

(1) Number of pages 66
(2) Date of repair 3-5-1938
(3) Initials of the Referencer F

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

Cons. 10-6-37

G.O. No.	1373	Press Mis.
<i>81-9</i> Dated	6-5-1857	

Not to be folded or roughly handled

12

*Proceedings of the Madras Government, Public Works Department,
from 1st to 10th June 1859.*

Read the following letters.

No. 89. From Colonel C. E. FABER, Chief Engineer; to J. D. BOURDILLON, Esq., Secretary to Government, dated 11th March 1859, No. 8505.

I have the honor to forward, for the consideration of Government, the accompanying copies of letters from the District Engineer of the Godavery

- 1 Copy of letter from District Engineer of the Godavery, No. 362 of 17th February 1859.
Do. do. from Mr. Moncrieff, No. 214 of 24th January 1859.
Do. do. from Mr. Kennedy, No. 175 of 19th February 1859.
1 do. Captain Moberly, No. 1265, dated 19th February 1859.
1 Sketch.

Division and Messrs. Moncrieff and Kennedy, reporting on the extremely defective construction of the hulls of the two steam Dredges which have been put together by them.

2. These are two of the five Dredges received with Extract Minutes Consultation of the 20th April 1858, No. 736, and it would appear from the reports now made and from an inspection of the drawing furnished by Mr. Moncrieff, that, owing to a miscalculation of the gross weight of the machinery, and to an ill-designed arrangement of it, the Boats draw too much water, especially by the stern, and have a permanent list to one side which renders them so crank, and brings the gunwale so near the water as to make them liable to be filled and upset by the motion of the buckets, or by the slightest ruffle of the surface of the Canal, the counteracting effect of ballast having only a tendency to increase the danger by sinking the vessel deeper.

3. The machinery is described as good, but as in the present Boats it is, if not useless, so placed as to be worked only at a great risk and with excessive wear and tear from the uneven strain thrown on the gearing, Captain Rundall proposes to obviate these defects by increasing the floatation and stability of the Boats, by lengthening them amidships 20 feet and widening them to 12 feet, at a cost of Rupees (1,200) one thousand and two hundred.

4. As the vessels are almost unfit for any purpose in their present state, and as it is certain that the other three are exactly similar, I request permission to authorize the immediate alteration of all the five, which are distributed as shown in the margin, charging the expenditure to the amount allowed for repairs in each of the Districts to which they have been assigned.

Kistnah.....	2	Nos.	6 & 8
Godavery.....	1	"	7
Negapatam.....	1	"	10
E. C. Canal.....	1	"	9

5. Besides the radical and gross defects above noticed, as rendering the five Dredges in question utterly useless till their hulls are remodelled at a considerable expence and with much trouble and inconvenience, Mr. Moncrieff points out others of a minor description, connected with the arrangement of the machinery, which detract greatly from the effective and efficient working of the vessels. These are in the first place the close packing of the machinery, leaving no space for the Crew to move about or work the Boat, and the use of a leather strap, which is apt to get slack and is always difficult to keep in order in this country, to transmit motion from the engine; and in the second place, the means adopted for advancing the Boat being hand power applied to a detached crabwinch, instead of the action of the engine itself.

6. Taken as a whole the machines are, in Mr. Moncrieff's words, neither creditable to the manufacturers nor to the Government Inspector in England, who, it is supposed, passed them; and I would recommend that the reports now laid before Government be transmitted to Her Majesty's Right Honorable Principal Secretary of State for India in Council.

No. 90. From Colonel C. E. FABER, Chief Engineer; to J. D. BOURDILLON, Esq., Secretary to Government, dated 8th April 1859, No. 9419.

With reference to your Official Memorandum of the 6th Instant No. 31, I have the honor to forward the only papers to be found on the records of this

- Copy of letter from Superintendent East Coast Canal to Board of Public Works No. 187, dated 6th July 1855.
Do. from Mr. Kennedy of 26th June 1855.
1 List of Plant
1 Memo. by Lieutenant Colonel F. C. Cotton, dated—January 1856.

office, relating to the five steam Dredges referred to, and which appear to have been sent out under the Military Indent of the 9th February 1856.

2. These papers consist, first, of copies of letters addressed by the Superintendent of the Eastern Coast Canal to the late Board of Public Works, under date 6th July 1855, with plans

worked

and specifications by Mr. Kennedy of a Dredge of 6 H. P.; and secondly, of a list of Plant required for the Department Public Works with an explanatory Memorandum by Lieutenant Colonel F. C. Cotton, dated—January 1856.

3. In these last papers the power of the required machinery is stated at 4 horse, but nothing is said of the dimensions of the Boat, and though in the former these are given at 48 feet in length by 10 feet in breadth, it is distinctly added that they are calculated to give an immersion of only 18 inches, and that the maker should be guided with respect to them by his own judgment should the Boat of the size proposed not be found to have sufficient floatage with the draft of water specified.

No. 94. ORDER THEREON, 6th June 1859, No. 1373.

Para. 1. The Chief Engineer's letter of the 11th March gives cover to reports from the District Engineers of the Godavery Division and of Chingleput on certain defects discovered by Messrs. Moncrieff and Kennedy on setting up two of the five Steam Dredges built by Messrs. Forrester and Co. of Liverpool, and received by the Ship "Godavery" for use in this Presidency, agreeably to the despatch of the late Court of Directors dated 10th February 1858 No. 6. The District Engineer of the Godavery Division proposes certain measures to remedy the defects in the Dredge for that division at a cost of 1,200 Rupees, and as the five Dredges are believed to be all alike the Chief Engineer recommends that the whole may be immediately altered and the expenditure charged to the amount allowed for repairs in the Districts to which the Dredges have been assigned.

