..	3,523	32,298	35,821	† 35,821	..
<i>Abstract D.</i>	5,651	33,165	38,816	..	..
(2) Fuel, lighting, water and general stores—					
(1) Fire, lights, water and general stores ..	8,946	1,23,007	1,31,953	..	† 1,31,953
Total ..	14,597	1,56,172	1,70,769	38,816	1,31,953

NOTE.—Cash Rs. 5,651 and stores Rs. 33,165 charged against schedule B, budget 1893-94.
* The sanction will lapse at the end of the second quarter after the receipt of sanction.
† The sanction will lapse on the 31st December 1895.

ORDER—dated 27th June 1893, No. 980 R., Public Works.

Ordered that the estimate be forwarded to the Government of India.

[Here enter No. 981 R., dated 27th June 1893.]

(True Extract.)

(Signed) F. R. UPCOTT,
Joint Secy. to Govt., P.W.D.,
Railway Branch.

To the Consulting Engineer for Railways.
,, Examiner, Guaranteed Railway Accounts.

Exd. A. D. Xavier.
Spare Copies

RAILWAY.

Govt. of {1893} Madras.
PUBLIC WORKS.

Dated June, 27th.

Recd.

Encl.

G.O., 27th June 1893, No. 980 R.

JUNE.

Pintsch's Patent Oil Gas Light

Estimate of Rs. 1,70,769 for adopting —
on the Madras Railway together with an
indent of Rs. 1,55,304 for stores required
from England for the same, ordered to be
forwarded to the Government of India.

27TH JUNE 1893, No. 981 R., PUBLIC WORKS.

PUBLIC WORKS DEPARTMENT.

Railway.

LETTER—from

F. R. UPCOTT, Esq.,
Joint Secretary to the Government of Madras,
Public Works Department,
Railway Branch,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
PUBLIC WORKS DEPARTMENT.

SIR,

I am directed to forward an estimate for Rs. 1,70,769 for adopting Pintsch's
patent oil gas light on the Madras Railway.

This estimate is allocated to—

									RS.
Capital	...	...	...	...	...	...	...	...	38,816
Revenue	...	...	...	...	...	...	...	...	1,31,953
Total ...									1,70,769

also duplicate indents, amounting to Rs. 1,55,304, for stores from England for the
above.

The matter of improved lighting, which is very bad on the Madras Railway, has
long been recognised and several estimates for introducing gas and electric light have
been prepared and in 1891 a trial of Pintsch's system was recommended on twenty-
five vehicles at a cost of Rs. 6,400.

Apparently this was never carried out, but one of the saloon carriages running
on the mail between Madras and Bombay was fitted for experiment early in 1892 and
in the latter end of that year the Locomotive Superintendent and Traffic Superin-
tendent reported favorably of it and forwarded the estimate now under considera-
tion.

The total number of lamps required to equip the present passenger stock is
1,491, viz., 314 double 8" lamps and 1,177 single-burner lamps.

The estimate provides for duplicate gas apparatus for making gas for lighting
678 carriages, lamps for lighting 678 carriages and fitting them and erection of a shed
for the manufacturing plant.

It is proposed at first to use Scotch shale oil at 6 annas per gallon to be obtained
through the Company's Board, but it is possible that this may be reduced by using
Burma earth oils.

The Agent estimates an annual saving of Rs. 5,064 or 29 pies per light per hour,
but, even admitting that the cost be nearly the same, the great advantage of the gas
light has been already established on the N.E. Railway and other English lines as
well as the G.I.P. and Bombay-Baroda and may be taken for granted.

I have the honour to be,

Sir,

Your most obedient servant,

(Signed) F. R. UPCOTT,
Joint Secy. to Govt., P.W.D.,
Railway Branch.

OOTACAMUND,
27th June 1893.

Exd. A. D. Xavier.
Spare Copies

RAILWAY.

