(1) Number of pages 230

(2) Date of repair 21-2-87

(3) Initials of the Referencer

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P W DEPARTMENT

G.O. No. / B.P. No.	2968 W 2969. W	Press. / Mis.
Dated	18.10.1883	~~198~~

Not to be folded or roughly handled.

chives —I 10,006-9 89

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

General.
Accounts.

READ—the following paper:—

G.O., dated 21st September 1883, No. 1156, Revenue.

ABSTRACT.—Sanctioning certain establishments for the Kattur, Vayalur, and Puladiwak salt factories, Ennore circle, and requesting the Public Works Department to take steps for the supply of two steam launches for the Ennore and Covelong salt circles.

ORDER—dated 18th October 1883, No. 2968 W., Public Works.

In the foregoing Proceedings, the Public Works Department is requested to take the needful steps for the supply of two steam launches for the Ennore and Covelong circles of the Salt Department.

2. Adverting to the letter from the Government of India, dated 4th April 1883, No. 79, it is considered in this department that, prior to ordering the launches out from England, as suggested by the Commissioner of Salt Revenue, application should be made for their construction either to the Calcutta or Bombay Dockyards.

Vide Proceedings of Government, dated 16th April 1883, No. 1135 W.

3. The Director of Indian Marine will therefore be requested to furnish, with the least practicable delay, an estimate of the cost of a launch of the description now required.

(True Extract.)

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

To the Revenue Department.
" Board of Revenue.
" Commissioner of Salt Revenue.

Exd. A. F. Goodall.
Spare Copies.

GENERAL
ACCOUNT.

Govt. of [1883] Madras.

PUBLIC WORKS.

Rec'd October 18th.

Read Encl.

G.O., 18th Oct. 1883, No. 2968 W.

OCTOBER.

Steam Launches

The Director of Indian Marine to be requested to furnish an estimate of the cost of construction, either in the Calcutta or Bombay Dockyard, of the two — required for the Kunore and Covelong circles, Salt Department.

PUBLIC WORKS DEPARTMENT.

General.
Account.

LETTER—from

COLONEL J. SHAW-STEWART, R.E.,
Secretary to the Government of Madras,
Public Works Department,

To

THE DIRECTOR OF INDIAN MARINE,
Calcutta.

SIR,

With reference to your letter to the Government of India, No. 3751, dated 28th February 1883, and previous correspondence on the same subject, I am directed to state that two additional steam launches are urgently required by the Madras Salt Department, and to request that you will be good enough to furnish this office, with the least practicable delay, with an estimate of the cost of the same, if made up either in the Calcutta or Bombay Dockyard.

2. The specification for those launches would be that given in Colonel Sankey's letter to your address, No. 743 E., dated 14th September 1882, and its annexed memorandum, but with this important difference that the maximum draught should be 2 feet.

3. In forwarding the estimate, I am to request that you will be good enough to state the probable time within which the order could be completed from the date the work is put in hand.

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

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

OOTACAMUND,
18th October 1883.

Exd. A. F. Goodall.
Spare Copies

GENERAL.
ACCOUNT.

Govt. of [1883] Madras.

PUBLIC WORKS.

Dated October, 1883.

Read *Encl.*

18th Oct. 1883, No. 2969 W.

OCTOBER.

Steam Launches

THE Director of Indian Marine requested to furnish an estimate of the cost of construction, either in the Calcutta or Bombay Dockyard, of the two — required for the Ennore and Covelong circles, Salt Department.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

25th September 1878, No. 735 I.

Irrigation.

Read the following papers :—

No. 35. Telegram from the Officiating Secretary to the Government of India, Military Department, to the Secretary to the Government of Madras, Public Works Department, dated 18th July 1878.

Your reminder 466 I, third ultimo. Original design of steamer so altered as regards hull and machinery that fresh designs are necessary. Dockyard cannot therefore have it ready in time, and suggest local arrangements resorted to.

No. 225 I.

No. 35-A. *Note by the Chief Engineer for Irrigation.*

This telegram from the Government of India renders it necessary to make other arrangements for the construction of the steamer still required for the Godavari Delta.

One telegram.
One memorandum, No. 326 I, dated 21st August 1878.
One design.

Before submitting specific proposals for obtaining the required steamer it may be well to place on record, as a warning which may be not without its value in the future, the history of the transactions connected with the provision of—

One small and one larger steamer for the Godavari Delta.

One small steamer for the Kistna Delta.

2. The provision of the three steamers, which it was then intended to obtain from England, was originally sanctioned in August 1873, and an indent was transmitted to the Secretary of State in February 1874.

G.O., No. 2,050, 18th August 1873.
Despatch No. 9, 26th February 1874.

The Secretary of State demurred compliance with the requisition because it seemed probable that some of the steamers which had just been sent to Calcutta for temporary service in relief of the famine would be shortly available for transfer to Madras: the Government of India were upon this requested to inform this Government whether steamers of the kind indented for would be available for transfer to this Presidency.

Despatch No. 7, 28th May 1874.
Proceedings of Madras Government, No. 2,019, 27th July 1874.

No. 2,020, 27th July 1874.

The Government of India replied that the Government of Bengal had been asked to report on the working, &c., of the famine steamers. The Government of Bengal reported that the steamers would be required in Bengal, and the Deputy Master Attendant in charge suggested the construction of the steamers needed for the Delta at the Government Dockyard, Calcutta, and guaranteed greater satisfaction at a much less cost.

Proceedings of Madras Government, No. 2,600, 12th September 1874.

3. The Chief Engineer for Irrigation was then authorised to place himself in communication with the Master Attendant, Calcutta, with a view to the construction of the three steamers, and it seemed that at length a means of getting efficient vessels within a reasonable time had been secured. The instructions were

G.O., No. 473, 17th February 1875.

carried out and a correspondence with the Master Attendant commenced. The last communication was dated 1st March 1875, and a reminder was sent on the 26th April 1875. The Officiating Superintendent of the Dockyard replied on the 31st May following that at least a couple of months would, owing to pressure of work, be needed to furnish the plans and estimates of the three steamers. In reply on the 9th June the Superintendent was asked how long it would take to construct the steamers after the designs and estimates had been approved, as it seemed possible that Government might be

No. 1,085, 26th July 1875.

