Archives 1—10,000—6-10-76.

(1) Number of pages 68

(2) Date of repair Nov 1986

(3) Initials of the Referencer

TAMIL NADU ARCHIVES

OVERNMENT OF TAMIL NADU

PW **DEPARTMENT**

G.O. No. ~~B.P. No.~~	638 (W)	Press. ~~Mis.~~
Dated	13 · 3 · 1880	~~197~~ .

to be folded or roughly handled

638/3

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

13th March 1880, No. 638 W.

Buildings and Roads.
Civil Works.

Read the following papers :—

No. 67. Endorsement of the Consulting Engineer for Railways, dated Madras, 16th December 1879, No. 482.

From A. M. SAUNDERS, Esq., Agent and Manager, Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 5th December 1879, No. 1,115.

I HAVE the honor to inform you that, in accordance with the request contained in your letter of the 6th of September last, No. 979, the Locomotive Superintendent has tested the sample of Godávari coal, and I now enclose you a copy of his report* thereon, together with a statement showing the results as compared with those shown by patent fuel. A copy of Mr. Trevithick's report, dated the 1st of August 1878, in which he shows that patent fuel is the most economical fuel, except wood, which we now use, was sent to you with my letter No. 1,056, dated the 3rd of August 1878.

* No. 3,590-627, 4th December 1879.

From F. H. TREVITHICK, Esq., Locomotive Superintendent, Madras Railway Company, to the Agent and Manager, dated Perambúr, 4th December 1879, No. 3,590-627.

YOUR endorsement to the Consulting Engineer's letter No. 979, dated 6th September 1879.

Trial of a sample of Godávari Coal.

IN compliance with the request of the Consulting Engineer I have caused the sample of Godávari coal recently received to be carefully tried with a view to determine its value as a fuel for locomotives.

2. The trial had been made exactly in the same manner, with the same trains, men, and class of engines, and over the same ground as the recent trials of various coals reported in this office letter No. 2,624-484, dated 1st August 1878, so that a fair comparison can be made between the results of the two sets of experiments.

3. Patent fuel is the most economical fuel (except wood) that we now have, and I have added on the annexed form the figures representing the results of the last experiments made with the patent fuel in order to serve as a comparison with the now tried Godávari coal.

4. The figures show that the cost of patent fuel required to run the mail train 100 miles is, at present prices, Rs. 22-11-9, and to attain the same result with the Godávari coal its cost should not exceed Rs. 15-4-0 per ton stacked in the Ráyapuram yard.

5. There was no difficulty in maintaining steam with the Godávari coal, but it was found to make a great deal of ashes in the ash-pan ; it did not clinker much, but the accumulation of ashes in the fire-box at times became so thick as to check and almost stop the draught, and it could only be got rid of by raking out from below.

6. The coal is very hard, makes little dust, and leaves very little ash in the smoke-box. It seems to require rather more air space on the fire-bars than other coals we have been using.

7. This coal from the Godávari District is a good, serviceable fuel, and if the facilities for carriage are such as will admit of its being delivered to consumers at a reasonable rate it should be well worth working.

49

MADRAS RAILWAY.

LOCOMOTIVE DEPARTMENT.

RESULTS of experiments to ascertain the value as fuel for Locomotives of Godávari Coal—October and November 1879.

Kind of Coal.	CONDITION OF TRIAL.							COAL.				WATER.*		ASH.				Cost of coal per 100 miles run.
	Total Miles run during the trials.	Total Time standing in steam during the trials.	Average length of each trip in Miles.	Average speed.	Average number of Vehicles.	Average gross Weight of Train including Engine and Tender.	Average pressure in Boiler.	Total consumption.	Consumption per Mile.	Consumption per Ton Mile.	Cost of Coal per ton delivered at Ráyapuram.	Consumption in Gallon.	Evaporated per lb. of coal.	From Smoke-box.	From Ash-pan.	Total weight in lbs.	Per cent. on weight of Coal consumed.	
	MILES.	HOURS.	MILES.	MILES PER HOUR.		TONS.	LBS. PER SQ. INCH.	LBS.	LBS.	LBS.	RS. A. P.	GALLON.	LBS.	LBS.	LBS.	LBS.	LBS.	RS. A. P.
Godávari Coal ..	2,880	52	120	25·41	13	171·63	169	98,440	33·48	·196	Not known.	83,846	8·67	3,502	17,385	20,887	21·25	Not known.
Patent Fuel.† (Experiments made in April 1878.)	1,440	22	120	26·49	15	182·78	115	36,174	24·58	·134	19 6 3 Cost in Nov. 1879, 20 11 6	38,988	10·79	1,359	2,396	3,755	10·40	21 4 5 Cost in Nov. 1879, 22 11 9

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* All the water that passed through the engine has been here considered as evaporated, no allowance having been made for leakage which could not be accurately estimated.

† These figures, the results of experiments made in April 1878, which showed Patent Fuel to be the most economical fuel at that time, are here recorded to serve as a means of comparing the value of the Godávari coal.

According to this consumption of Patent Fuel at its present price, viz., Rs. 20-11-6 per ton, the Godávari coal would now be worth to the Madras Railway Company a maximum rate of Rs. 15-4-0 per ton stacked in Ráyapuram yard.

(Signed) F. H. TREVITHICK,
Locomotive Superintendent.

SUBMITTED for the information of Government.