Gobt. of {1893} Madras.
PUBLIC WORKS.

Dated June, 27th.

Recd.

Encl.

27th June 1893, No. 981 R.

JUNE.

Pintsch's Patent Oil Gas Light

Forwarding, with remarks, an estimate of Rs. 1,70,769 for adopting — on the Madras Railway together with an indent in duplicate of Rs. 1,55,204 for stores required from England for the same.

MA 13045
690

Madras Railway
Loco. Superintendent's Office
Perambur Works 28th Novr 1892.

The Agent and Manager

My dear Sir,
Gas lighting in trains

With reference to para 11 of my last half yearly report and to this office letter No. MA 13045³²⁵ of the 23rd May 1892, I think I may safely say that every one concerned is of the opinion that the experiment in gas lighting conducted in our Saloon A.C. 12, has proved a decided success, and taking into consideration the fact that while the proposal to light our carriages with gas has been before us, our oil lamps have not been maintained in so high a state of efficiency as they would have been had there been no question of their being superseded, I think no time should be lost in coming to a decision as to whether or not we are to adopt the Pintsch system of gas lighting on this Railway.

2. During the time that our Saloon A.C. 12 has been lit by gas there has not been, as far as I know, a single complaint from either the public or the Traffic Department and while there has been nothing reported against the system, much has been said regarding the comfort of travelling in the carriage due to the efficient bright and steady light.

3. I understand that the Pintsch system of gas lighting is about to be adopted universally on the East Indian Railway and that the Great Indian Peninsula and Bombay Baroda and Central India Railways are in treaty with this Company for the erection of gas works and the purchase from them of fittings for a large number of their carriages.

4. For my own part, I am strongly in favour of the introduction of gas lamps in our carriages, not only on account of their efficiency as carriage luminants but also on the score of economy in the actual cost of burning the light in the carriages, which as I show by figures later on, work out to an annual saving of Rs 5064-1-5 or 29 pice per light per hour. From information that has been given to me on the subject there seems to be every probability that before very long we shall be able to use some of the Burma cheap earth oils instead of the Scotch shale oil and this will still further contribute to the economy of the system.

5. The gas making and supplying plant which will be necessary to meet our requirements were gas lighting adopted on this railway, would be a duplicate gas works at Elladrao, with the necessary pipes and charging valves and 11 portable gas holders. Possibly, later, when the work of fitting up all our stock is completed, we shall find it an economy to replace the portable gas holders by small hand factories at Jalarpet, Gooty and Podanur.

6. In this office letter of ¹³⁰⁴⁵~~13045~~ 3.81 of the 24 June 1891 a statement was given showing the number of
one hundred thirty

vehicles that would have to be fitted with recipients and lamps if gas lighting was introduced in our carriages and I have now drawn up a revised statement on the same lines which shews that the total number of lamps which will be required to equip all our passenger stock would be 1491 viz: 314 double 8 inch lamps and 1177 single burner lamps.

7. I enclose herewith 5 copies of an indent amounting to Rs 155,304-6-0 for a complete set of gas making and supplying plant and the requisite number of lamps with recipients which, if you approve of the same, might I think be forwarded to Government for sanction without delay. As a set off against the first cost of the apparatus and fittings necessary for gas lighting, we should take the present value of the old oil lamps, lamp barrows, &c now in use, the approximate value of which is Rs 15,000/-.

8. I have obtained from our Traffic Manager, figures which shew that under our present train service 322 lamps are lit for 12 hours, 39 lamps for 6 hours and 141 lamps for 4 hours each night which makes for the whole year 1711,630 lighting hours for the 502 lamps. In the case of gas lamps, to provide light for the same service we should distribute the light as under.