2. The Government approve and sanction the proposed remedies, and direct that they be carried into effect accordingly; provided, that on further consideration, and after consulting those best competent to give an opinion on the matter, the present Chief Engineer shall be of opinion that the proposed are the proper means of correcting the defects. He will report, however, as soon as it shall be in his power, whether all the five Dredges possess the same defects as the two now reported on. The cost, according to Captain Rundall's Estimate for the Godavery Dredge, will amount for the five Dredges to Rupees six thousand, but the charge actually incurred will be eventually reported for the information of Government.

3. Great difficulty has been experienced in ascertaining upon what requisition the late Court supplied these five Dredges, and whether any and what specifications or instructions regarding dimensions and power, accompanied such requisition. The records of Government do not supply this information and the papers forwarded by the Chief Engineer with his second letter of the 8th April 1859 No. 9419, do not throw any light upon the subject. On the requisition of the late Chief Engineer application was made to the Court of Directors on the

Public letter from Court of Directors 17th Dec. 1856 No. 14.
1 for the Port of Masulipatam.
1 " " of Coringa.
1 " " of Negapatam.
3 for the East Coast Canals.
2 for the Channels of the Kistnah.
3 for the Channels of the Godavery.

12th September 1856 for fourteen Dredges; and the Court in their reply of the 17th December 1856 consented to supply eleven Dredges, with their complement of Tugs and spoil boats, for the places named in the margin. All these have been shipped for this Presidency, and most of them are believed to have arrived.

4. In their despatch of the 10th February 1858 the Court mention that five Dredges have been supplied on the Military Indent of the 9th February 1856, and on referring to that Indent it is found to contain an application for twenty Steam Dredges of four horse power. It would seem from the papers transmitted with Colonel Faber's letter of the 8th April 1859 that the Military Indent here referred to was framed, as regards the Stores of the Public Works Department, upon a Memo. and list of Engineering plant, submitted to the Chief Engineer in January 1856 by Lieutenant Colonel F. C. Cotton, then Deputy Chief Engineer, which included the twenty Steam Dredges.

It appears that the five Dredges now in question were sent out by the late Honorable Court in part compliance with that demand; but it does not appear from any papers which the Govern-

ment have been able to procure from the Chief Engineer's office, that any specifications were sent home, as to the dimensions of the Dredges.

5. At the instance of the late Board of Public Works, this Government addressed the Honorable Court of Directors in a letter dated 7th July 1855 requesting that Captain Hutchinson Superintendent of the Dowlaishwaram Workshop, (then proceeding to England) might be placed in personal communication with Mechanists employed by them, in view to his being consulted in respect to the specifications of the Steam Dredges required for the Department of Public Works at this Presidency and it seems possible that he was accordingly employed to determine the particulars of these five Dredges now in question. The attention of the Secretary of State will be called to the matter, with the view to his determining who is responsible for the error of construction, and to his taking such measures thereon as may seem to him fit.

6. The examination of these papers has brought it to the knowledge of Government that a requisition for very large and extensive machinery was made on the Home Authorities by the late Chief Engineer without any communication with or sanction by this Government. The Governor in Council regards this proceeding as highly objectionable and irregular; it is one which cannot fail to be either deceptive or embarrassing to the Home Government; deceptive, if the Home Government believe that the Indent has been authorized by the local Government; and embarrassing if they think otherwise. The Governor in Council sees no reason why there should not be the same restriction on the power of Subordinate Officers to incur expenditure in England as in this country. They resolve therefore to lay it down as a rule for future observance that all Indents for Stores and Machinery for the Public Works Department shall in the first instance be submitted for the information of Government in the Department Public Works with such explanation as may be necessary in respect of articles of a description not usually in demand for the public service, or of any applied for in larger quantities than ordinary. The list when approved by Government will be sent direct to the Ordnance Department to be included in the General Indent; and the Inspector General is hereby forbidden to receive any such list from the Chief Engineer without the special approval of Government.

7. Colonel Bell will be pleased to report how all the Dredges, Tugs and Punts consigned to this Presidency have been disposed of, and the places to which they may have been forwarded or assigned. The Government trust that the Mechanical Engineers who have been sent out to set up and work the Dredges and Tugs are usefully employed on work suitable to their qualifications and position, and to the liberal allowances which they receive.

Ordered that the Chief Engineer's letter of the 11th March 1859 and the above proceedings be reported immediately to the Right Honorable the Secretary of State for India.

(Signed) J. D. BOURDILLON,
Secretary to Government.

District Engineers Office G. D.
N^o 362 Camp at Dowlaismaram
17th February 1859

From The District Engineer
Godavery Division
To The Chief Engineer. G. D. M.
Fort Saint George.

Sir

The steam Dredge sent up to this District in August last having been put together and set at work, I have the honor to submit the accompanying report upon it addressed to me by Mr. Moncrieff.

2 The accompanying sketch illustrates the defects of the machine. There must have been some error in calculating its buoyancy as well as the distribution of the weight for when the machinery had been set up the boat assumed the form shown in the sketch. Counterbalancing weights were required to bring it to an even keel. but it is still very crank and as Mr. Moncrieff justly observes this defect will tend to bring unequal strains upon the Buckets. To be thoroughly useful likewise, the draught of

of water should not exceed 1 foot whereas it is 2' 3" at the Bucket end, and 1' 10" at the Boiler end. This draught of water will greatly detract from its usefulness.

3. The several portions of the machinery itself are however of very good workmanship the fault being in the boat built to contain it. A similar mistake was made in the first dredge sent by the same makers to this Country. A Piece 15 feet long was obliged to be added to it to prevent its sinking at the Bucket end. notwithstanding which addition, its draught of water is still too great to render it at all times useful. I would beg to suggest that permission be given to alter the hull so as to give it increased buoyancy as well as stability. This might be done by increasing the width to 12 feet and adding 20 feet amidships to its length. The Cost of this would be about Rupees 1200—

4. I am not aware whether any more dredges of this pattern have arrived in the Country, but if there have I would suggest the propriety of their being all altered as mentioned above prior to being

being put together, otherwise no satisfaction will be obtained from them. The batch of dredges which are now in the course of being landed from the Creffog appear to be of a very superior sort having all the recent improvements. It would of course be premature to speak of them more particularly before they have been put together, but as to the one now reported on, and manufactured by Messrs Forrester and Co, there certainly should be no more of a similar pattern ordered.