2. The papers now submitted give the results of the trial, at the request of His Grace the Governor, of a sample of Godávari coal as locomotive fuel.

3. The Locomotive Superintendent of the Madras Railway reports that it is a good, serviceable fuel, the only objection to it being the large quantity of ashes which accumulate in the fire-box. The consumption per mile run was 33·48 lbs. as compared with 24·56 lbs. of patent fuel, which has hitherto been found to give more economical results than other kinds of imported fuel. At the present price of patent fuel, the equivalent value of Godávari coal, stacked in Ráyapuram yard, is Rs. 15-4-0. If it can be delivered at a lower rate than this, economy would apparently result from its use.

4. The results of former trials which established the superiority of patent fuel are printed in Proceedings of Government, dated 17th August 1878, No. 789 R.

(Signed) W. H. COAKER, Captain, R.E.,
for Consulting Engineer for Railways.

No. 67-A. Endorsement of the Consulting Engineer for Railways, dated Madras, 3rd March 1880, No. 55.

NOTE.

ACCORDING to the memoranda from Hyderabad, the cost of the coal sent from the Singareni field to Madras was as follows :—

	RS.	A.	P.
Cost at pit's mouth	8	8	2
Cartage to Bezváda	14	8	8
Boat to Madras	6	6	7
Cost per ton ...	29	7	5

Had the coal been sent *viâ* Rajahmundry the cost would have been :—

	RS.	A.	P.
Cost at pit's mouth	8	8	2
Cartage to river	14	6	0
Boat to Rajahmundry	5	0	0
Transhipment...	0	6	0
Boat to Bezváda	3	12	0
Boat to Madras	6	6	7
Cost per ton ...	38	6	9

It is stated that the cost at pit's mouth was excessive, and that Rs. 6 per ton should be sufficient ; also that, if a good road were available to Bezváda, the cartage hire would be reduced by Rs. 1-8-0 per ton.

The cost of conveyance by boat from Bezváda to Madras works out to about $4\frac{1}{2}$ pies per ton mile; but, as shown in Proceedings of Government annexed, the charge for coal conveyed in full boat loads should not exceed 2 pies per ton mile, which for a distance of 274 miles would give Rs. 2-13-8 per ton.

2nd May 1873, No. 1,257.
14th August „ „ 2,024.

Making these allowances, the cost would stand thus :—

	RS.	A.	P.
Cost at pit's mouth	6	0	0
Cartage to Bezváda	13	0	8
Boat to Madras	2	13	8
	21	14	4

To which must be added the cost of carriage to the Locomotive Department.

In the demi-official letter from the Locomotive Superintendent, it is stated that, at present prices, Godávari coal of the quality experimented with recently would be worth Rs. 17-13-6, delivered in Ráyapuram yard. For economical use it would be necessary therefore to still further reduce the price as shown above by Rs. 4.

In the rate of Rs. 15-6-7, quoted in His Grace's note for Singareni coal, delivered at Madras, it is assumed that a tramway is made from the coal field to Bezváda, a distance of about 80 miles (72 miles in a direct line). Supposing coal to cost Rs. 6 placed in wagons at the pit's mouth, and to be carried at a rate 8 pies per ton mile, the cost per ton delivered at Bezváda would be Rs. 9-5-4. Taking, as before, the cost of conveyance to Madras by boat at Rs. 2-13-8, the cost at Madras becomes Rs. 12-3-0. If this coal were used extensively it would probably be found desirable to have a depôt on the banks of the canal near the Salt Cotaurs Station, so as to avoid further charges. Allowing for transfer from rail to boat at Bezváda, and for contingencies, it is thought that the total cost of Singareni coal delivered at Madras should not exceed Rs. 13 per ton, which is Rs. 4-13-6 within its comparative value at present prices of English fuel.

The normal annual consumption of the Madras Railway is about 12,000 tons, equivalent to 16,000 tons of Singareni coal, on which the saving would amount to Rs. 77,500. This coal could also be used to a large extent by the South Indian Railway.

Reference is made in the correspondence to a proposal to open out the Dumagudiem coal field on the Godávari. The cost of supplying Madras from this point is fully dealt with in the Proceedings before quoted; it being shown that coal could probably be delivered in Madras at Rs. 10 per ton, viz., cost on board Rs. 5, conveyance by boat 480 miles at 2 pies, Rs. 5.

MADRAS,
3rd March 1880.

(Signed) J. H. M. SHAW-STEWART, Col., R.E.,
Consulting Engineer for Railways.

COPY of demi-official letter from M. Wilkinson, Esq., His Highness the Nizam's Government, to His Excellency the Minister, dated 3rd December 1879.

With reference to Major Gough's letter of November 6th, making certain suggestions regarding, and asking for information as to cost of our Godávari coal, I beg, in reply, to forward a statement showing the actual cost incurred per ton in transporting coal from Singareni to Madras, *viâ* Bezváda, as well as a statement showing what the cost would have been had the coal been carted in the first instance to the Godávari and taken from thence by water to Bezváda, *viâ* Rajahmundry, and from thence to Madras.

