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(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public Works **DEPARTMENT.**

G.O. No. 1421-32 (Ry) Press
Mis.

Dated 26-4-1877.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
26th April 1877. No. 1,431.*

Read the following papers:—

No. 627. From Colonel NAPIER CAMPBELL, R.A., President of the Special Committee on Ordnance, to the Secretary to the Government of Madras, Public Works Department, Railway Branch, dated Fort William, 15th March 1877, Minute No. 36.

ONE of the points referred by the Government of India for investigation and report by the Special Committee on Ordnance is that of obtaining supplies from local sources as far as possible.

2. The question of manufacturing wrought iron gun carriages, platforms, and wagons in India has been under discussion for some time, and the Committee are desirous of obtaining the benefit of your experience as to the course pursued by the Railway authorities in the somewhat analogous case of the supply of rolling-stock and other articles into the manufacture of which iron enters.

3. I have the honor, therefore, to solicit the favor of a reply to each of the following questions:—

- (1.)—Is it the custom to procure the articles referred to in paragraph 2 direct from England, or to manufacture them locally?
- (2.)—If manufactured locally, from what source is the raw material obtained, from England or from India?
- (3.)—Is the iron work supplied from England in the rough, as girder, angle iron, bar, round, and plate, or in a semi-manufactured state?
- (4.)—What would be the quality of iron purchased at present in the local market?
- (5.)—Have you any reason to believe that suitable angle iron, &c., could be obtained by utilizing the iron now produced in India from the ore?
- (6.)—What are the arguments for and against local manufacture of rolling-stock, &c.,
 - (a) As a question of expediency.
 - (b) In a financial point of view.

No. 791.

REFERRED to the Consulting Engineer for report.

(Signed) J. H. M. SHAW-STEWART, Lt.-Col., R.E.,
23rd March 1877. Joint Secretary to Government, P.W.D.,
Railway Branch.

No. 627-A. Endorsement of the Consulting Engineer for Railways, dated Madras, 16th April 1877, No. 228.

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, 9th April 1877, No. 600.

ADVERTING to your letter of the 22nd ultimo, No. 463, I have the honor to enclose copies of letters* addressed to me by the Company's Chief Engineer and Locomotive Superintendent, which contain

* No. 288, dated 26th March 1877.
" 293, " 3rd April " the information asked for by the President of the Special Committee on Ordnance.

From W. R. ROBINSON, Esq., Chief Engineer, to R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, dated Madras, 26th March 1877, No. 288.

Your endorsement on letter No. 463, dated 22nd instant, from Consulting Engineer.

The two classes of manufactured wrought iron work which are largely used by this department are girders and roof-trusses. With special reference to these I annex replies to the first five questions asked by Colonel Napier Campbell. The subject of the sixth question is not immediately connected with the work of the Engineering Department, I have therefore given no expression of opinion upon it.

(1.)—Is it the custom to procure the articles referred to in paragraph 2 direct from England, or to manufacture them locally?

Girders, roof-trusses, and all articles required in large quantities are invariably obtained from England in a manufactured state.

In some cases when small girders and roofs have been wanted, and it was desirable to avoid the delay of sending to England, they have been made in the Engineering Workshops.

(2.)—If manufactured locally, from what source is the raw material obtained, from England or from India?

From the Railway Stores, the stock for which is obtained from England as required.

(3.)—Is the iron work supplied from England in the rough, as girder, angle iron, bar, round, and plate, or in a semi-manufactured state?

Girders, roof-trusses, &c., are sent from England complete. They have merely to be put together when delivered at the place for which they are required. A stock of the most useful sizes of angle iron, bars, plates, &c., is kept in the General Stores for such work, chiefly additions and renewals, as may be executed in India.

(4.)—What would be the quality of iron purchased at present in the local market?

The only iron from the local market which I have had occasion to test of late is seven-eighth inch round bar iron. Of the two samples sent by the General Store-keeper one was fit for common work, but the other was of very inferior quality. Neither was fit for rivet making. As a rule first-class iron is not procurable in the local market.

(5.)—Have you any reason to believe that suitable angle iron, &c., could be obtained by utilizing the iron now produced in India from the ore?

I have seen some excellent iron of Indian make used on the Western Coast for making tools. I know of no reason for supposing that suitable angle iron could not be obtained from Indian ore, but I believe it would be much more costly than English iron.

From F. H. TREVITHICK, Esq., Locomotive Superintendent, to R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, dated Perambore Works, 3rd April 1877, No. 293.

Your endorsement to the Consulting Engineer's letter, No. 463, dated 22nd March 1877.

Manufacture of Iron Work for Rolling-stock in India.

Adverting to queries 1, 2, and 3 of the above quoted letter:—It is the custom on the Madras Railway to procure all iron work for new rolling-stock ready finished from England. Locomotives are not built here, but all repairs, even to the making of new boilers, are executed here. New boilers are built here from raw material in the shape of plates, angles, &c., with the exception of large flanged plates, which are always procured ready finished to drawing and specification from England. All new carriage and wagon stock is built here, but the iron work for it is imported ready finished. All new carriage work for repairs is made here, with exception of wheels and axles.

To query 4:—Plates and angles, &c. for boiler work are not procurable in the local market.

To query 5:—I have no experience of iron manufactured from Indian ore in India.

To query 6:—As nearly all parts of the rolling-stock are continually requiring repair and renewal, plant and men must be maintained to do the work, and for the heavier repairs, especially in the case of boilers and the large forgings and castings, such plant and men must be maintained as would be capable of manufacturing new work; it is, therefore, expedient to do at least as much new work with them as will keep both men and plant at all times fully occupied, or both will lose in efficiency by disuse. Further, such work as can be manufactured here may be had as required without the delay consequent on passing the order and the work through a great many hands at a great distance away.