District Eng^r's Office G. D.
Camp at Dowlaismaram
17th February 1859

I have &c
(Signed) F. H. Randall Esq
Distt Eng^r Godanur

N^o 214
From
F. L. Moncrieff Esq
Asst. Supt^g G. D. Dowlaismaram
To
Captain F. H. Randall Esq
Distt Eng^r G. D. Dowlaismaram
Sir

I have the honor to inform you
that I have had steam up in the new Chan
Dredg

Dredge 50 feet long manufactured by Messrs. Forrester & Co. Liverpool, it is now all completed, and erected according to drawings furnished by you. From what I have seen of the Dredge I consider it badly designed and arranged and not at all adapted to work on the Canals of this District.

1st Draws too much water namely, when weighted to an even keel, Boiler end 1 foot 10 inches, Bucket end 2 feet 3 inches.

In its natural floating position the gunwale at the bucket end is almost immersed within 8 inches of the waters edge, the opposite side being 1 foot 8 inches out of the water (I forward a drawing showing how it sits on the water when not weighted).

The reason of this is, that the machinery or weight is unequally distributed over the boat, and of course badly designed, it was quite impossible to work the Dredge in its natural floating position; we were therefore obliged to load and Ballast the boat so as to bring it on an even keel with 1660 lbs of

9th
of kentledge iron at the Boiler or opposite end, which weight has now to remain as part of the boats working materials, if removed, the first wave that strikes it when in the river, will break over it and in all probability swamp the whole machine. From the narrow descriptions and small dimensions of the hull, the immense amount of top weight it has to sustain, when at work, causes it to be very crank, and rolls from side to side; I am afraid this defect will have a tendency to expose the buckets to a constant strain - which in all probability will effect the machinery the result being breakage and immense wear and tear. The machinery is all of the best workmanship; it is however too closely packed, no room being left for the lascars to move or work the boat, one error in the machinery is the strap used to convey motion from the Engine to the bevel wheels for working the buckets

bucket wheels, or other motion should have been adapted. The strap will constantly get out of order slack-break. Cannot be replaced easily in this country - the leather procurable here not being prepared for this class of work; it will also entail a chucker being provided for the boat to repair and look after it....

2. The greatest defect and one which will add considerably to the expenses of the Dredge is, the method used for drawing the boat along when at work, that is manual power applied to a Crab winch, in place of attaching and making the Engine do this duty as in all similar machinery, the Engine performs all the movements required. By not making it do so, it saves the manufacturer a few pounds and afterwards costs the purchasers hundreds in wages..

The Dredge also has not been supplied with anchors Chains or shovels
Taking

15
Taking the Dredge altogether is a machine now finished and ready for duty. If I am permitted to say, I think it neither reflects credit on the manufacturer, or the Government Inspectors in England; who passed it. I conceive it was the duty of the latter Officer to see at least one of the Dredges at work in a canal or river before sending them out. The defects now complained would then have been seen and easily remedied. It is quite plain he could not have done so, or he would never have sanctioned, without direct orders such a floating mass of iron without shape or beauty, and I am afraid of little use to be sent out to this Country to be a constant trouble and annoyance. If more Dredges are required, I think none better can be ordered than one designed by the Superintendent of these works Captain Hutchinson when in England, it was made by Messrs Forrester & Co. The Supt. its manufacture and

and to ensure its answering all requisites
had it worked in one of the Liverpool
Canals, before being sent out. This Dredge
has been at work for one year and
answers well in every respect. The
only faults being hand labor used for
working the boat along in place of
the Engine a similar mistake to that
complained of in the present Boat.

Howlaimaram

1st January 1859

I have &c
(Signed) J. L. Moncrieff

Actg. Supt. G. D.

(True Copies)

Amul. B. Captain

Suff. Engineer N. Birch

N^o 126

From

Captain A. S. Moberly
District Engineer of Chinglaput
To,
Colonel L. C. Faber
Chief Engineer I. M.
Sir,

I have the honor to forward
the accompanying copy of a letter from
Mr. Kennedy and would beg to call your
special attention to Para 3-1-

I have &c.

(Signed) A. S. Moberly Captain
District Engineer of Chinglaput

N^o 125

From

Mr. R. Kennedy
Executive Engineer I. M. Blasp.

To,

Captain A. S. Moberly
District Engineer of Chinglaput

Sir,

I have the honor to report for
your

1859 - 11-10-59

1859 29th

Enclosed in a letter
from the Chief Engr
Mr. 8805 dated 11th March 1859

Enclosed in a letter
regarding the Bridges
which have been
put together at the
Barracks.

your information that the Iron Dredge Boat has been completed and the engine and machinery erected and worked.

The whole as supplied to us from the Central Office has been found correct and has gone together well - with comparatively little difficulty considering our paucity of appliances and want of conveniences for such work.

I regret however to have to add that from a miscalculation of the floatage power by the makers, the Boat is unfit for its intended purpose and cannot be used unless materially altered.

The draught of water forward is 17 inches and at the stern 33 inches when floating at rest, and of course will be still more when the Buckets are loaded.

It is also so top heavy as to require to be guyed from the top of the bucket framing on each side, without which it would Capsize immediately.

I am prepared to propose a plan to rectify these faults, previous to which however I beg to be allowed to suggest for the consideration of the Chief Engineer that it

it might be the means of preventing serious disappointment and expense to Government, were some party to be deputed from the Central Office, specially to inspect and report upon the Dredge as it now floats; for I understand there are a number of others exactly similar in construction ready for despatch to their several destinations, and the loss of time, cost of transport, and disappointment will be great, if they are sent to localities, where there are no Engineers nor materials to effect such alterations as will enable them to work satisfactorily.