No. 828, 26th July 1875.
Proceedings of Madras Government, No. 2,631, 14th December 1875.

prepared to sanction the construction of steamers and the Superintendent to inform Government about the beginning of the following year how soon steamers could be completed in Dockyard. The Superintendent was next informed that the designs and estimates which it was supposed would probably soon be ready would be revised, and the Superintendent replied that the designs had been commenced and would be forwarded when complete.

4. In April 1876 no designs having up to that time been received a reminder was sent and the Superintendent in reply sent out the designs required, but

No. 2,976, 4th May 1876.

"plan, specifications, and estimates, which though they do not represent the vessels required may be found to answer some of the purposes for which they are wanted." It was added "through continued press of work special designs have not yet been completed and it is improbable they can be for several months to come." This was the entire result of direct correspondence with the Dockyard from 1st March 1875 to 4th May 1876.

5. The design received was sent to the District Engineer, Godavari, for his opinion as to whether it could be made

No. 42 GD., 8th May 1876.

to answer the purpose for which the smaller class of steamers was required, and he replied giving particulars of the way

No. 848, 23rd June 1876.

in which the necessary adaptation could be made. The Superintendent of the Dockyard was again addressed in and informed that with some modifications the design of the steam launch transmitted by him would do, and the details of

No. 47 M., 11th July 1876.

those modifications were fully stated. This letter ended the direct correspondence with the Dockyard, for in a letter

Proceedings of Madras Government, No. 3,401, 16th December 1876.

No. 62 S., dated 21st October 1876, the Government of India in the Marine Department intimated that the Dockyard was unable to undertake work for other Governments or Departments without the permission of the Marine Department.

To Government of India, No. 3,469, 19th December 1876.

Then followed a request for details of the similar steamers of steam launches, and the reply of this Government was sent in the latter magnificently hoped.

The Marine Department on the 16th June 1877, No. 1,255, instructed the Deputy Master Attendant to direct the construction of the two smaller steamers and to prepare a special design and estimate for the larger steamer required.

Proceedings of Marine Government, 20th June 1877, No. 1017.

6. There was some further correspondence, from which it appears that only at the end of October 1877 was the Dockyard prepared and authorized to commence the launches, and on the 12th July 1878 information was received from the Government of India that these vessels were ready, but of course at this season of the year they could not be sent

Proceedings of Madras Government, No. 1012, 14th July 1877.

Telegram from Government of India, 17th October 1877.

Government of India, No. 128, 29th October 1877.

down to Cocanada, and probably they will not reach the Delta until some time in September. It will therefore have taken about three and a half years to get two small steamers built at the Calcutta Dockyard and sent to Cocanada.

7. As regards the larger steamer a design and specification were transmitted by the Marine Department of the Government of India in December 1877, and as the former was not in all respects suitable,

Letter No. 60, 6th December 1877.
Proceedings of Madras Government, No. 96 I., 1st February 1878.

a revised design was prepared in consultation with the Superintending Engineer, Godavari, submitted to Government and forwarded to the Government of India with letter, No. 97 I, of the 1st February 1878, and it was requested that early intimation might be given as to whether the steamer could be completed at the Dockyard and delivered at Cocanada before the setting in of the next north-east monsoon, or by early in October 1878 at latest. No reply having

No. 466 I., 3rd June 1878.

been received a reminder was sent at the beginning of June, and the telegram of the 18th July shows that nothing has been done and that the Dockyard cannot undertake this work.

8. It was proposed in this office note of the 18th January last that, if the steamer could not be built in the Calcutta Dockyard by October, the hull should be constructed at Dowlaishvaram and the machinery obtained from England. It is recommended therefore that the Secretary of State be asked to arrange either for—

(*1st*) a design being drawn up by a builder of this class of steamers in England, with a specification and a list of the plates, angle irons, &c., required, and that the drawings and requisite materials be sent as soon as may be to the District Engineer, Godavari, Cocanada, for the construction of the hull; also that the machinery be constructed by the shipbuilder and sent out in due course, or

(*2ndly*) that the hull as well as the machinery be built by the shipbuilder and that the former be sent out in any convenient number of pieces to be put together at Dowlaishvaram, the machinery being sent at the same time.

The great development in the construction of small steamers which has taken place during the last two or three years, and the improvement resulting from the use of Bessemer steel for the skins of such vessels make it desirable that the experience gained should be used to obtain a really efficient steamer for use on the Godavari and on the Delta Canals. It is thought therefore that all but the putting together of the component parts of the vessel had better be done in England.

9. It is probable that the design* prepared for transmission to Calcutta will afford most of the information required and to accompany this, for convenience, a separate memorandum, containing a specification of details has been drawn up and is submitted.

*Dated January 1878.

FORT ST. GEORGE, 20th August 1878. (Signed) JOHN MULLINS, Lt.-Col., R.E., Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department, Irrigation Branch.

No. 226 I.

No. 35-B. MEMORANDUM.

STEAMER FOR GODAVARI DELTA.

THE hull of the steamer will be put together at the Dowlaishvaram Workshops and the machinery will be set up there. The requisite working drawings to be furnished by the shipbuilders.

The whole of the component parts of the hull with an ample supply of rivets, &c., and the machinery, to be sent direct to Cocanada and to be addressed to the District Engineer, Godavari, care of the Master Attendant, Cocanada.

DIMENSIONS OF STEAMER.—The length in the design* prepared at Dowlaishvaram is 95½ feet over all. It would be preferable were this length to be reduced to 90 feet.

Breadth extreme† (this must not be exceeded) 13 feet.

Depth amidships 4½ feet.

HULL.—The thicknesses of plates if of iron deemed suitable are as follow :—

Bottom plates $\frac{7}{16}$ inch.
Bilge do. $\frac{1}{4}$ "
Top sides do. $\frac{1}{8}$ or $\frac{3}{16}$ inch.

Probably Bessemer steel plates will be preferable, and in that case the thicknesses may be such as to afford at least equivalent strength. It is of importance that the bilge plates should be strong, as this part is more liable to injury than any other. When ranging alongside the river bank the bilge takes the ground first, and there are often loose stones lying about.