514	double burner lamps burning 6 hours each night at full pressure
514	do do do half pressure
121	do 4 hours do full pressure
264	single do 6 hours do do
264	do do do half pressure
39	do do do full pressure
121	do 4 hours do do

15 12 00
I have also obtained from the Great Indian Penin-
sula and the Bombay, Baroda and Central India
Railways and our Traffic Manager figures from
which I have drawn up the following comparative
statement which shews the probable annual saving
which would be effected were gas lighting in-
troduced on this Railway:-

Gas Lighting

Oil Lighting

Rs. Rs. P.	
Depreciation on plant and cost of maintenance and repairs of gas lamps and fittings at 5% on total cost	5647-6-11
Interest at 5% on first cost of gas plant and lamps in- cluding all charges for freight erection &c.	5388-10-11
Approximate cost of labour re- quired in connection with making gas and charging the recipients.	576-0-0
Approximate cost of stores necessary for making 1139,347 cubic feet of gas sup- plying light to:- 66 double burner lamps burning at full pressure 54 double - do - half pressure 424 single - do - full - - - 264 - do - half - - - for 16724.50 lamp lighting hours	6444-6-11
Allowance for depreciation and cost of maintenance and re- pairs of oil roof lamps at 10% on original cost of lamps.	1430-7-11
Interest at 5% on first cost of lamps including all charges for freight &c.	894-2-3
Approximate cost of labour required to trim and clean portable oil roof lamps.	1536-0-0
Approximate cost of stores necessary for supplying light to 502 lamps for 1769,630 lamp lighting hours	22300-0-0

Total Rs. 20996-0-9

Total Rs. 26060-10-2

* Total estimated annual saving = Rs 5064-1-5
The B. B. & C. I. Railway adopt this percentage
* Arrived at from figures given by the Bombay, Baroda and Central India Railway Traffic Manager and others quoted by R.M.F.

9. I calculate that without causing any inconvenience to the Traffic Department in the way of detaining carriages in the Works we could, provided we had all stores to hand, supply all our stock with the necessary fittings for

5
15
I would propose, if the system is sanctioned
to commence on those carriages which are
regularly working on Mail trains.

Yours faithfully
J. A. Pilkington
As Loco. Superintendent

1 True Copy 1

Edmund.
Agent and Manager

File

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Madras Railway Company,
Locomotive Superintendent's Office,
Pernambur Works, 20th December 1892.
No. 13045.
The Agent and Managers.

My dear Sir, Gas lighting in trains.

In continuation of my letter No. 13045 of the 28th November 1892 and with reference to conversation which took place at the Official Meeting on the 30th ultimo, I have now asked the Chief Auditor to insert in the Budget for 1892-93 the cost of the gas making plant and carriage fittings as accounted for in my letter above quoted together with the estimated cost of the work which will be done by the Engineering Department at the Central Station.

2. The Engineer's estimate which is for a shed and foundations for the compressing engine, boiler, storage reservoir, &c. and a masonry well for the gasometer, amounts to Rupees 3000/- which sum, added to the figures already quoted in the indent and to the estimated cost of erection of both the gas plant and carriage fittings, makes the grand total for completing the whole work necessary for introducing gas lighting in our carriages, Rupees 170,773-10-9 (vide attached estimate).

As

Pw 5.2
5948/53

3. As explained in the last para. of my letter of the 28th ultimo, I estimate that it will take a period of some 2 years to complete the whole work in connection with the introduction of gas lighting in our trains and dividing the expenditure as given above, less the cost of the present oil proof lamps which is estimated by the Traffic Manager at Rupees 12,189.7.6 but which, if sold by auction, will I anticipate realize not more than Rupees 3000/-, over periods of 6 months, I calculate that the money will be spent approximately as under:-

First 6 months --- Rs 16,147.2.3	{ Cost of plant and lamps, freight, erection of plant and fitting of 100 lamps; also cost of shed less value of oil lamps.
Second 6 months --- Rs 2,542.2.10	
Third 6 months --- Rs 2,542.2.10	{ = Cost of fitting on difference of 578 lamps.
Fourth 6 months --- Rs 2,542.2.10	
<u>Rupees 1,67,773.10.9</u>	

Yours faithfully
(sd) A. Pilkington
Ag. Loco. Superintendent.