C. C. Canal
Office Adyar
19th February 1859

Have you
Signed / P. Kennedy
Executive Engineer 3^d Class
(True Copy)

Signed / A. L. Moberly Captain
District Engineer of Bangalore

(True Copy)
W. S. Moberly Major
Acting Superintending Engineer S. S.

Central Office of Public Works
 Fort St. George 11th March 1859
 No. 8505

From The Chief Engineer
 Public To The Secretary to Government
 Public Works Department

Sir,
 I have the honor to forward for the con- sideration of Government the accompanying copies of letters from the District Engineer of the Lodavay D^{ist} and Mess^{rs} Moncrieff and Kennedy, reporting on the extremely defective construction of the hulls of the two Steam Dredges which have been put together by them. -
 1 Sketch
 2. These are two of the five Dredges received with Extract Minutes Consultations of the 20th April 1858. No. 786, and it would appear from the reports now made and from an inspection of the drawing furnished by Mr. Moncrieff that owing to a miscalculation of the gross weight of the Machinery, and to an ill designed ar- rangement of it, the boats draw too much water, especi- ally by the stern, and have a permanent list to one side which renders them so crank, and brings the gunwale so near the water as to make them liable to be filled and upset by the motion of the buckets, or by the slightest in- ruffle of the surface of the Canal, the Counteracting effect of ballast having only a tendency to increase the danger by sinking the vessel deeper.
 3. The Machinery is described as good, but as in the present boats it is, if not useless, so placed as to be worked

Enclosure in a No. 115
 From the Chief Engineer
 To
 The Secretary to Govt
 (P. 11. 20)
 Dated 11th March 1859
 No. 8505
 (Copy of correspondence
 received from the
 Chief Engineer, on the
 subject of the
 Allgo Boat on the
 Canal.)

worked only at a great risk and with excessive wear and tear from the uneven strain thrown on the gear-
ing, Captain Randall proposes to obviate these defects by increasing the flotation and stability of the boats, by lengthening them amidships 20 feet and widening them to 12 feet, at a cost of Rupees [1200] One thousand and two hundred. —

As the vessels are almost unfit for any further service in their present state, and as it is certain that the other three are exactly similar, I request permission to authorize the immediate alteration of all the five, which are distributed as shown in the Margin, charging the expenditure to the amount allowed for repairs in each of the Districts to which they have been assigned. —

Besides the radical and gross defects above noticed, as rendering the five dredges in question utterly useless till their hulls are remodelled at a considerable expense and with much trouble and inconvenience, Mr. Moncrieff points out others of minor description, connected with the arrangement of the Machinery, which detract greatly from the effective and efficient working of the vessels. These are in the first place the close packing of the Machinery leaving no space for the crew to move about or work the boat, and the use of a leather strap, which is apt to get slack and is always difficult to keep in order in this Country, to transmit motion from the Engine, and in the second place, the means adopted for advancing the boat being hand power applied to a detached set of winch, instead of the action of the Engine itself. —

Taken

6. Taken as a whole the Machinery are, in Mr. Moncrieff's words, neither creditable to the Manufacturers nor to the Government Inspector in England who it is supposed passed them, and I would recommend that the reports now laid before Government be transmitted to Her Majesty's Right Honorable Principal Secretary of State for India in Council. —

I have the honor to be,

Sir,

Your Most Obedient Servant. —

W. L. Colver Colonel
Chief Engineer

W. L.

Central Office of P.W.
Fort St. George
11th March 1859

Central Office of P.W.
 Fort St. George 8 April 1884
 From The Chief Engineer.
 To The Secretary to Government,
 Public Works Department.

Public
 & Navy,
 & Engineer.

Sir,
 With reference to your Office
 from Sup^d E. C. B. Memorandum of the 16th instant
 to P. of Public Works No 31, I have the honor to forward
 to you the only papers to be found on the
 1st from Mr. Kennedy's records of this Office, relating to the
 1st list of plant five Steam Dredges referred to and
 1st Memo by Mr. Kennedy of 26th Jan'y 56.
 which appear to have been sent
 out under the Military Incident
 of the 9th February 1856.

2. These papers consist first
 of Copies of letters addressed by the
 Superintendent of the Eastern Coast
 Canal to the late Board of Public
 Works under date 16th July 1855 with
 Plans and Specifications by Mr.
 Kennedy of a Dredge of P. H. and
 secondly of a list of plant required
 for the D. P. W. with an explanatory
 Memo.

W. H. Murray

Done 20th April 1884
 J. H. Murray
 1859. 1859. 1859.

Done 20th April 1884
 J. H. Murray
 1859. 1859. 1859.

Done 20th April 1884
 J. H. Murray
 1859. 1859. 1859.

Done 20th April 1884
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 J. H. Murray
 1859. 1859. 1859.

Done 20th April 1884
 J. H. Murray
 1859. 1859. 1859.

Done 20th April 1884
 J. H. Murray
 1859. 1859. 1859.

Memorandum by Lt. Col. J. L. Cotton dated
- January 1856.

In the last paper the power of
the required machinery is stated at 11 H.P.
but nothing is said of the dimensions of
the boat, and though in the former those
are given at 118 ft in length by 10 ft in
breadth, it is distinctly added that they
are calculated to give an immersion
of only 18 inches, and that the matter
should be guided with respect to
them by the own judgment should the
boat of the size proposed not be found
to have sufficient floatage with the draft
of water specified. - I have the honor to be
Sir,

Yours obedt servant
Wm. L. Cotton
Lieut. Colonel

The Secretary to Government
P. W. Department.

Memorandum

On File at
564 and 869
Therm Dredges.

In his letter of the 11th
March 1859, No 8505, Colonel Tabor
submitted letters from Messrs.
Moncrieff and Kennedy reporting
on certain defects discovered by
them in putting up two out of the
five steam Dredges supplied by
and referred to by the late Court
of Directors in their Despatch
of the 16th February 1858 No 6.
The defects of these Dredges are
fully described in the letters for-
warded by the Chief Engineer,
they are attributed to a wrong
calculation of the weight of
the Machinery and of the di-
mensions of the Boats, and
the correspondence concludes by
throwing

Copy of letter to
the Committee of 1859. 1859.