The framing should be of ample strength, as the steamer must sometimes undergo rough usage and is liable to strains from getting on to shoals, &c.

The design shows the way in which the steamer will be fitted up, but all the wood fittings will be executed at Dowlaishvaram.

The iron frames to carry the upper deck should be prepared and sent out with the hull.

A bath 6 feet long inside with fittings, and a water closet, should be provided for the bath-room. The bath water should be supplied by the engine pumps, either direct or to a cistern over the bath-room. The waste water to be cleared by the bilge pumps. The seat of the water closet will be placed 12 inches above water line at maximum draught, and no valve will be needed but only a metal pan with an outlet pipe.

DRAUGHT.—The draught of the steamer should be 2½ feet with all stores and fuel on board. The wood fittings will be of teak, which weighs about 45 lbs. a cubic foot. It is desired to limit the maximum draught to 2½ feet, as the steamer will be more useful for river work the less the depth of water required.

SPEED.—A speed of more than 10 Statute miles an hour will not be necessary, but this speed should be obtainable with ordinary and somewhat indifferent stoking, and it is considered therefore that a trial speed of one-fourth more or 12½ miles an hour should be provided for, and this too with an indicated horse-power not excessively high compared with the nominal horse-power. It should be understood therefore that what is wanted is a speed of 10 miles an hour without difficulty and as the ordinary rate of going.

PROPELLERS.—Twin screws are considered to be the description of propellers best suited to the circumstances under which the steamer is to be used.

ENGINES AND BOILER.—The design and description of these must be left to the ship builder, the high temperature of the water in the canals and rivers in this country being considered.

Compound condensing engines would be preferred, because wood fuel is alone available, and with high pressure non-condensing engines with a waste steam blast the sparks are very troublesome and do much damage to decks, awnings, &c., and necessitate keeping the decks wet. It is desired to avoid such nuisances.

Whether the engines should be direct acting or connected with the screw shafts by cogged friction gear or otherwise, the designer must determine, but it is believed that the life of the engines will be much prolonged if the piston speed be moderate. The Engine Drivers in this country cannot be depended upon to keep bearings, glands, &c., in perfect order, and the higher the speed of the engines the more essential is such attention to prevent undue wear and tear. There should be as little vibration as possible, as writing, drawing, &c., will often have to be done in the foresaloon.

With 2½ feet screws and 4 feet pitch the revolutions of the screw shafts would ordinarily be 220 and sometimes 275 a minute.

Haulage boilers are considered preferable to the vertical and last longer. The fire grate and heating surface should be specially adapted to wood fuel and should be ample, and the boiler should be capable of producing an ample supply of steam for the engines with moderately efficient stoking. The boiler should be fitted with two safety valves and a steam gauge in addition to the usual cocks and water gauge, &c. Wood sufficient for about six times the space of coal of equivalent heating power and space for wood for 10 hours steaming should be provided in stages (in lieu of bunkers).

Spare bearings and other parts of the engine liable to exceptional wear ;

Spare glass tubes for the water gauges of the boiler ;

Spare tubes for the boiler ;

and generally such spare fittings as will suffice for at least two years' work should be provided.

The steamer must be extremely handy and steer well. It must also be capable of towing barges when necessary.

The hold beside [illegible] aft of the engine-room are in the design 24 feet apart. This length may be increased somewhat if necessary. There must be no stanchions or frames above the line shown as "Limit of height of steering gear" in the design. This line is 11 feet above the bottom of the vessel.

Capstan, anchor davit, anchors, chains, &c., should be sent out, as also the steering wheel and its fittings in addition to a common tiller.

It will be noticed that the diagonal stanchions of the frames are arranged in the design so as not to come above the saloon seats. This point should not be overlooked.

The decks will be of teak wood 6 inches by 1½ inches, and in the deck beams or frames provision for bolting down the deck should be made and the bolts provided. The quality of the iron in the frames and of the iron or steel of the skin plates should be unexceptionable, and the engines and boiler should be of very excellent material and workmanship, so that they may work satisfactorily and wear well.

Every thing but the woodwork of the steamer should be sent out complete.

Fort St. George, (Signed) JOHN MULLINS, Lt.-Col., R.E.,
21st August 1878. Chief Engineer for Irrigation.

---

*Dated January 1378.

†Including the teak wood fender along the gunwale which is supposed to be 3½ inches thick × 6 inches high.

No. 86. ORDER (MARINE), 25th September 1878, No. 735 I.

From the foregoing Note by the Chief Engineer for Irrigation, it appears that of the three steamers, the construction of which was sanctioned in G.O., of the 15th August 1878, No. 1004, the two smaller ones are complete at Pallavaram, and the Dowlaishvaram has not been able to undertake the building of the third and larger vessel. Under these circumstances the Secretary of State will be asked to arrange for the construction of the steamer still required, and a copy of these proceedings will be forwarded for His Lordship's information, together with the design and memorandum received from the Chief Engineer for Irrigation.

(Here enter No. 735 I, dated 25th September 1878.)

(True Extract.)

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Joint Secy. to Govt., P.W.D.

To the Chief Engineer for Irrigation.
" District Engineer, Guntoor.
" Marine Department.
" Revenue Department.

Dowlaishvaram.

Esd. T. D. Ryan.
Spare Copies

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

7th March 1879, No. 575.

No. 165. READ THE FOLLOWING PAPER:—

Proceedings of the Board of Revenue, dated 31st January 1879, No. 255.

Read the following letter from H. W. BLISS, Esq., Commissioner of Salt Revenue, to J. STURROCK, Esq., Acting Secretary to the Board of Revenue, dated Madras, 17th January 1879, No. 285:—

I HAVE the honor to draw the attention of the Board to the desirability of the provision of some means, both for myself and for the Chingleput Salt Deputy Collector, of getting about on the East Coast Canal with reasonable comfort and rapidity.