(True copy)

A. Pilkington
Agent & Manager.

will be

1198
3

The indent cannot go
in. until India
can claim the Exchequer

(No. 14)
No. 1084

I want you to get this submitted during
the Xmas holidays. I believe we have
MADRAS RAILWAY.
some papers already on the subject. The
AGENT AND MANAGERS OFFICE
letter should be forwarded to the
Madras, 23^d December 1892

I think Mr. Vigne will have to
visit the Exchequer as regards
allocation. We should strongly
recommend it for sanction before
the Agent and Manager.
being in budget of funds
M. R. Co. M. R. Co. 24
12

To

The Consulting Engineer for Railways.

Madras.

SIR,

With reference to the proposed lighting of
this Company's carriages with oil gas on Pintsch's system,
I have the honour to forward herewith, in duplicate,
Indent N^o 687 on the Board of Directors for a complete
set of gas making and supplying plant and the
requisite number of lamps with recipients, amounting
to Rs. 155304.6.0 and to request that you will be
so good as to countersign and return the original
authorising me to send it forward for compliance.

I enclose two letters received from the Ag
Locomotive Superintendent in which the subject is
fully dealt with. I also forward an estimate of the
total outlay including the cost of erecting and fitting
the gas apparatus, lamps, &c. and of the shed
for

2.1
968/53

2
for sheltering the gas plant and other work to be
done by the Engineering Department, which shows
a total estimated expenditure of Rs. 170774-0-0.

I have the honour to be,
Sir,

Your most obt. servant,

Lewis J. M. V.
Agent and Manager.

Recd.

E. W. CURRENT No. 5948

REGISTER
N^o 1198
FILE
N^o

Enc. 6

Dated
Recd.

No.

Encls 4 (2 in day)
Repts: 3-7-83

188

Letter to Rho 1146
31/12/82

From
The Agent and Manager,
MADRAS RAILWAY.
To
The Consulting Engineer
for Railways.

MADRAS RAILWAY.

Locomotive Superintendent's Office,

Perambur Works 25th May 1892.

No. A/13045
596

THE AGENT AND MANAGER,

My Dear Sir,

GAS LIGHTING IN TRAINS ON

MADRAS RAILWAY.

3 SP

With reference to correspondence and conversation, in accordance with instructions I lent for delivery on the evening of Saturday the 14th inst. at Perambur, to be delivered on Friday morning the 20th.

2. On arrival in Bombay I inspected the Gas Works at Parol as well as the Victoria Station, had several interviews with Mr. Kershaw, the Agent of the Pintsch's Gas Company, the officers of the B.B. and C.I. and G.I. Railways, and I have to report as follows.

3. Contracts have been entered into between the Pintsch's Gas Lighting Company, the B.B. and C.I. Railway and G.I. Railway respectively that the Pintsch's Gas Company will erect gas works at Victoria for the use of the G.I.R. and at Parol for the use of the B.B. and C.I. Railway and also fit up certain carriages, maintaining the whole apparatus and lighting a train on each Company's service for six months free of all charge. On completion of this period, it will be decided whether the Railway Companies take over the Gas Works and other apparatus from the Pintsch's Company, should the system of lighting be approved of; if not so, the Pintsch's Company will remove the whole of their gear and take it back to

England.

English.

4. The B.B. and C.I. Railway have a train running regularly between Colaba and Bandra; the G.I.R. are fitting up a train which will be completed in about a week, to run on the local service.

5. I travelled in the B.B. and C.I. train and was exceedingly struck by the exceptionally clear and steady light given by the gas. The Ist. Class carriages are lighted by one double burner in each compartment; the III. Classes being lighted by one, in some cases two, single burner lamps. In the Ist. Class carriages it is possible to read with comfort at any part of the compartment and in the III. Class, although this cannot be done, the carriages are thoroughly lighted up.