On File at 564 and 869
Therm Dredges.

From the Chief Engineer
to the Secretary to the
Committee of 1859.

Insert 8"
Recd 8th April 1859

Recd 3

1859.

On File at 564 and 869
Therm Dredges.

2287 May 24 June

throwing the whole blame of the matter on the manufacturers, and on the Government Inspector in England.

2. It was necessary therefore before admitting the last mentioned statements, to ascertain whether any specification or other instruction was given to the manufacturers, and in what respect and to what extent blame could be imputed to them.

3. Considerable difficulty has been experienced in getting at a right statement of the case from the records of the Government office; a reference to the Chief Engineer's office was attended with no better results; and the Military and Marine Departments which were consulted in this matter could give but little assistance. It then became necessary to call in the Central office ^{by an official Memo} to supply whatever information

270
information was forthcoming respecting the Dredges in question, and the papers received with the Chief Engineer's letter of the 8th April 1854, No 9419, answer the requisition.

No 1 Packet 4.

From B. & A. D. P. W. 4 Dec 1854/1855.

Ex M. Com. 8 Jan 1855/45

From M. B. 29/1/1855

Ex M. Com. 6 Feb 1855/45

From M. B. 16 March 1855/24

Ex M. Com. 6 Aug 1855/937

To the Court of Directors 7.

In the margin is noted a correspondence between the Government on the one part, and the Board of Revenue and Military Board on the other, on the subject of providing apparatus for the execution of Public Works in this Presidency. This correspondence commenced in December 1854 and closed in March 1855; and it was only in August 1855 that application was made to the late Court of Directors for a supply of machinery. Two lists appear in this correspondence, one for articles to be obtained from England, the other

for articles to be made up here.
The former list was sent to the
Court with specifications relating
to the different descriptions of
Machinery, but no allusion
is made to "Steam Dredges" either
in the List of Plans, or in the
paper of specifications. The Court
never replied to this Despatch.

3. The next which appears No 2 Packet
on the records of Government is From Secy of Rev. 16 June 1855
a letter from the Board of Revenue do do 16 do 525
Department Public Works dated do do 27 do 768
To Court of Directors July 23
14 June 1855, in which they state
that Captain Hutchinson, Super-
intendent of the Dowlaishwar
-purn workshops is going to
England, and they point out the
advantage to the public service
of this Officer being accredited
to the Court of Directors by the
Madras Government "in view
to his personally giving directions
for

2.

31
"for the construction of the various
"Steam Dredges required in the
"the Peltor" and the Eastern Canal
"Canal?"
The Board added "The number
"already applied for amounts
"to 6, and the Revenue Board
"I.P.W. have reason to think
"that an error as to the character
"of the Machinery has been
"committed in assigning a too
"large amount of Horse power.
"It would seem that for Engines of ten three power
"a breadth of Steam is required
"and a local disturbance is
"created, interfering greatly
"with the navigation of the
"Canals; and as Captain Hut-
"chinson adds to his considerable
"practical acquirements as me-
"chanical Engineer a familiar
"acquaintance with all the
"details of Indian inland nav-
"igation, the Board cannot
"but strongly recommend that
this

"His Officer should, upon arriving
"in England, be placed in personal
"communication with the Mechanists
"employed by the Honorable Com-
"pany, in order to draw up the
"specifications of the Steam dredges
"which have now become so im-
"portant a work in the Madras
"Department of Public Works.

6. On the 16th June 1855,
or two days from the date of their
last letter, the Board of Revenue
Dept. Pub Works forwarded a
letter from Captain Hutchinson
detailing his views as to the
size and character of the Ma-
chinery for Steam Dredges
designed to work in Indian
Canals, and suggesting the
advantage that might be derived
were the Company's Agent
Colonel Bonner requested to
make use of his experience in
during

33
during his stay in England in
cases of doubt about Machinery
or tools.

7. The Government, ad-
mitting the statements contained
in these two letters, do not
appear to have enquired whether
any application had been re-
ceived for Steam Dredges, or
what was the character of the error
relating to them; but accepting
the Board's statements, they, on
the 7th July 1855, addressed the
Court of Directors in confor-
mity with the Board's recom-
mendation. The Court
replied to this despatch on
the 5th March 1856 Letter No. 1,
para 14, in which "with reference
to the request that Captain
Hutchinson might be placed
in communication with the
Mechanists with the view
of

"of procuring the Steam Dredges
 "required in the two Deltas
 "and for the Eastern Coast Canal,
 "they say, that no application
"had been made to them for
"the Steam Dredges thus referred
"to, but that they would give
"due consideration to any recom-
"mendation in regard to ma-
"chinery or Tools which Captain
"Hutchinson might submit."

8 On the 19 July 1855 SpS Packet
 the Board sent up a letter Pro B. of Rec. 20 July 1855 1067
 from the Superintendent of the Ex Min. Jan. 23 Aug. 974
 East Coast Canal giving over Pro B. of Rec. 13 Sept. 957
 to a specification and a plan Ex Min. Jan. 6 Dec. 767
 for a Steam Dredge of 6 Horse From Chief Eng. 16. -- 2724
 Power together with a letter Ex Min. Jan. 5 Dec. 893
 from Mr. Kennedy bearing From Chief Eng. 13 Feb. 1856 952
 on the subject. The Board Ex Min. Jan. 20 -- 257
 referring to their previous From Chief Eng. 26 Aug. 352
 communication on the subject Ex Min. Jan. 7 March 352
 of Captain Hutchinson bearing From Chief Eng. 4 April 2256
of Captain Hutchinson bearing Ex Min. Jan. 5 Sept. 1854
of Captain Hutchinson bearing Pro Chief Eng. 19 July 5020
of Captain Hutchinson bearing Order -- 18 Aug. 1458
of Captain Hutchinson bearing To Chief of Div. 13 Sept. 18
of Captain Hutchinson bearing To do do 27. -- 12.
of Captain Hutchinson bearing To do do 18 Oct. 15.

accredited

35
 accredited to the Court of Directors
 recommended that this corres-
 pondence should be sent up
 to the India House in view
 to Mr. Kennedy's proposal being
 taken into consideration by
 the Honble Court before supply-
 ing the application for six
 Steam Dredges submitted to
 Govt. on the 14 June 1855.