2. The only vessel now available for our use is a very small budgerow, the one cabin of which is much too low for any grown-up person to stand up in, and only just high enough for a man of ordinary stature to sit upright in. It affords no suitable retiring room such as a gentleman requires for occasional privacy, nor is there any accommodation for servants. In this craft if the wind is favorable one can average, perhaps, two and-a-half miles an hour; if the wind is contrary often not one mile an hour, as the only means of progression is the slow and laborious one of punting. While on board her, as I am sure will be admitted, no European gentleman can be expected to get through work of any kind.

3. In the Salt Budget of the current year Mr. Barlow provided the sum of Rupees 2,000 for the purchase of a steam launch (Item No. 43 of the Petty Construction and Repair Budget). I do not know upon what information he based his estimate of the sufficiency of this sum for the purpose; but, so far as I can ascertain, it is altogether inadequate.

4. I have before me one of Messrs. Yarrow and Co.'s circulars, the cheapest boat entered in which is an open one, twenty-three feet long and five and-a-quarter feet wide, with engines of five horse power, seats for eight persons and a draught of two feet—such a craft in short as would be useful for nothing more than to take mails, fresh provisions or work-people alongside a ship in a closed harbour at home. Being entirely open, she would be unsuited for use by passengers even in Europe. Yet the estimate of her cost is—

	£
If built of pine	192
,, of teak	230
,, of iron	270
Machinery alone for such a craft	135

5. Mr. Barlow's estimate was therefore very much under the mark.

6. Upon arriving at this conclusion some months ago, I wrote to Messrs. Yarrow and Co. to enquire at what price they could furnish a craft of the following size and description, which it appears to me is the minimum which would be of any use to an officer in my position for short trips up or down the canal involving a residence on board of four or five days at a time:—

Length forty-five feet, breadth nine feet, to steer from the bows, not to draw more than two and-a-half feet of water, to be fitted with twin screws and three cylinder (Willan's,) engines, and to be provided with a cabin about ten feet long and a bath-room about five feet square forward of the engines and with a small cabin for servants aft of them.

7. The speed I stated would be required in such a craft would be ten knots, or five knots only when towing two boats of about twenty tons each which will be required for the accommodation of myself, my servants, and my office-people whenever my tours extend to weeks, or, as they easily may and probably will, two months.

8. I suggested that she should be framed of iron and planked with teak which would be the method of construction most easily kept in order and repaired in this country.

9. In reply Messrs. Yarrow and Co. inform me that their price for such a boat would be £1,050, it being absolutely necessary to build her of steel throughout to obtain the above low draft of water; but that the steel plates could be galvanized for their better preservation.

10. This is a good deal of money to spend; but I think it will be well spent as the possession of such a craft will not only enable me greatly to economise my time by rendering it possible for me to go on with my work in comfort while I am travelling, but will also tend to the preservation of my health, which I may be excused for thinking a matter of some little importance to Government as well as to myself. As the Board and Government are aware, the work of the inspection of Salt Divisions in the manufacturing season (the hot weather) is almost as trying a one to the health even of natives as any upon which an officer of Government can be employed in an exhausting climate. I do not hesitate therefore to ask for the provision of such a convenience at the public expense as will reduce to a minimum the discomfort and risk to health to which my employment and that of my office-people necessarily exposes us.

11. I may also point out that I am not the only official or the only head of a department the nature of whose duties renders it very necessary that some tolerably rapid and comfortable means of transit along the Coast Canals should be provided for the use of Government officers of superior grades and social position. The Inspectors-General of Jails and Police and the Superintending Engineer of the 3rd Circle will all have more or less frequent need to use the canal as their most convenient route on tours of inspection; and it will neither be personally comfortable nor healthy, nor, I may add, seemly for officers of their position to be compelled to travel in such miserable craft as are now the only ones available. It may happen occasionally, too, that the Governor of the Presidency or perhaps a Member of the Board of Revenue on deputation may find it necessary or convenient to pass along the canal upon tours of duty. I need hardly insist on the very unseemingly spectacle which would be presented by an official of such high position being obliged, for want of a better, to travel in such a boat as is the best which can now be got, in which it is impossible to stand upright, and there is no provision for privacy at any time, and which is so slow that some times no more than twenty-five or thirty miles can be traversed within the twenty-four hours. If a steam launch can be provided in the Salt Department it will of course be available when I am not using it for such superior officers of other departments as I have instanced under whatever rules Government may be pleased to lay down for the purpose.

12. Messrs. Yarrow and Co. have sent me some photographs of steam launches, three of which I enclose for the Board's inspection. No. 105 is the photograph of a steam launch of much the dimensions I wrote to them about, forty-five feet long by eight feet beam, and draught of two and-a-half feet. A double top, venetianed sides and after cabin would have to be added. No. 125 represents a forty-five foot launch sent out to Zanzibar for Missionary service on the east coast of Africa. The draught is not stated, but from the way in which she is sparred it may be assumed to considerably exceed two and-a-half feet, or she would not be safe in anything like a fresh breeze. No. 151 is a view of apparently a slightly shorter craft of the same description of fittings as No. 125.

13. On the whole I think that No. 105 with the additions I recommend is the sort of launch best suited for use by Government officers on the East Coast Canal. A little more length would however be of great advantage. It would enable a very large proportionate addition to be made to the size of the cabins while adding but very lightly to the cost. I would therefore propose fifty feet long by nine feet beam as the

best size for a boat for my use on the canal. She should, I think, otherwise be according to the description above given save that the cabins would probably be best built and fitted out here, where the requirements of a hot climate are so much better understood than they are in England.

14. If the Board agree with me in these proposals I request that they will be so good as to submit them for the favorable consideration of Government.

ENCLOSURES Nos. 1 to 3.—Photographs.

SUBMITTED for the orders of Government.

2. The Board support the Salt Commissioner's proposal.

(A true Copy and Extract.)

(Signed) J. STURROCK,
Acting Secretary.

No. 166. ORDER THEREON, 7th March 1879, No. 575.

Miscellaneous.

THE Government consider that a steam-boat for the use of Government Officials generally on the Canal would be a very proper provision, but its specification must be carefully considered. Such points, for instance, as its height in relation to bridges to be passed under; suitableness of the fire-box for burning wood or coal; and of the boiler for using salt or fresh water; quantity of fuel to be carried with relation to distance between fuel stores; arrangements for towing; weight of boats to be towed; and draught of water, must all be taken into consideration.