On comparing these two statements you will see that a saving of Government Rs. 8-15-4 per ton was effected by adopting the direct Bezváda route. You will also observe that the cost of carriage by water from Naganapole on the banks of the Godávari to Bezváda would be Government Rs. 9-4-0 per ton, so that if His Grace's proposal to open up the supposed coal field opposite Dumagudiem were to be carried out, taking into consideration this high cost of carriage and the difficulty and uncertainty of the Godávari navigation, very little benefit would accrue to Madras, although no doubt as His Grace observes, the coal would be of much value to the river and canal navigation and to the Workshops at Dowlaishweram; but I question whether the demand would be sufficient to warrant the expenditure necessary to open and work the mines, even if coal were found in the locality alluded to in any quantity and capable of being worked at any thing like a reasonable cost.

The cost of coal at the pit's mouth at Singareni should not exceed Rs. 6 per ton, although the cost of that sent to Madras came to H. S. Rs. 8-8-2 per ton without superintendence. This high cost was however due to the very unfavorable circumstances under which the work was carried out. Everything had to be done in a hurry, unskilled labor had to be employed and even that had to be procured from a distance and at an exorbitant rate, as none of the local inhabitants could be persuaded to work under ground, and this, added to the difficulty of obtaining supplies and the fact that that part of the country was more or less affected by the Rampa disturbance, ran up the cost to an amount which under ordinary circumstances would be simply prohibitive. The superintendence also was much in excess of what under the normal state of things would be permitted.

The cost of carriage to Bezváda (Rs. 14-8-8) would be greatly reduced if a regular demand for coal spring up, as no doubt properly constructed carts, which alone would save Rs. 1-0-8 per ton, and good strong bullocks would then be forthcoming. Both carts and bullocks used during the recent experiments were procured with great difficulty, and had to be made the best of. If there were any great demand for coal, it would be a matter of consideration if it would be advantageous to construct a light tramway from Singareni to Bezváda, which could be eventually improved and converted, as circumstances permitted, into a *light* line of railway. If this were done I feel confident that coal could be delivered at Bezváda at about Rs. 9 per ton for Rs. 15-6-7 at Madras, and this amount could be further reduced when the mines have been for some time open and miners learnt their work. The construction of a tramway however should be dependent, as already stated, on the demand for coal at Bezváda, and the probability of the coal traffic being supplemented by a mixed traffic which, however, would not likely be the case unless the tramway were to be continued to Hyderabad *viâ* Warrungul, and this suggestion I would most strongly recommend to your Excellency's most earnest consideration, as the question of fuel is daily becoming one of the utmost importance in Hyderabad, and a constant supply of good coal at a reasonable cost (if a light railway were in existence coal could be sold here at Rs. 15 per ton) would confer incalculable benefit on the place.

COST of carriage for Godávari route of one Ton of Coal from Singareni Coal Field.

	RS.	A.	P.
Cost of cart-hire per ton of coal, each cart carrying exactly half ton (cannot carry more by this route owing to the bad jungle track and large nullahs that have to be crossed) at the rate of H. S. Rs. 8 per cart, from the Singareni Coal Fields to Naganpole, the point of embarkation on the Godávari, H. S. Rs. 16, or Government Rupees	13	5	4
Cost of bamboo plaiting for carts per ton of coal, H. S. Rs. 1-4-0, equal to Government Rupees	1	0	8
Cost of water carriage by river Godávari of one ton of coal from Naganpole to Rajahmundry (*vide* Mr. Buchannan's docket No. 6 of 13th May 1879) Government Rupees	5	0	0
Water carriage by canal boat from Rajahmundry of one ton of coal to Madras (*vide* boat-owner Rungasawmy's letter) Government Rs. 15 per ton, distance being 369 miles; it would therefore cost at the above rate Government Rs. 3-12-0 for the carriage of one ton of coal from Rajahmundry to Bezváda a distance of 90 miles	3	12	0
Transhipment charges of one ton of coal at Rajahmundry from river boats into canal boats, about per ton	0	6	0
Total cost of carriage of one ton of coal to Bezváda, *viâ* Godávari route, Government Rupees	23	8	0

COST of carriage of one Ton of Coal to Bezváda direct by road from Singareni Coal Fields.

	RS.	A.	P.
Cost of carriage by carts of one ton of coal to Bezváda, H. S. Rs. 16-10-8, or Government Rupees	13	8	0
(The agreement with the cartmen was that they should carry in each cart 12 cwt. weight, for which they would get H. S. Rs. 10 to Bezváda, but as some of the bullocks were unable to drag this amount they were paid in proportion to the weight they carried, *i.e.*, at the rate of H. S. Rs. 1-10-8 per 2 cwt. each cart being accurately weighed in.)			
Cost of bamboo plaiting for carts per ton of coal. H. S. Rs. 1-4-0, equal to Government Rupees	1	0	8
Total cost to Bezváda direct by road of one ton coal	14	8	8
Cost per ton per Godávari route	23	8	0
Cost per ton per Bezváda road direct	14	8	8
Saving to Government by adopting Bezváda road direct ...	8	15	4
Cost of water carriage from Bezváda to Madras inclusive of all charges per ton Government Rupees	6	6	7
Total cost of carriage of one ton of coal direct *viâ* Bezváda route to Madras equals Government Rupees	20	0	0

Demi-official from F. H. TREVITHICK, Esq., Locomotive Superintendent, Madras Railway Company, to the Consulting Engineer for Railways, dated Perambúr, 1st March 1880.

SINCE the subject of the enclosed papers was first considered the prices of English coal have risen, and the figures quoted in my official letter, No. 3,590-627, dated 4th December 1879, no longer represent a true statement of the case.