9. It was then that the
 Government found by a
 reference to the Board's letter
 of the 14 June 1855 that
 there was no application for
 Steam Dredges or any ground
 assigned, on which six or
 any other number of such
 Dredges were required. The
 Govt. procured all the papers
 in the Board's Office bear-
 ing on the subject, and found
 that

that the idea of applying
for Steam Dredges for use
in the Canals in the
Deltas of the Krishna and
Godavari rivers and
in the East Coast Canal
was suggested to the
Board, by a remark con-
tained in an Estimate
prepared by Captain
Err for removing Silt
in the main duct from
the south end of
the Krishna annicut, in
which he alluded to a
Steam Dredge as the
proper means for such
purposes. The Government
then referred to the
Subsequent

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subsequent correspondence
that had passed between
the Board of Revenue
and Captain Hutchinson
Mr. Moncrieff, the Super-
intendent East Coast Canal
and his Uncoveranted
Assistant Mr. Kennedy,
regarding the specifications
of the Dredges and the
discussions as to the
power to be assigned to
the Dredges; they noticed
the application for Captain
Hutchinson being accre-
dited to the Honorable
Court in view to
his personally giving
directions for the
construction of the
Steam

Steam Dredges required,
and after calling for
more specific information
as to the necessity
and the economy
of resorting to the
use of such ma-
chines they concluded
by remarking on
the very deficient and
imperfect manner
in which the subject
had been laid before
them.

10 The remain-
ing portion of
the

Madrilapatnam Harbour	7.5
Heads of Channels	2-10
East Coast Canal	5-6
Deltas of the Godavary	3-5
Godavary river	1-10
Hydrabad harbour	1-6
Boringa harbour	1-12
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See Current at 869.

the long correspondence noted in the
margin of para 8 refers to the en-
places at which Dredges would be
required, to the size of the boats, draft
of water, depth to dredge, power of
Engines &c. and ends in the deter-
mination of Government to apply
for the Dredges, for which an applica-
tion was accordingly made to the
Honorable Court on the 12th September
1856.

11 This correspondence must
stop for the present, in order that another
which passed intermediately in the
Military department might be noticed.

12 In a Military Ordinance dated
9th February 1856 is entered as a part of
the stores required for the use of the
Public Works Department 20 Steam Dredges
of 12 Horse power each for Canals &c.
appears from one of the papers furnished
by the Chief Engineer in his more recent
letter of the 8th April 1859, that in Jan'y
1856 Lieut Colonel E. C. Cotton, then Deputy
Chief Engineer, prepared a memorandum
of what he considered should consti-
tute the professional plant of the
Department, in which he includes

20 Steam Dredges of small power. ⁴¹
 Lieut Colonel Cotton's Dredges were sent
 to the Military Board, and by that
 authority included in the Annual
 Military Dredges as was then, and
 still continues to be the practice, ⁴²
 seemingly without any scrutiny or
 check of the Department concerned, or
 without any reference to what was
 then going on in the Public Works
 Department on the same subject.

¹³ In their Military Despatches
 No 100 dated 1st October 1856 the late Court
 of Directors acknowledge the receipt of
 this Dredge, notice the various articles
 and Machinery applied for, and in
 respect of Steam Dredges they observe
 in para 10 "This important article of
 demand is still under our considera-
 tion." There has been much dubi-
 tious correspondence regarding the
 supply on the above and previous
 Dredges, but no allusion is to be
 found in any of the papers in
 respect of these Steam Dredges.

To go back to the Correspondence
 in

in the Public Works Department it has
 been shown that on the 12th September 1856
 application was made to the Honorable
 Court for 14 Dredges. The power of these
 varied from 6 Horse Power to 12 Horse
 power. At that time the power of the
 Dredge for the Godavery river was not
 given, but this was subsequently ⁴³
 furnished and sent on to the Court with
 letter dated 18th October 1856. The intermediate
 letter of the 27th September 1856 to that auth-
 ority indicated the places to which the
 Dredges were to be shipped. The letter of
 the 18th October 1856, asked for a Steam
 Eng to each Dredge of sufficient power
 to tow dip & spoil boats.

As per Kel.

From Hon. Secy. 17 Dec 56
 From do 15 Feb 57

- * 1 Cargo
- 1 Nagapattinam
- 1 Nagapattinam
- 3. E. C. Canal
- 2. Krishna Channel
- 3 Godavery Channel

¹⁵ In their despatches of the 17th Dec
 1856 the Court of Directors in partial
 compliance with the requisition ⁴⁴
 conveyed in the letter of the 12th Sept
 1856 resolve to supply 11 of the 14 Dredges
 applied for. In their later letter of
 the 15th July 1857, the Court acknow-
 ledge the receipt of the letters from
 this Government of the 27th September
 and 18th October 1856; and in respect of
 the latter, they say they will comply
 with the application for Steam Eng.

16 On the 23^d October 1856 the Government applied for a steam tug for employment on the Dist. trails above the admiral, recommending that Messrs. Mannie and Sons should be engaged to build one, as their terms were the most advantageous. The Court acceded to these recommendations.

tion, and on the 18th November 1857 they shipped the Eng on board the "Bengal". In February 1858 this Eng was given up to the Bengal Government, and application made to the Honorable Court for another on the 24th February 1858. The Court replying to this letter on the 1st September following, say, they have ordered Messrs. Rennie and Sons to construct another Steam Eng. In his letter dated 19th January 1859, the Secretary of State intimates the despatch of this second Steam Eng, by the "Annania".