2. The papers will therefore be referred to Lieutenant-Colonel Hasted, R.E., Captain J. Taylor and Mr. O'Shaughnessy as a Committee with instructions to submit a full specification of a suitable steam-boat for the Canal with this for towing.

(True Extract.)

(Signed) J. H. GARSTIN,
Acting Secretary to Government.

To the Board of Revenue.
" Lieutenant-Colonel Hasted, R.E.
" Captain J. Taylor, Master Attendant.
" O'Shaughnessy, Esq.

Exd. W. H. French.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

31st October 1879, No. 2,739-A W.

General.
Account.

Read the following paper :—

No. 59-A. Endorsement of the Under Secretary to Government, Revenue Department, dated Ootacamund, 15th September 1879.

From the Master Attendant, Administrative Department, to the Secretary to Government, Revenue Department, dated Madras, 27th August 1879, No. 56.

We the undersigned members of the Committee appointed by G.O., dated the 7th March 1879, No. 575 R., have the honor to submit a plan and specification of a steamboat which we consider suitable for the use of Government officers on the Buckingham canal.

2. The flats to be towed should, we think, be of the same design as the steamboat, and of dimensions suitable to the purpose for which they may be required.

(Signed) J. H. TAYLOR,
Master Attendant,
Administrative Department.

(Signed) J. O'SHAUGHNESSY,
Ex. Engr., B. C. Division.

Transferred to the Public Works Department, with the notes of the Members of Government.

(Signed) L. A. CAMPBELL,
Under Secy. to Government.

No. 59-B. From Major H. M. VIBART, R.E., Acting Superintending Engineer, Third Circle, to the Acting Deputy Chief Engineer, Public Works Department, dated Chepauk, 25th September 1879, No. 5,615.

Referring to your memorandum No. 3,006, of the 22nd instant, forwarding specification and plan for the construction of a steam-boat for use on the Buckingham canal, I have the honor to inform you that I do not consider that such an estimate can be properly framed here. The best course would probably be to forward the papers to Messrs. Yarrow or some other well known ship-builder at home, asking them to prepare an estimate for the work, including engines, &c., the cabins being built and fitted out here.

No. 59-C. Order thereon, 31st October 1879, No. 2,739-A W.

Ordered that the specification, as amended in the Chief Engineer's office, be forwarded to the Secretary of State, with the request that tenders may be called for.

(True Extract.)

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

Exd. S. T. Austin.
Spare Copies

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

31st October 1879, No. 2,739-A W.

General. Account.

Read the following paper :—

No. 59-A. Endorsement of the Under Secretary to Government, Revenue Department, dated Ootacamund, 15th September 1879.

From the Master Attendant, Administrative Department, to the Secretary to Government, Revenue Department, dated Madras, 27th August 1879, No. 56.

We the undersigned members of the Committee appointed by G.O., dated the 7th March 1879, No. 575 R., have the honor to submit a plan and specification of a steam-boat which we consider suitable for the use of Government officers on the Buckingham canal.

2. The flats to be towed should, we think, be of the same design as the steam-boat, and of dimensions suitable to the purpose for which they may be required.

(Signed) J. H. TAYLOR,
Master Attendant,
Administrative Department.

(Signed) J. O'SHAUGHNESSY,
Ex. Engr., B. C. Division.

Transferred to the Public Works Department, with the notes of the Members of Government.

(Signed) L. A. CAMPBELL,
Under Secy. to Government.

No. 59-B. From Major H. M. VIBART, R.E., Acting Superintending Engineer, Third Circle, to the Acting Deputy Chief Engineer, Public Works Department, dated Chepauk, 25th September 1879, No. 5,615.

Referring to your memorandum No. 3,006, of the 23nd instant, forwarding specification and plan for the construction of a steam-boat for use on the Buckingham canal, I have the honor to inform you that I do not consider that such an estimate can be properly framed here. The best course would probably be to forward the papers to Messrs. Yarrow or some other well known ship-builder at home, asking them to prepare an estimate for the work, including engines, &c., the cabins being built and fitted out here.

No. 59-C. Order thereon, 31st October 1879, No. 2,739-A W.

Ordered that the specification, as amended in the Chief Engineer's office, be forwarded to the Secretary of State, with the request that tenders may be called for.

(True Extract.)

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

Exd. S. T. Austin.
Spare Copies

GENERAL ACCOUNT.

Govt. of 1879 Madras.

PUBLIC WORKS.

Steam launch for use on the Buckingham Canal.—The specification and sketch for a — forwarded to the Secretary of State with request that tenders may be called for.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

11th March 1880, No. 595 W.

Buildings and Roads.
Civil Works.

Read the following paper :—

No. 63. Despatch from the Right Honorable the Secretary of State for India.

Public Works, No. 1.

INDIA OFFICE, LONDON, 5th February 1880.

MY LORD DUKE,—Your Grace's letter in the Public Works Department, No. 63, dated 31st October last, contained a request that an estimate of the cost of a steam launch for the Buckingham Canal might be furnished to you.

2. From the accompanying copy of a letter from the Admiralty, dated 13th January 1880, it will be found that such a launch as that specified in your letter under reply would cost from £1,200 to £2,000, according to the rate of speed required.

I have, &c.,

(Signed) CRANBROOK.

His Excellency the Most Noble
The Governor in Council, Fort St. George.

From R. HALL, Esq., to the Director-General of Stores, India Office, Westminster, dated Admiralty, S.W. 13th Januray 1880, No. S 12,688-411.

REFERRING to your letter of the 9th ultimo, on the subject of a steam launch required for use on the Buckingham Canal in the Madras Presidency, I am commanded by my Lords Commissioners of the Admiralty to inform you that the drawing and specification forwarded therewith have been examined in this department.

2. It appears from the examination that with a single screw, at the draught of water of 2½ feet, the speed of 10 statute miles per hour for such a boat is not possible, but that a speed of 7 statute miles only would be obtained. If this speed be considered sufficient it is estimated that the cost of the boat would be about £1,200 (viz., £600 for hull and £600 for engines).