6. The gas is made from shale oil which is imported at a cost of about 4 pence a gallon in England. The operation of lighting the gas is very simple and the whole of the works and machinery have been carefully designed and all details thoroughly well thought out so that with ordinary care and supervision there should be no difficulty whatever in keeping them going. The gas is carried in receivers underneath the carriage and these can be made of any size so as to store gas sufficient for 48, 60 or 72 hours burning.

7. I arranged that our first class carriage, A 12, shall be fitted up in the G.I.R. workshops with a double burner lamp in each of the saloons (Pintsch's Company have not sufficient spare lamps available to put into the bath room also) and with two 100 feet receivers which will carry gas enough to last for about 70 to 72

hours

500

hours at full pressure. This will be done, at the expense of the Pintsch Company and free of charge to us if not finally taken over.

8. I further arranged that so soon as the work is completed and the lamps burning satisfactorily, the carriage shall be put on the G.I.P. through mail trains to Madras. It can then run backwards and forwards between Madras and Bombay for as long a period as may be necessary, the Pintsch Company undertaking to refill the receivers with gas each time the carriage arrives in Bombay. The carriage will, I have told, be ready to leave Madras at the end of this week and as I think, at any rate for the first few journeys, it would be well for it to be accompanied by one of our Carriage examiners. I shall be glad if you will kindly, as I have already asked officially obtain a pass for a carriage Examiner between Madras and Bombay available, say, for a month, when I will arrange for one of our men to go to Bombay and be instructed by Messrs Pintsch's Agent in all details connected with the lighting, cleaning and regulating the lamps. This is exceedingly simple but as none of the G.I.P. nor our own Guards know anything about it, it would be well, until they can be instructed, for the above proposal to be carried out.

9. With regard to the steps that should be taken by this Company for introducing the gas lighting, I am unable at present to put forward figures as to the comparative costs of lighting by gas and oil as the Bombay Gas works have only been working for short periods of a few hours each time and no actual figures are yet available. The Locomotive Su, cramentum L.B. and C.I. Railway has however at my suggestion, agreed with Messrs

4

500

Pintson & Co., that an experiment shall be made as early as possible to work the gas works continuously for a sufficiently long time to ascertain the cost of making the gas. There is at the same time I think, no doubt whatever that gas lighting is cheaper than oil and the superiority of the former light is so great that even should it be found that gas is slightly more expensive, I still think it should be adopted.

10. I would recommend that in the event of the experiment with regard to gas being found, as I feel sure it will be, satisfactory, steps shall at once be taken to order a gas works from England and erect it at the Central Station obtaining further the necessary lamps and fittings for introducing gas lighting in the works of our stock. Works of the same size as those now in Bombay will, I understand, from figures I have obtained, make an ample supply for all our carriages. The through carriages could all be be charged at Central Station and could then run from there to Bombay and back or from Madras to Calcutta, Peshawar, or Hongkong and back.

11. For the lighting of the new outlying carriages which do not come to Madras it will be necessary to send travelling gas holders to such outstations. I do not know at present how many of these would be required but probably a couple of three would suffice for the whole line.

Yours faithfully,

(Sd.) C. E. PHIPPS,

Locomotive Superintendent.

(True Copy.

W. H. P. Carter
Ag. Agent and Manager.

499

(A. & M. I.)

No 6135

MADRAS RAILWAY.

AGENT AND MANAGER'S OFFICE.

Madras, 25th May 1892

From

ER to see.

I've promised A a copy.

It may be filed after A has

had a copy I think

M/27
SIR,

The Agent and Manager.

M.R.C.

The Consulting Engineer for Railways.

A
980.81 Ray
27. 6. 93.