On

Packet No. VIII 17 : On the 29th April 1857 the board
Marine Dis. 29th April of Directors intimate the purchase
1857 No. 8. of an Iron Steam Dredge from Messrs
Forrester & Co. for boring, and say
that this is to be regarded as
one of the number referred to in
their Marine Dispatch 2^d Jan^y 1857.
The date here quoted is wrong, for
it was on the 17th December 1856 that
they consented to send 11 Steam
Dredges

Packet No. VIII B. On the 16th February 1858 the
Marine Dis. 16th Feb. 1858 No. 6 Court say the five Iron Steam
Dredging Machines asked for
in your Military Indent dated the
9th February 1856 having been con-
structed by Messrs Forester & Co.
and shipped for this Presidency,
on the "Hodder" we send plans and specifications
for the guidance of the mechanics.
Again on the 8th March referring
to these very Steam Dredges, they
inform the Government that in
the view of ensuring the proper
erection,

erection, and subsequent working of these machines, we have on the recommendation of Messrs Forrester & Co engaged the services of James Flockhart who is fully conversant with the construction and working of these Dredges.

19 The Correspondence in the margin refers to the arrangements made by the Home authorities with several manufacturers for the supply of Dredges, Tugs and Punts at spoil boats. It is to be remembered that each Dredge was to have one Tug, and each Tug 6 punts, and that as one Dredge had already been supplied for Coringa, there were only 10 more to come in. The arrangements with the manufacturers are shown below.

	Dredges.	Tugs	Punts
Simpson & Co contracted for the supply of	3	"	18
Armstrong & Co	7	"	"
Mace & Co			48
Plyth & Co			3
Rennie & Sons			2
Forrester & Co			5
	10	11	66

The

William Wait
Thomas Fletcher
Allan Thompson
Edward Fisher
James Lowland
Robert Bunting
Thomas Martin
Simpson Hodgson
John Fyfe
James Neaves
Benjamin Rhodes

20 The Honorable Court's letter of the 1st September 1858 intimates the engagement of 11 Engineers for the Dredgers, apparently one for each Dredge. The later letter from the Home Government dated 19th January 1859 intimates the shipment of the Steam Tugs on the Cornwallis.

Tartar

Sourisquois

Cornwallis— On this vessel the 3 Tugs manufactured by Rennie & Sons were shipped and the Home Government promised hereafter to engage a First class Engineer for them. Mr Drummond was accordingly engaged on the 16th March 1859.

Tartar— On the Tartar, the 3 Tugs of Plyth & Co were shipped, together with three Engineers who were engaged on that account.

Sourisquois. With regard to the Tugs on board the Sourisquois, manufactured by Forrester

Forrester & Co. it was not deemed necessary to engage a Mechanic, as it was said, that Mr. Flockhart formerly in the employ of the manufactures was in the service of Government and quite competent to direct the putting up of the machines.

21. It appears from the above that the ~~consequences~~ of Dredges and Tugs actually made to this Presidency were as follows.

11. Dredges, with Tugs & Punks complete for the Canals & Harbors mentioned in para 15, 17, & 19.

1 Steam Tug for employment on the Ristnah above the Amicut.

5 Steam Dredging machines for places not specified.

There is nothing to show that the dimensions of any of these Dredges were calculated by the manufacturers, but there is reason to believe

None

47-
believe that those dimensions were either gathered from the specifications supplied from this Presidency, or from instructions furnished by Captain Hutchinson in England. Mr. Flockhart who came out from Messrs Forrester's establishment for the express purpose of putting up the Dredges from that manufactory should know where the defects are and how to remedy them.

22. Mr. Simpson Hodgson a 3^d class Engineer belonging to one of the 11 Dredges, says that the mistake (alluding to the Dredge on the East coast Canal) is in not giving the Boat sufficient breadth he says that the error admits of a remedy, but that there is no working place, or proper working establishment, and that the duties he is employed upon are (is what comes within the compass

compos. of the ordinary native
mechanics. Mr. Hodgson is now
at the Abercrombie Battery
and if sent for, will give in-
formation that may be useful.
In reply to a question on the
point he said he did not know
who furnished the dimensions
of the Dredge, but thinks that
the manufacturers could not
have made the mistake -

Mr.
17 May 1899

Memorandum of
Correspondence
relating to Steam Dredges

W. 1373. Q.W.D.
Proceedings of the Madras Government
Under date the 6th May 1859.

Recd the following
letters from the Chief Engineer

(Hereafter 11th March & 8th April
1859 Nos 8505 & 9419.)

H. The Chief Engineer's
letter of the 11th March gives
cover to reports from the
District Engineers of the Goda-
very division and of Chingle-
put on certain defects dis-
covered by Messrs Moncrieff
and Kennedy on setting up
two of the five Steam Dredges
built by Messrs Forrester & Co.
of Liverpool, and received by the
ship "Godavery" for use
in this Presidency, agree-
ably to the despatch
of the late Court of Directors
dated 10th February 1858 No 6.
The District Engineer of the
Godavery

m

Q

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14

1 Godavery division proposes certain measures to remedy the defects in the Dredges for that division at a cost of 1200 Rupees, and at the same time ^{believed to be} five Dredges are all alike ~~and unfit for any purpose in their present state~~, the Chief Engineer recommends that the whole ^{may} be immediately altered and the expenditure charged to the amount allowed for repairs in the Districts to which the Dredges have been assigned.

2 The Government approve and sanction the proposed remedies, and direct that they be carried into effect accordingly, provided, that on further consideration, and after consulting those best competent to give an opinion on the matter, the present belief Engineer shall be of

of opinion that the proposed are the proper means of correcting the defects. He will report, however, as soon as it shall be in his power, whether all the five Dredges possess the same defects as the two now reported on. The cost, according to Captain Annis's Estimate for the Godavery dredge, will amount for the five dredges to Rupees Six thousand, but the charge, actually incurred will be eventually reported for the information of Government.