3. Should, however, a speed of 10 statute miles per hour be indispensable, it would be necessary either to fit twin screws, retaining the draught of water of 2½ feet, or to increase the draught, retaining the single screw, and to fine the lines of the boat. The cost of such a boat and her machinery would, it is estimated, be from £1,800 to £2,000.

4. If it were decided to obtain a boat, either with the high or low speed, competent firms might be called upon to tender for the construction, furnishing a design and specification, and guaranteeing the required power of engines.

No. 64. ORDER THEREON, 11th March 1880, No. 595 W.

THE Government consider a steamer of the kind indicated too costly for inspection duties, and the Secretary of State will be informed that no further action will be taken in the matter.

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Revenue Department.
,, Superintendent of Works, Buckingham Canal.

Exd. S. T. Austin.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of 1880 Madras.

PUBLIC WORKS.

To

The REVENUE DEPARTMENT.

&c., &c., &c.

Dated March 11th.

Issued

Read. Encl.

G. O., 11th March 1880, No. 595 W.

MARCH.
Nos. 63-64.

Steam Launch for the Buckingham Canal.—The Secretary of State informed that no further action will be taken in the matter of the —.

PUBLIC WORKS DEPARTMENT.

No. 16

TO THE RIGHT HONORABLE THE SECRETARY OF STATE FOR INDIA.

My Lord,—We have the honor to acknowledge the receipt of your Lordship's Public Works Despatch of the 5th February, No. 1, and the enclosed letter from the Admiralty, and to state that we are of opinion that the cost of a steam launch as stated in the latter would be unduly high for the purpose for which it is required, and have therefore decided to take no further action in the matter at present.

We have the honor to be,
My Lord,
Your Lordship's most obedient, humble servants,

(Signed) BUCKINGHAM AND CHANDOS.
(„) W. HUDLESTON.
(„) DAVID F. CARMICHAEL.

Fort St. George,
16th March 1880.

Exd. S. T. Austin.

FORT ST. GEORGE.

PUBLIC WORKS DEPARTMENT.

Letter to the Right Honorable the Secretary of State for India.

Dated 16th March.

No. 14 of 1880.

STEAM Launch for the Buckingham Canal.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

21st April 1881, No. 671.

READ THE FOLLOWING PAPERS:—

No. 290. Proceedings of the Board of Revenue, dated 4th March 1881, No. 386.

Read the following letter from H. W. BLISS, Esq., Commissioner of Salt Revenue, to C. A. GALTON, Esq., Secretary to the Board of Revenue, dated Madras, 28th February 1881, No. 1,641:—

REFERRING to G.O., dated 11th March 1880, No. 595-W, I have the honor to request that the Board will be pleased again to bring to the notice of Government the great inconvenience which is experienced by the officers of this department for want of a steam launch for inspection purposes on the Buckingham Canal.

2. The desirability of the provision of such a vessel having already been admitted (*vide* G.O., dated 7th March 1879, No. 575, Revenue Department), it is only necessary for me to add that further experience of work up and down the canal has confirmed me in the opinion that a steam launch will be most useful to the public service. The last time I inspected the Chingleput Northern Factories (in July last) I found that on an average I wasted at least three hours a day in moving up and down the canal to get to, and return from, the point at which my work for the day lay. My time and that of all superior officers is valuable, and a much shorter time than three hours a day is well worth saving under any circumstances, especially in the hot weather, when additional and unnecessary exposure to the sun even for an hour or two is frequently so exhausting that but little work can be done during the rest of the day by any one not blessed with exceptional powers of endurance. The net revenue derived by Government from the Chingleput Salt Factories exceeds £350,000 per annum. It cannot but be well worth their while in the long run to provide liberally the means of easy inspection of factories yielding so large a return. No mercantile firm, at all events, would for a moment hesitate to provide steam launches for the better supervision of a very much smaller business.

3. These considerations are however not disputed, the only reason apparently why a steam launch has not already been provided being the high estimated cost of the provision of the one, design for which was sent home. I enclose a copy of that design (to be returned). It will be seen that it was for a vessel 60 feet in length and 12½ feet in width provided with a large cabin and other accessories, which, though most convenient, are not absolute essentials for a vessel the chief uses of which would be by itself only for short trips for inspection purposes and for long trips as a tug. Further reasons, no doubt, for the great cost of the vessel were the shape of her hull, her low draught of water, and the fact that it was proposed to fit her either with a single screw or with twin screws. These conditions necessitated the provision of very much more powerful, and therefore more expensive, engines for her propulsion than would have been required for a vessel either of greater draught and finer lines or propelled by paddle engines. I cannot of course be certain in such a matter, but, so far as I can judge from the price lists of respectable and trustworthy steam launch building firms in England, it should be quite possible to provide what is required for a very much smaller sum than the Constructor's Department of the Admiralty estimated, provided a more suitable design is selected. There are several plans which might be adopted. Ordinary paddle engines might be used, but in many ways a paddle steamer would be objectionable for employment on waters so narrow as the Buckingham Canal. Stern wheels are used in many places, but are, I believe, objectionable

on account of the distance the engines have to be placed from the boiler, which, in order to bring the boat on an even keel, must be pretty well amid-ships. A better plan, I think, would be to build a twin-boat with central paddles on the same plan as the *Castalia* or the *Calais-Douvres* which run between Dover and Calais. Such a boat without cabin, which could be more cheaply fitted in this country, could hardly cost more than £500 or £600 delivered here. The only objection to the design that I can foresee is that the height of the cabins above water would necessarily be too great to allow of the passage of such a vessel underneath the low bridges across the Junction Canal. Eventually, therefore, two such vessels will be required—one to work north, the other south, of Madras; but, considering the circumstances, the outlay needed for their purchase, &c., does not appear to me excessive. More than two steamers are, I believe, maintained for the use of the Public Works Department on the Kistna and Godávari Canals, and the Salt Factories lying between Cocanada and Merkanam are probably in the aggregate of at least as much importance to the revenue as the irrigation works of the two districts I have mentioned. If Government are pleased to accept these conclusions, there should, I think, be no difficulty in paying for whatever launches they may determine to order from savings in the Salt Department budget for 1881-82.