2. Including loss by exchange, patent fuel, the material with which the Godávari coal was compared, now stands us in Rs. 24-5-0 per ton delivered in Ráyapuram yard. Taking this as a standard Godávari coal would be worth Rs. 17-13-6 per ton delivered in Ráyapuram yard.

3. Patent fuel has risen Rs. 1-9-6 per ton, and I have now added Rs. 2 for loss by exchange which was not considered before.

4. These figures point to an improvement in the revenue of the fortunate Rajah who ownes the Godávari District.

SUBMITTED for the consideration of His Grace the Governor, with reference to his remarks, dated 16th December 1879, and 16th January 1880.

(Signed) J. H. M. SHAW-STEWART, Colonel, R.E.,
Consulting Engineer for Railways.

No. 67-B. From the Joint Secretary to Government, Public Works Department, Railway Branch, dated 11th March 1880, No. 816.

No. 68. ORDER THEREON, 13th March 1880, No. 638 W.

THE Superintending Engineer, First Circle, will make immediate efforts to obtain a supply of the Singareni coal for the Dowlaishweram Workshops, and for the Godávari steamers.

2. Should the latter need to have their fire-grates altered to burn coal, the expense of doing so will of course only be incurred when both the certainty of the supply, and the quality of the coal, have been sufficiently assured.

3. Reports as to the action taken should be made as early as possible, the Government attaching much importance to this experiment for obtaining cheap fuel.

4. Ordered that a copy of these Proceedings be sent to the Resident of Hyderabad, with the observation that the results of these experiments undertaken with the object of developing the coal resources of His Highness the Nizam's dominions will be communicated immediately on receipt by this Government, and with the expression of a hope on the part of His Grace the Governor in Council that a tramway may be laid, or other measures taken, to reduce the transit of the coal delivered into the canal boats at Bezváda; this being now the main obstacle to the extensive use of the Singareni coal in Madras.

(Here enter No. 639 W., dated 13th March 1880.)

(True Extract.)

Major, R.E.,
Ag. Under Secy. to Govt., P.W.D.

To the Superintending Engineer, First Circle.
" Consulting Engineer for Railways.
" Superintendent, Public Works Workshops.
" " Buckingham Canal.
" Public Department.
" Revenue Department.
" Chief Engineer for Irrigation.

Exd. S. T. Austin.

Spare Copies

678/6

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1880) Madras.

PUBLIC WORKS.

To

THE SUPERINTENDING ENGINEER,
FIRST CIRCLE.
&c., &c., &c.

Dated March, 13th.

Issued

Recd. *Encl.*

G. O., 13th March 1880, No. 638 W.

MARCH.
Nos. 67-68.

Godávari Coal.—Orders on papers reporting upon the results of the trial of the

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638
7

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

No. 639 W.

No. 69.

FROM

THE SECRETARY TO THE GOVERNMENT OF MADRAS,
Public Works Department,

To

THE RESIDENT, HYDERABAD,
Through Political Department.

SIR,—I am directed to forward copy of the marginal Proceedings of this Government, with the request that it may be laid before His Highness the Nizam for consideration of the remarks made in the 4th paragraph.

No. 638 W., dated 13th March 1880.

I have the honor to be,
Sir,
Your most obedient servant,

Major, R.E.,
Ag. Under Secy. to Govt., P.W.D.

FORT ST. GEORGE,
13th March 1880.

Exd. S. T. Austin.
Spare Copies

638/8

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1880} Madras.

PUBLIC WORKS.

To

THE RESIDENT, HYDERABAD,
THROUGH POLITICAL DEPARTMENT.

Dated March, 13th.

Issued

Recd. Encl.

G. O., 13th March 1880, No. 639 W.

MARCH.
No. 69.

GODAVARI COAL.

No. 1115 P1

MADRAS RAILWAY.

MADRAS RAILWAY COMPANY

AGENT AND MANAGER'S OFFICE.

Madras, 5th December 1879.

638

From Arthur M Saunders, Esqr.
Agent and Manager. MKC 7

To Coll. J H M Shaw Stewart, R.E.
Consulting Engineer for Railways.

Sir,

I have the honour to inform you that in accordance with the request contained in your letter of the 6th of September last No. 979, the Locomotive Superintendent has tested the sample of Godaveri Coal, and I now enclose you a copy of his report[x] thereon together with a Statement showing the results as compared with those shown by patent fuel. A Copy of Mr Trevithick's

[x] No. 3590/627
4th Decr. 1879.

report dated the 1st of August 1878 in which he shows that Patent fuel is the most economical fuel, except wood, which we now use, was sent to you with my letter No. 1056 dated the 3rd of August 1878.

I have the honour to be,
Sir,
Your most obedient Servant,

J. H. Mellis
pr Agent & Manager.

985

P.W.D.
17DEC79

MADRAS RAILWAY.

From The Agent and Manager.

To The Consulting Engineer for Railways.

Dated 5th Decr 1879

Recd 17 do

No. 1115 W

As to the result of the trial of the Godavery Coal on the Madras Railway

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AP3

Madras Railway
Locomotive Superintendent's Office
Perambore Works

No. $\frac{3590}{627}$. 4th December 1879

The Agent and Manager. $\frac{638}{11}$

My Dear Sir,

Your endorsement to the Consulting Engineer's letter No. 979 dated 6th September 1879

Trial of a sample of Godavery Coal.

In compliance with the request of the Consulting Engineer I have caused the sample of Godavery Coal recently received to be carefully tried with a view to determine its value as a fuel for locomotives.