3 Great difficulty has been experienced in ascertaining upon what requisition the late Court supplied these five Dredges, and whether any and what specifications or instructions regarding dimensions and power, accompanied such

such requisition. The records of Government do not supply this information and the papers forwarded by the Chief Engineer with his second letter of the 8th April 1859 & 9th 19, do not throw any light upon the subject. The Government observe that

On the requisition of the late Chief Engineer application was made to the Court of Directors on the 12th September 1856 for fourteen dredges; and the Court in their reply of the 17th December 1856 consented to supply eleven Dredges, with their

complement of Light and spoil boats, for the places named in the Margin. All these have been shipped for this Presidency, and most of them are believed to have arrived.

Pub. letter fr^o Gov^r of Dir. 17th Dec^r 1856. & 14.

1 for the Port of Neerulipattam.

" " 2^o of Coringa

" " 3^o of Negapatam.

2 for the East Coast Canals.

2 for the Channels of the Ristnach.

2 for the Channels of the Godowary.

~~Ristnach and Godowary~~
~~Divisions, the Negapatam~~
~~harbour and East Coast~~

4. In their Dispute of the 10th February 1858 on the Court mention that five Dredges have been supplied on the Military Incident of the 9th February, 1856, and on referring to that Incident it is ~~found to~~ ^{found to} ~~be proved~~ that it contain an application ~~not only for five~~ but for twenty Steam Dredges of four horse power. It would seem from the papers transmitted with Colonel Lieber's letter of

of the 8th April 1859
that the Military En-
=clant here referred
to was ^{procured} as regards the
Stores of the Public
Works Department,
~~formed~~ upon a so
Memo: and List
of Engineering plants
submitted to the
Chief Engineer in
January 1856 by
Lieutenant Colonel F.
C. Cotton, then Deputy
Chief Engineer, which
included ^{the} twenty
Steam Dredges.

Lh

517
It appears that
the five dredges now in
question were sent out by
the late Honorable Court
in part compliance with
that demand, but it does
not appear from any
papers which the Go-
vernment have been
able to procure from
the Chief Engineer's office,
that any specifications
were sent home, as to
the dimensions and
~~form~~ of the dredges.
5 At the instance of the
late Board of Public
Works ^{Government} this addressed
the Honorable Court
of Directors ⁱⁿ a letter
dated 7th July 1835 requir-
ing that Captain
Hutchinson

Hutchinson Superin-
-tendent of the Dowlais
-iron workshop, (then
proceeding to England)
might be placed in
personal communication
with Mechanists em-
-ployed by them, in
view to his being consult-
-ed in respect to the spe-
-cifications of the steam
Dredges required for the
Department of Public
Works at this Presidency.
And it seems possible
that he ^{was} accordingly em-
-ployed to determine
the particulars of these
^{five} ^{now in question.}
Dredges. The attention
of the Secretary of State
will be called to this matter,
with

51
-to has
with the view of deter-
-mining who is responsi-
-ble for the error of
construction, and to his
taking such measures
thereon as may seem to
him fit.

6 The examination
of these papers has
brought it to the know-
-ledge of Government
that ^a requisition for very
large and expensive
machinery was made
on the Home Authori-
-ties by the ^{late} Chief
Engineer without any
communication with or
sanction by the Govern-
-ment. The Governor in
Council regards this
proceeding

proceeding
as highly objectionable
and irregular; it is one
which cannot fail
to be either deceptive or
embarrassing to the Home
Government; deceptive,
if the Home Government
believe that the Indent
has been authorized
by the local Government,
and embarrassing if
they think otherwise.

The Governor in Council
sees no reason why
there should not be
the same restriction
on the power of Subor-
dinate Officers to incur
expenditure in England
as in this country. They
resolve therefore to lay
it

it down as a rule for
future observance that
all Indents for Stores
and Machinery for the
Public Works Depart-
ment shall in the
first instance be sub-
mitted for the inform-
-ation of Government
in the Department of
Public Works with
such explanation as
may be necessary in
respect of articles of a
description not usually
in demand for the
Public service, or of any
applied in larger
quantities than ordi-
-nary. The list when
approved by Government

will

will be sent direct to
the Ordnance Depart-
ment to be included
in the General indent;
and the Director
General is hereby for-
bidden to receive any
such list from the
Chief Engineer without
the special approval
of Government.

7. Colonel Bell
will be pleased to
report how all the
Dredges, Tugs, and
Buoys consigned
to this Presidency
have been disposed
of, and the places
to which they may have
been forwarded or assigned.

The

The Government trust
that the Mechanical
Engineers who have
been sent out to
set up and work the
Dredges and Tugs are
usefully employed
on work suitable
to their qualifica-
tions and position,
and the liberal al-
lowances which
they receive.

Ordered that
the Chief Engi-
neer's letter of the
11th March 1859
and the above
Proceedings be
reported imme-
diately to the
Right

Right Honor-
-able the Secretary
of State for India.

AA

10 Copies to the Chief Engr^d D^o 7th
4- " " Subpr^o Genl of 10000
May 22-

Copy given L. H. L. E.
21st June 1859 No. 4.

Public Works 1859 Dept.
Cons. 10th June.

No. 1373.

From Chief Engineer 21st
21st January 61 Cons. 142 in
From 5th 15 May 61 Cons. 1097

Pro. of the Villachas Gov. nment.
21st June 1859.

Pro. of the Atlix Dept. dated
10th August 59 Cons. 2104.
From the Chief Engineer 21st
August 1859 Cons. 2302 in

Cons.
From 20th June 60.
Cons. 189 in
The (eng) order on

Correspondence, regarding
the defects on certain
Steam Dredges sent to
the late honorable Court
of Directors.

No 89 at 91.

From the Chief Eng. 28 May
1860. Cons. 128 in Pro. 12th June
From 25 July 61 Cons. 1715.
in Pro. 8th Aug. 61
No. 1500

May 60 to June