4. The Chief Engineer will, no doubt, be the best judge of the general description of steam launch which will be most suited for use on the Buckingham Canal, but, when this has been settled, there will probably remain many minor points for determination which can best be disposed of on the spot, in consultation with the builders, by officers practically acquainted with the Buckingham Canal and the difficulties of its navigation. I venture, therefore, to suggest that as Captain Awdry and I are both going home, and as we are both acquainted with the requirements of the case, the ordering of such a boat as the Chief Engineer may think most suitable and the arrangements for her building and despatch to this country, in communication with the builders and the proper department of the India Office, and subject to such limit of cost as may be prescribed, might with advantage be left to us.

ENCLOSURE No. 1.—Design.

SUBMITTED for the orders of Government.

2. The proposal in the concluding paragraph of Mr. Bliss' letter appears a good one.

(A true Copy and Extract.)

(Signed) E. GIBSON,
for Secretary.

Mis. No. 885.

TRANSFERRED with three original notes to the Public Works Department for consideration.

(Signed) C. G. MASTER,
Secretary to Government.

30th March 1881.

No. 291. Endorsement of the Under Secretary to Government, Public Works Department, dated 7th April 1881, No. 911.

No. 895.

MEMORANDUM.

THE specification sent home with Despatch No. 63, of 31st October 1879, was the result of full deliberation and consideration of the conditions under which the Launch has to work, and there is nothing in Mr. Bliss's letter to lead the undersigned to think that the specification might be usefully altered.

2. The result of the inquiry made in England was that a boat to obtain a speed of ten miles an hour would cost £ 1,800 to £ 2,000, and one for a speed of seven miles an hour £ 1,200.

3. It is not likely that these prices would be materially reduced, the power required (which regulates cost of the engines) to drive a boat of given displacement at a given speed being pretty much the same whatever the actual means of propulsion employed.

4. It might doubtless be useful for Captain Awdry and Mr. Bliss to make further inquiries on the subject while in England.

(Signed) J. PENNYCUICK, Major, R.E.,
for Chief Engineer, P.W.D.

6th April 1881.

TRANSFERRED to the Revenue Department, and the referred papers returned.

(Signed) J. PENNYCUICK, Major, R.E.,
Under Secy. to Govt., P.W.D.

No. 292. ORDER THEREON, 21st April 1881, No. 671.

Miscellaneous.

MR. BLISS'S proposal in the concluding paragraph of his letter is approved and sanctioned.

2. Mr. Bliss will observe from the latter of the papers read above that the specification already sent home with Public Works Department Despatch No. 63, of 31st October 1879, is, in the opinion of the Chief Engineer, the best suited to the requirements of the Buckingham Canal.

3. Captain Awdry and Mr. Bliss will be requested to make further inquiries in England conjointly as to what the Launch could be built for and sent out in parts, as much as possible of the work being done out here, *e.g.*, all cabin structure and wood fittings, and to submit the estimate for sanction. They can, however, put the work in hand with the approval of the Secretary of State, in anticipation of sanction, if the cost will not exceed Rs. 10,000.

4. It must be clearly understood that the Launch is to be available for the use of all departments.

(True Extract.)

(Signed) C. G. MASTER,
Secretary to Government.

To the Board of Revenue.
,, the Public Works Department.
,, H. W. Bliss, Esq., Commissioner of Salt Revenue, through the India Office.
,, Captain A. Awdry, R.E., Superintendent of Works, Buckingham Canal, through the India Office.

Exd. W. H. French.

85 Copies.

Order thereon 11th May for 12 Nos

Recorded

/True Extract/

H of C R

Capt. R.E.

Ag Inderkey to Govt

Govt. of [1881] Madras.

REVENUE.

To

THE BOARD OF REVENUE,

&c., &c., &c.

Dated April 21st.

Printed May 3rd.

Read. *Encl.*

G.O., 21st April 1881, No. 671.

APRIL.

Nos. 290—292.

To Supt. Public Works

P. Canal

SUBJECT.

Steam Launch for the Buckingham Canal.—Approving and sanctioning, with observation, Mr. Bliss's proposal in the concluding paragraph of his letter regarding the construction of a —, and directing, with remark, that Captain Awdry and Mr. Bliss be requested to make further inquiries in England conjointly as to what the Launch could be built for and sent out in parts, as much as possible of the work being done out here.

16

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

22nd August 1881, Nos. 1,248-1,249.

READ THE FOLLOWING PAPERS:—

No. 355. Endorsement of the Assistant Secretary to the Government of India, Department of Finance and Commerce, dated Simla, 8th July 1881, No. 1,616.

ABSTRACT.—Forwarding copy of a Despatch to the Secretary of State for India soliciting Her Majesty's Government to withhold sanction to the construction in England of a steam launch indented for by the Government of Madras, on the ground that the work can be constructed at one-third of its cost at either the Calcutta or Bombay Dockyard, and requesting the Madras Government that explanation may be given as to whether all purposes would not be sufficiently served by the construction of a launch in India as proposed.

No. 356. Memorandum by Colonel JOHN MULLINS, R.E., Joint Secretary to Government, Public Works Department, Irrigation Branch, dated 11th August 1881, No. 372-N.

THE history of the transactions connected with the provision of steamers through the Kidderpore Dockyard, near Calcutta, is given in Proceedings, Madras Government, No. 735-I, 25th September 1878, so far as then known.

Copy herewith.

The two launches were ultimately received at Cocanada in February 1879.

They are well built and the engines and boilers have given satisfaction, but even in the very important respect of draught they differed materially from the specification, while in the matter of the fitting up the instructions were entirely disregarded. The cost of each launch altogether, including refitting, was about Rs. 10,000, and the launches are cheap at that price. Their length is about 45 feet, and I do not think that much smaller vessels would be found convenient. The Godávari launch as now fitted up is very suitable for inspection purposes, and except that the draught, $3\frac{1}{4}$ when very light to $3\frac{1}{2}$ feet, is at least $1\frac{1}{2}$ feet more than would do on the Buckingham Canal under present circumstances, a better style of boat could not be found.