2. The trial had been made exactly in the same manner, with the same trains, men, and class of Engines, and over the same ground as the recent trials of various Coals reported in this Office letter No. $\frac{2624}{484}$ dated 1st August 1878, so that a fair Comparison

can be made between the results of the 2 sets of experiments.

638/12

3. Patent Fuel is the most economical fuel (except wood) that we now have, and I have added on the annexed form the figures representing the results of the last experiments made with the patent fuel in order to serve as a comparison with the now tried Godavery Coal.

4. The figures shew that the cost of Patent Fuel required to run the Mail train 100 miles is, at present prices, Rupees 22-11.9 and to attain the same result with the Godavery Coal its cost should not exceed Rupees 15.4.0 per ton stacked in the Royapooram yard.

5. There was no difficulty in maintaining steam with the Godavery Coal, but it was found to make a great deal of ashes in the ash-pan; it did not clinker much, but the accumulation of ashes in the firebox at times became so thick as to check and almost stop the draught, and it

could only be got rid of by raking out from below.

6. The Coal is very hard, makes little dust, and leaves very little ash in the smoke box. It seems to require rather more air space on the fire-bars than other Coals we have been using.

7. This Coal from the Godavery district is a good serviceable fuel, and if the facilities for Carriage are such as will admit of its being delivered to Consumers at a reasonable rate, it should be well worth working.

Yours faithfully
(Sigd) F. H. Trevithick
Locomotive Superintendent.

(True Copy)

J. W. Mellis
pr Agent & Manager.

P.W.D.
17DEC79
No.

P.W.D.
17DEC79
No.

Madras Railway

Locomotive Department.

Results of Experiments to ascertain the value as Fuel for Locomotives of Godavery Coal – October and November 1879

Kind of Coal	Condition of trial.							Coal				Water.		Ash.					Remarks
	Total miles run during the trials.	Total time standing in steam during the trials.	Average length of each trip in miles.	Average speed.	Average No. of Vehicles.	Average gross weight of train including engine & tender.	Average pressure in boiler.	Total Consumption	Consumption per mile.	Consumption per ton per mile.	Cost of Coal per ton delivered at Royapuram	Consumption in Gallon.	Evaporated per lb of Coal.	From Smoke box.	From Ash pan.	Total weight in lbs.	% on weight of Coal consumed.	Cost of Coal per 100 miles run.	
	Miles	Hours	Miles	Miles per hour		Tons	lbs per sqre inch	lbs	lbs	lbs	Rs. A. P.	Gallon	lbs	lbs	lbs	lbs	lbs	Rs. A. P.	
Godavery Coal —	2880	52	120	25·41	13	171·63	109	98,440	33·48	·196		83,846	8·67	3,502	17,385	20,887	21·25		All the water that passed through the Engine has been here considered as evaporated no allowance having been made for leakage which could not be accurately Estimated.
Patent Fuel * —	1,440	22	120	26·49	15	182·78	115	36,174	24·58	·134	19-6-3	38,988	10·79	1,359	2,396	3,755	10·40	21-4-5	

* These figures the results of experiments made in April 1878, which showed Patent Fuel to be the most economical fuel at that time are here recorded to serve as a means of comparing the value of the Godavery Coal. According to this Consumption of Patent Fuel at its present price Viz. Rupees 20-11-6 per ton. The Godavery Coal would now be worth to the Madras Railway Company a maximum rate of Rupees 15.4-" per ton stacked in Royapuram Yard.

(True copy)

J. H. Mellis

for Agent & Manager.

(Sigd) F. H. Trevithick

Locomotive Superintendent.

628/134

Consg. Engr.'s No. 2.

PUBLIC WORKS DEPARTMENT,

Railway Branch.

Consulting Engineer's Office,

Madras, 16th December 1879.

Letter from Agent and Manager, Madras Railway, No. 1115, dated 5th December, 1879, with enclosures.

628/15

No. 482

SUBMITTED for the information of Government

2. The papers now submitted give the results of the trial, at the request of His Grace the Governor, of a sample of Godavery coal as locomotive fuel.

3. The Locomotive Superintendent of the Madras Railway, reports that it is a good serviceable fuel,

the only objection to it being the large quantity of ashes which accumulate in the firebox. The consumption per mile run was 33.48 lbs, as compared with 24.56 lbs of patent fuel which has hitherto been found to give ~~the most~~ more economical results than other kinds of imported fuel. At the present price of patent fuel, the equivalent value of Godavery coal, stacked in Rajapuram yard is Rs 15 4 0. If it can be delivered at a lower rate than this, economy

economy would apparently result from its use.

4. The results of former trials which established the superiority of patent fuel are printed in Proceedings of Government dated 17th August, 1878, No 789 R.

W M Crowther
Capt., R.E.
for Cons. Engr. for Railways

H.S.

P.W.D.
17DEC79

No.

From ~~Consulting Engineer~~
The ~~Joint Secretary to Government,~~
for Railway ~~Branch~~,

No. 483
Dated 16 } December 1879
Received

No. of Enclosures. 3

Subject. print with [illegible]

Report from the Agent and Manager Madras Railway upon the results of the trial of the Godavery Coal in the Company's.