From a financial point of view a prominent argument against the manufacture extensively in India of any articles in the production of which large quantities of raw materials, such as fuel and pig-iron, have to be transported long distances, is that the freight will be less on the finished articles than on the much greater weight of raw material, and that a large and expensive European staff must be maintained under circumstances where they would probably not turn so much work per man as they would in their native climate.

Unless the manufacture of iron and steel in India were undertaken on the very largest and most expensive scale, it is not likely that the product of so complicated a manufacture would even approach in quality the out-turn from the old established and practised factories of the iron-making districts in England. The experiments on iron manufacture in the Madras Presidency at least have not been encouraging.

I have written in answer to questions, but I must add that my experience of India has not been sufficiently extended to enable me to speak with any certainty on so important a subject as the manufacture of iron in India.

From W. S. BETTS, Esq., Agent of the South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Negapatam, 4th April 1877, No. 3,037.

Your letter No. 283, of the 22nd ultimo. I have the pleasure to hand you the following copy of a reply submitted by this Company's Locomotive Superintendent to a reference made by the Special Committee on Ordnance:—

“Queries 1 & 2.—Obtained in England.

“Query 3.—In the rough as far as current requirements for stores-stock is concerned. Carriage and wagon iron work has hitherto been sent out from England manufactured for use.

“Queries 4 & 5.—Of a very fine quality. I have obtained several specimens of native smelted ore, from the neighborhood of Porto Novo, and on test found the iron of a very high class, equal to Swedish iron, beautiful grain and very ductile.

“Query 6 (a & b).—I am sure the manufacture of a high-class iron could be conducted at Porto Novo if properly and intelligently managed. The failure of the original attempt there could only have arisen from wasteful expenditure and arrangements unsuited to the condition of manufacture. As a question of expediency it would be to the interest of the country in every way to produce its own raw material. This Company's metal is only obtained from England, because local advantages are not made use of to develop its produce here.”

*Proceedings of the Madras Government, Public Works Department,
26th April 1877. No. 1,431.*

SUBMITTED to Government, with reference to endorsement No. 791, dated 23rd March 1877.

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

No. 628. ORDER THEREON, 26th April 1877, No. 1,431.

RAILWAY, No. 77.

ORDERED to be forwarded to the
President of the Special Committee on
Ordnance.

(Here enter No. 1,432, dated 26th April 1877.)

(True Extract.)

Lt.-Col., R.E.,
Joint Secretary to Government, P.W.D.,

To the Consulting Engineer for Railways.
" Military Department.
" President of Stationery and Stores Committee.

PUBLIC WORKS DEPARTMENT,
FORT ST. GEORGE, 26th April 1877.

No. 629.

No. 1,432.

FROM

THE JOINT SECRETARY TO THE GOVERNMENT OF MADRAS,
Public Works Department, Railway Branch,

TO

THE PRESIDENT OF THE SPECIAL COMMITTEE ON ORDNANCE,
Fort William, Calcutta.

RAILWAY, No. 78.

SIR,—With reference to your minute,
No. 36, under date the 15th ultimo,
I have the honor to forward herewith
certain correspondence containing the opinions of the Madras and South Indian
Railway authorities in regard to the supply of iron from local sources for rolling-
stock, &c.

I have the honor to be,

Sir,

Your most obedient servant,

Lieut.-Col., R.E.,
Joint Secy. to Govt., P.W.D.,
Railway Branch.

Exd. T. D. Ryan.
Spare Copies

PUBLIC WORKS DEPARTMENT,
Railway Branch.

Consulting Engineer's Office,
Madras, 16 April 1877.

Letter from Agent & Manager,
Madras Railway No 600 d/9th April 1877.

Letter from Agent South Indian
Railway No: 3037 d/4th April 1877.

No. 228

SUBMITTED

to

Government, with

reference to endorsement No:
791 dated 23rd March 1877.

Munttawant

BC

Recd. No.
Consgrs for Rys.

F.W.D.

18 APR 77

1084

No.

Public Works Department.

No 1431

PROCEEDINGS OF THE MADRAS GOVERNMENT

Under date the 26 April 77
Read the following:-

From

The Comptroller:
for Rep: { H.O. 228 d/16 April 77

[Signature]

Ordered to be
forwarded to the
President of the
Special Committee
on Ordnance.

H.O. 1432 d/26 April 77

To the President of the
Special Committee
on Ordnance

Fort William
Calcutta

FF. 3. 11. 6. 1977
10. 2. 1977

C. E. R. -
M. J. Dept. -
President of Stationery
& Paper Committee

Sir.
With reference

19.5.77

16. 2. 1977 H.O. 127

18.4.77

F.W.D.

18 APR 77

1084

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Fort William
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FF. 3. 11. 6. 1977
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C. E. R. -
M. J. Dept. -
President of Stationery
& Paper Committee

Sir.
With reference

19.5.77

16. 2. 1977 H.O. 127

18.4.77

to your Minute No. 36
under date the 15th
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rolling-stock, &c.

W.

Drpd. 19. 8. 77
with GO No. 1431

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Cost. of 1877 *30000*

PUBLIC WORKS.

To The Com. Engrs. & Reps.

Dated

Issued

Recd.

Encl.

G. O. 26 April 1877. No. 1431932

Nos. 627-628-629

Supply of iron from local sources for rolling stock &c.

Correspondence containing the opinions of the Madras and South Indian Railway Authorities in regard to the forwarded to the President of the Special Committee on Ordnance.

Forwarding certain correspondence containing the opinions of the Madras and S. I. Ry. Authorities in regard to the supply of iron from local sources for rolling stock &c.