OW S.1
5947/53

Referring to corres-
pondence ending with your No
949 dated 1st October 1891, I have
the honour to forward copy of
a report from the Locomotive
Superintendent who recently
visited Bombay to inspect the
experiments in lighting of trains
with Pintscho's oil gas now
being carried out on the Great
Indian Peninsula and Bombay
Baroda and Central India Railways.

As explained in Mr. Phipps' report one of this Company's carriages is now being fitted to run on the mail train between Madras and Bombay and when some experience has thus been obtained the action to be taken on this Rail way will again be considered.

2

I have the honour to be
Sir,

Your most Obedt Servt.

W. P. Carter

Agent & Manager

1. encls:

No 653

B.L.

Copy, with copy of enclosure, forwarded
to A for information & consideration.

Madras. 3
30.5.92.3

P. W. CURRENT No. 5947

REGISTER
1249
FILE
No.

MADRAS RAILWAY.

The Consulting Engineer

The Agent and Manager

for Railways.

No.

Recd.

Dated

To

From

Repts: 3.7.93

A

No. 981 R & 27-June 1893.
Cons. Engrs. Madras

To

Works Madras

Read letter from
Agent Madras Ry
E341 of 18 April 93
forwarding estimate
for adopting Pintsch Patent
oil gas light on the
Madras Ry.

6135 of 25 May 92
451
inclosing report from
Loco. Supt.
1054 of 23 Dec 92
inclosing Budget 687
& Loco Supt. reports.

A No. 980 R & 27-June 1893

Noted that the
estimate be forward-
ed to Govt. India.

10
23 June

Wd
22 June

Noted -
Pinsch
and
Ry
3/1/93

The Consulting Eng
- E. G. R. G. S. V. G. S. V.

I am directed to forward
to the Govt. to submit
an estimate for
1,70,769 for adopting
Pintsch Patent oil
gas light on the Ma-
dras Ry.

This estimate is allocat-
ed to Capital 38,816
Revenue 1,31,953
1,70,769

Also duplicate inclos-
ure amounting to
1,55,304/- for stores
from England for
the above -

The matter of im-
proved lighting, which
is very bad on the
Madras Ry, has
long been recognized
and several estimates
for introducing gas
& electric light have
been prepared - and
in 1891 a trial of
Pintsch system was
recommended

on 25 Vehicles at a
cost of 6400/-

Apparently this was
never carried out but
one of the saloon
Carnages running on
the main between Ma
dras & Bombay was
fitted for experiment
run in 92 and in
the latter end of that
year the Loco. Supt.
& Traffic Supt. rep-
orted favourably of it
and forwarded the
estimate now under
consideration -

The total number of
lamps required to
equip the present pas-
senger stock is 1491
viz 314 double 8"
lamps & 1177 single
burner lamps.

The estimate provides
for duplicate gas
apparatus for making
gas for lighting 670 cars.

Engines -

Lamps for lighting
670 carriages & fittings
thereon -

and erection of a shed
for the manufacturing
plant - it is ^{proposed} to use
scotch shale oil at 6 annas per
gallon (the obtained cost is
the Company's bid but it)

is possible that
this may be re-
duced to 4 annas
per gallon

The Agent estimates
an annual saving of
5,064/- but I con-
sider I cannot fol-
low his ~~estimation~~
of figures as he ~~excludes~~
freight, erection & other
charges in estimating
the 5% depreciation for
lamps but ~~includes~~ it for the
oil lamps & reckons
the latter @ 10% -

but even admitting that
the cost be nearly the
same - the great advan-
tage of the gas light
has been already es-
tablished on the N.E. Ry
& other English lines
as well as the F. S. P.
& Bombay Baroda &
may be taken for granted.

7/11/92
9/6

2. Mr. Emswelly the former —
1. Mr. Henry Stokes — Introduction of Petrol
oil for use in machines by
The latter, estimates
reports & incident will
be printed — June 20/93

Papers also put up
for printing
June 26
6

A

No. 980.81 R 27 June 1993.