R.C. 4.3.80
Civ: 18-12

638/18

P.1.0

Note

According to the Memoranda from Hydrabad, the cost of the coal sent from the Singarenny field to Madras was as follows:

	R.	a.	p.
Cost at pit's mouth	8	8	2
Cartage to Bezwada	14	8	8
Boat to Madras	6	6	7
Cost per ton R	29	7	5

Had the coal been sent via Rajahmundry, the cost would have been:

	R.	a.	p.
Cost at pits mouth	8	8	2
Cartage to river	14	6	0
Boat to Rajahmundry	5	.	.
Transhipment	.	6	0
Boat to Bezwada	3	12	0
to Madras	6	6	7
Cost per ton R	38	6	9

Jl

It is stated that the cost at pits mouth was excessive, and that R 6 per ton should be sufficient; also that, if a good road were available to Bezwada, the cartage hire would be reduced by R 1. 8. 0 per ton.

The cost of conveyance by boat from Bezwadah to Madras works out to about 4 1/2 pies per ton mile; but, as shown in Proceedings of Government annexed, the charge for coal conveyed in full boat loads should not exceed 2 pies per ton mile, which for a distance of 274 miles would give R 2. 13. 8 per ton.

2nd May, 1873.
No 1257
14th August 1873
No 2,024

Making these allowances, the cost would stand thus:-

	R.	a.	p.
Cost at pits mouth	6.	0.	0
Cartage to Bezwada	13.	0.	8
Boat to Madras	2.	13.	8
R	21.	14.	4

To

To which must be added the cost of carriage to the Locomotive Department.

In the demi-official letter from the Locomotive Superintendent, it is stated that, at present prices, Godavery coal of the quality experimented with recently would be worth R 17. 13. 6, delivered in Royapuram yard. For economical use, it would be necessary therefore to still further reduce the ^{5} price as shown above by R 4.

In the rate of R 15. 6. 7, quoted in His Grace's note for Singareny coal, delivered at Madras, it is assumed that a tramway is made from the coal-field to Bezwada, a distance of about 80 miles (72 miles in a direct line). Supposing coal to cost R 6 placed in wagons, at the pits mouth, and to be carried at a rate 8 pies per ton mile, the cost per ton delivered at Bezwada would be R 9-5-4. Taking, as before, the cost of conveyance to Madras by boat at R 2.13.8, the cost at Madras becomes R 12.3.0. If this coal were used extensively, it would probably be found desirable to have a depot on the banks of the canal near the Salt Cotaurs station, so as to avoid further charges. Allowing for transfer from rail to boat at Bezwada, and for contingencies, it is thought that the total cost of Singarenny coal delivered at Madras should not exceed R 13 per ton, which is R 4.13.6 within its comparative value at present prices of English fuel.

The normal annual consumption of

the

the Madras Railway is about 12,000 tons, equivalent to 16,000 tons of Singarenny coal, on which the saving would amount to R 77,500. This coal could also be used to a large extent by the South Indian Railway.

Reference is made in the correspondence to a proposal to open out the Dumagudiem coal field on the Godavery. The cost of supplying Madras from this point is fully dealt with in the Proceedings before quoted, it being shown that coal could probably be delivered in Madras at R 10 per ton, viz cost on board R 5, conveyance by boat 480 miles at 2 pies, R 5

Colonel, R.E.

Madras
3rd March 1880 }

Cons. Engr. for Railways.

H.S.

P.W.D.
4 MAR 80
No 1526

1

No 13
638/21

Copy of D.O. letter from W. Wilkinson Esqr A.S. the Nizam's Government to His Excellency the Minister - D/3rd December 1879.

With reference to Major Gough's letter of November 6th making certain suggestions regarding, and asking for information as to cost of our Godavery Coal, I beg in reply to forward a Statement shewing the actual cost incurred per ton in transporting Coal from Singareny to Madras via Bezwarra, as well as a Statement shewing what the cost would have been had the coal been carted in the first instance to the Godavary and taken from thence by water to Bezwarra via Rajmundry, and from thence to Madras.

On comparing these two Statements, you will see that a saving of Govt Rupees 8-15-4 per ton was effected by adopting the direct Bezwarra route. You will also observe that the cost of carriage by water from Naganapole on the banks of the Godavery to Bezwarra would be Govt: Rs 9.4.- per ton, so that if His Graces proposal to open up the supposed Coal Field opposite Domagoodiem were to be carried out, taking into consideration this high cost of carriage and the difficulty and uncertainty of the Godavery navigation very little benefit would accrue to Madras, altho no doubt, as His Grace observes the Coal would be of much value to the river and Canal Navigation and to the workshops at Dowlaishwaram, but I question whether the demand would be sufficient to warrant the expenditure necessary to open and work the mines, even if Coal were found in the locality alluded to in any quantity and

capable

capable of being worked at any thing like a reasonable cost.-

The cost of coal at the pit's mouth at Singareny should not exceed Rs 6 per ton, although the cost of that sent to Madras came to H S Rs 8-8-2 per ton without superintendence. This high cost was however due to the very unfavorable circumstances under which the work was carried out. Every thing had to be done in a hurry - unskilled labor had to be employed and even that had to be procured from a distance and at an exorbitant rate, as none of the local inhabitants could be persuaded to work under ground, and this added to the difficulty of obtaining supplies; and the fact that, that part of the Country was more or less affected by the Rumpa disturbance ran up the cost to an amount which under ordinary circumstances would be simply prohibitive. The superintendence also was much in excess of what under the normal state of things would be permitted.

The cost of carriage to Bezwarra (Rs 14-8-8) would be greatly reduced if a regular demand for Coal spring up as no doubt properly constructed Carts, which alone would save Rs 1-"-8 per ton, and good strong bullocks would then be forthcoming. Both Carts and Bullocks used during the recent experiments were procured with great difficulty and had to be made the best of. If there were any great demand for Coal, it would be a matter of consideration if it would be advantageous to construct a light tramway from Singareny to Bezwarra, which could be eventually improved and converted, as circumstances permitted, into a light line of Railway. If this were done, I feel confident that Coal could be delivered at Bezwarra at about Rs 9 per ton or

Rs

Rs 15-6-7 at Madras, and this amount could be further reduced when the mines have been for some time open and miners learnt their work. The construction of a Tramway however should be dependent as already stated on the demand for coal at Bezwarra, and the probability of the Coal traffic being supplemented by a mixed traffic which however would not likely be the case unless the Tramway were to be continued to Hyderabad via Warringul, and this suggestion I would most strongly recommend to Your Excellency's most earnest consideration, as the question of fuel is daily becoming one of the utmost importance in Hyderabad and a constant supply of good Coal at a reasonable cost (if a light railway were in existence Coal could be sold here at

Rs 15 per ton) would confer incalculable benefit on the place.--

(true copy)

---

3 No 16

6 38/29

Cost of carriage for Godavery Route of 1 Ton of Coal from Singareny Coal Fields

Cost of Cart hire per ton of Coal each Cart, carrying exactly ½ Ton (cannot carry more by this route owing to the bad jungle track and large Nullahs that have to be crossed) at the rate of H.S.Rs 8-..-.. per Cart from the Singareny Coal Fields to Nagarpole the point of Embarkation on the Godavery H.S.Rs 16 or Govt Rupees.. 13-5-4

Cost of Bamboo plaiting for Carts per ton of coal H.S.Rs 1-4-.. equal to Govt Rupees — — 1-..-8

Cost of water carriage by river Godavery of 1 Ton of Coal from Nagarpole to Rajahmundry (vide Mr Buchannan's docket No 6 of 18th May 1874) Govt Rs — 5-..-..

Water carriage by Canal boat from Rajahmundry of one Ton of coal to Madras (vide boat owner Ringasamy's letter) Govt Rs 15 per ton - distance being 369 miles

c/f 19-6-..

Brought over – 19 - 6 - "

It would therefore cost at the above rate Govt Rs 3-12-- for the carriage of 1 Ton of Coal from Rajamundry to Bezwara a distance of 90 Miles ---- 3 - 12 - "

8 pies per ton mile!

Transhipment charges of 1 ton of Coal at Rajamundry from River boats into Canal boats about per ton ---- " - 6 - "

Total cost of carriage of one ton of Coal to Bezwara via Godavery route. Govt Rs -- 23 - 8 - "

SP 17

Cost of carriage of 1 Ton of Coal to Bezwara direct by road from Singareny Coal Fields.

638/25

Cost of carriage by Carts of 1 ton of coal to Bezwara H.S.Rs 16-10-8- or Govt Rupees- 13 - 8 - "

(The agreement with the Cartmen was that they should carry in each Cart 12 Cwt: weight for which they would get H.S.Rs 10-..-.. to Bezwara but as some of the Bullocks were unable to drag this amount, they were paid in proportion to the weight they carried i.e. at the rate of H.S.Rs 1-10-8 per 2 Cwt each Cart being accurately weighed in)

Cost Bamboo plaiting for Carts per ton of coal H.S.Rs 1-4-- equal to Govt Rupees -- 1 - " - 8

Total cost to Bezwara direct by road of 1 Ton Coal -- 14 - 8 - 8

Cost per ton per Godavery route — 23 - 8 - ..

Cost per ton per Bezwara road direct - 14 - 8 - 8

Saving

Saving to Government by adopting Bezwara road direct --	8 - 15 - 4.
Cost of water carriage from Bezwara to Madras inclusive of all charges per ton Govt Rs -------	6 - 6 - 7.
Total cost of carriage of 1 Ton of Coal direct via Bezwara route to Madras equals Govt Rupees ----	20 - " - "

776 miles

Cont

G.H.

Consg. Engr.'s No. 2.

Madras Railway Company. 18
LOCOMOTIVE SUPERINTENDENT'S OFFICE.

No Perambore Works 1st March 1880

638/F

My dear Col. Shaw-Stewart

Since the subject of the enclosed papers was first considered the prices of English coal have risen and the figures quoted in my official letter No. $\frac{3590}{627}$ dated 4th Decr 1879 no longer represent a true statement of the case.

Including loss by exchange, patent fuel the material with which the

19

Godavery coal as compared
now stands as in Rs. 21. 5 per
ton delᵈ Royapuram yard.
Taking this as a standard
Godavery coal would be worth
Rs. 17.13.6 per ton delᵈ in
Royapuram yard.

Patent fuel has risen
Rs. 1.9.6 per ton and I have
now added ~~[illegible]~~ Rs 2 p. Cent by
exchange which was not
considered before.

These figures point to
an improvement in the revenue
of the fortunate Rajah who owns
the Godavery district.

Yours sincerely

P.W.D.
[illegible]
1526

638/2

120

638

Consg. Engr.'s No. 2.

PUBLIC WORKS DEPARTMENT,

Railway Branch.

Consulting Engineer's Office,

Madras, 3rd March 1880.

Note by the Consulting Engineer for Railways dated 3rd March 1880 with enclosure. (Demi Official Note from the Locomotive Superintendent Madras Railway dated 1st March 1880)

No. 55

SUBMITTED for the consideration of ~~Government~~ His Grace the Governor, with reference to his remarks dated 16th December 1879 and " January 1880.

Colonel, R.E.,

Consg: Engr: for Railways.

6 28/27

Form No. 3.

H. No. 1257 - 2 May '73.
" " 2024 - 14 Aug. '73.
" " 789 R. 17 " '78.
C. No. 8979 of '79

From

The Consulting Engineer

for Railways.

P.W.D.
4 MAR 80
No 1536

No. 55
Dated 3 } March 1880
Recevied

No. of Enclosures. 2

Subject. Enclosures

print with both Enclosures

[illegible]

Further Report upon the results of the trial of the Godavery coal.

[illegible] W. Hutchinson

For orders.
4/3/80.

C. 4-3-80 R. 4-3-80

PUBLIC WORKS DEPARTMENT.

628/28

From C.E. for Ry., No. 55, dated 3^{10} March/80.
Report on results of trial of Godavari Coal.

FOR ORDERS.

What is doing in this?

Government wd. push forward the enterprise by all possible means. Can we not secure Mr. W. [illegible] services for a time? & place money at his disposal?

These notes seem to indicate ~~the~~ expediency of pressing forward search & trial of the Godavery coal on the Nizam bank at once —

That Bezwada Workshops sd be instructed to endeavour to obtain Singareny coal for Workshops & steam boat use —

* That Nizam govt should be informed

of the results —
hope expressed that
steamers may be
laid or other means
taken to reduce the
cost of ~~transit~~ the coal
delivered in Canal
boats — which is now
the only obstacle to its
extensive use — to
a ~~reasonable~~ lower
figure —

R 5/3

FOR ORDERS.

22/

Quote No & date of this

No 816/7

Transferred to
the Chief Engineer P. W
Department, for dispos
with reference to the
remarks made by
Members of Govt: as
it is understood tha
the question of the
Coal boring explorat
will be discussed in
the Buildings & Road
branch

Col: R
Jt Secy: to Govt:

11/3/80

11 March 80

R.P.D.
Regr
11/3

C. 4-3-80. R. 11-3-80

---

6 38/29

These memoranda
indicate a possible
supply of the coal (recently
supplied experimentally)
at Madras at 15-6-7
possibly. The provision
of ~~xxx~~ proper boats
& a regular trade
might even reduce
this —
The question immediately
seems to be — what
quantity per an. — would
the railways take say
at Rs 16 — ?
What would it pay

on either R. W. to take
a given quantity and
at an higher rate than
the N. R.s — ?

---

it might be desirable
if it could not incur
any loss – with a view
to develop – and
encourage development
of the mines speedily –

M. 16/12

638/30

638/31

From the Cons. Engineer for Railways No. 482 d/ 16th December 1879.

FOR ORDERS.

[illegible]

7/12

Colonel C. R.E.
Joint Secy. to Govt.
P.W. Dept. Ry. Branch.

I think cost of conveyance from Bezwada — ~~fr~~ shd be carefully estimated – inclusive construction of suitable boats &c. and a regular transport as I think the coal ought to be obtained at the price indicated although perhaps not with[illegible]

Good arrangements the Loco Supt. ought both to [illegible] as to boats &c –
The canal boats of the English Canals appear to me to be a suitable form of boat –

FOR ORDERS.

R.C. 4.3.80
Div: 12-12. R 11-3-80

γ 23.

[illegible] W. [illegible]
Special No 638 W of 13 Mar/80
From [illegible]

638
3

[illegible] No. 103 [illegible]
[illegible] No. 55 [illegible] 3/3/80
[illegible]

the supply [illegible] will not [illegible] to allow a supply of the [illegible] the [illegible] [illegible] the [illegible] should the [illegible] have [illegible] [illegible] as well [illegible] are [illegible] of the [illegible] of the [illegible] have been sufficiently [illegible] possible, the Govt. attaching much importance to this experiment for obtaining cheap fuel.

4. Ordered that a copy of these proceedings be sent to the Resident of Hyderabad, with the observation that the results of these experiments undertaken with the object of developing the coal resources of His Highness the Nizam's dominions will be communicated immediately on receipt by this Govt., and with the expression of a hope on the part of the Govt. in Council that a Tramway may be laid or other measures taken to reduce the transit of the coal obtained into the coast at

---

Bezwada, this being now the main obstacle to the extensive use of the Singareni coal in Madras.

Suptt W Godavery
S.E. P.W. Circle
C. Engr Rys
Suptt O&W Workshops
Suptt Buckingham Canal
Public Dept
Rev.
C.S.

Despd 5/9

No 639 W dd 13th Mar 80

To
Resident, Hyderabad

Sir,

I am directed to forward copy of the marginal proceedings of this Govt. with the request that it may be laid before His Highness the Nizam for consideration of His Highness's ministers in the

sent to P.L. Sept 5/9

13-3-80

1526

Govt. of (1880) Madras.

PUBLIC WORKS.

To

Dated

Issued

Recd.

33

13/3

Encl.

G. O., 13 Mar 1880, No. 638/639 W

Nos. 57-68

68

Godavari Coal Orders on papers reporting upon the results of the trial of the — — Godavari Coal