The Dowlaishweram Workshops could build a launch for the Salt Commissioner were a design furnished, but the shops are hardly in a position to design a new type of steamer, and with 2-feet draught of water as a maximum, screw propellers would not do. The original estimate for the above launches was £1,000. That for the larger steamer on the same data was £2,000. It cost in England unfitted up £4,200 and altogether something over £5,000. This steamer is about 90 feet long and no such vessel is required for Mr. Bliss, but the amount is mentioned as a guide to the difference between English and Indian prices.

ENCLOSURE.

Proceedings of the Madras Government, Public Works Department, dated 25th September 1878, No. 735-I.

No. 357. ORDER THEREON, 22nd August 1881, No. 1,248.

Miscellaneous.

ORDERED that the following reply be despatched to the first of the papers read above.

(True Extract.)

(Signed) C. G. MASTER,
Secretary to Government.

No. 358. To the Secretary to the Government of India, Department of Finance and Commerce, dated 22nd August 1881, No. 1,249.

Miscellaneous.

SIR,—With reference to your foot-note, No. 1,616, to copy of a Despatch to the Secretary of State, dated 8th ultimo, No. 183, I am directed to inform you that this Government have no possible objection to procuring the required steam launch from the Calcutta Dockyard if it can be supplied, but their past experience, as shown by the accompanying papers,* is not favorable either as to expedition of construction or as to attention to specification on the part of that establishment, and any saving below Rs. 10,000 seems to them to be doubtful.

* Proceedings, Public Works Department, dated 25th September 1878, No. 735-I. Proceedings, Revenue Department, dated 22nd August 1881, No. 1,248.

2. The Honorable the Governor in Council, however, desires to have a design and estimate supplied to him for consideration, the same being adapted to the capacity of the Buckingham Canal which would not admit of more than two feet draft as a maximum, and I am to request that, with the permission of the Most Honorable the Governor-General in Council, the necessary instructions may be issued to this end.

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

(Signed) C. G. MASTER,
Secretary to Government.

Exd. W. H. French.

40 Copies.

Govt. of (1881) Madras.

REVENUE.

Dated August 22nd.

Printed 29th.

Read. *Encl.*

G.O., 22nd August 1881, Nos. 1,248-1,249.

AUGUST.
Nos. 855—858.

SUBJECT.

Steam Launch for the Salt Department for use on the Buckingham Canal.—Ordering reply to be despatched to the Government of India regarding the —.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following Proceedings of the Board of Revenue, dated 19th August 1882, No. 2090:—

Read—again Board's Proceedings, dated 3rd December 1881, No. 3037.

Read—also the following letter from H. W. BLISS, Esq., Commissioner of Salt Revenue, to the Secretary to the Board of Revenue, dated Cotacamund, 9th August 1882:—

I have the honor to submit, herewith, a Proposition Statement, for the establishment which I consider necessary to work the Attipat and Vallur Factories in the Chingleput District, when the guarding is taken over from the Police.

2. These factories are the two southern of the group of five, which are usually spoken of as the Chingleput Northern Factories and which I propose to form into one circle under the name of the Ennore Circle. I submit proposals for the reorganization of two factories only now, and leave that of the other three to stand over until next year, so that the Police Department may not be required to absorb at one and the same time the whole number of men employed in all of them. Their number is large, and the Chingleput District Police Force, into which they have to be absorbed, is far too small for vacancies to be found for all of them at once without great inconvenience.

3. The old sanctioned establishments of the two factories were as under—

Class.	Attipat.		Vallur.		Total.	
	Number.	Cost per Annum.	Number.	Cost per Annum.	Number.	Cost per Annum.
		Rs.		Rs.		Rs.
SALT.						
Salt Superintendents and Assistant Superintendents (now classed as Sub-Inspectors)	* 6	1,800	5	1,920	11	3,720
Clerks	1	240	† 1	180	2	420
Peons and other Menials	30	1,968	‡ 22	1,428	52	3,396
Total of Salt	37	4,008	28	3,528	65	7,536
POLICE.						
Permanent.						
Head Constables	5	888	5	852	10	1,740
Constables	29	2,484	31	2,658	60	5,142
Temporary for six months annually.						
Head Constables	2	162	3	234	5	396
Constables	9	387	13	555	22	942
Total of Police	45	3,921	52	4,299	97	8,220
Total of Salt and Police	82	7,929	80	7,827	162	15,756
Add Clothing of Police about	..	..	..	..	..	835
Add contingent charges of Police including horse allowance of Inspector and pay of two Boatmen	..	..	..	..	..	759
Grand Total	82	..	80	..	162	17,350

* Exclusive of one Assistant Superintendent on Rs. 20, who, though belonging to Attipat, has for years past been on duty at Covelong (*vide* paragraph 3 of my letter printed with G.O., January 23, 1882, No. 76, Revenue Department).

† Exclusive of a Clerk on Rs. 15 employed in the Madras Salt Depôt in lieu of a Clerk on Rs. 20 employed at Covelong (*vide* same reference).

‡ Exclusive of four Vettis employed at Covelong (*vide* same reference).

4. Since October last, the Salt Superintendents and Assistant Superintendents have been classed as Sub-Inspectors, the average monthly rate of pay of which class of officers is Rs. 43. The above total must be increased by Rs. 1,956 per annum on this account.

5. It must also be increased by the cost (Rs. 2,400) of the employment of the First-grade Police Inspector sanctioned in G.O., December 7, 1880, No. 1662, Revenue Department, who is now in charge of the Police of all the Northern Factories with a Third-grade Inspector to assist him. As however, this officer, though his present charge includes all the Chingleput Northern Factories, may be dispensed with when the Attipat and Vallur Factories are taken over, the whole of his salary may fairly be included in calculating the present cost of their maintenance, which may therefore be taken at Rs. 21,700 per annum.

6. As the Board are aware, there are no storage or sales at these factories. The sole duty of the Sub-Inspectors is therefore to regulate the manufacture, to estimate the daily scrapings, and to supervise the carrying out of Petty Construction and Repair Works, the two former of which duties can, in my opinion, be safely entrusted and easily carried out by intelligent petty officers, if adequately supervised. During the manufacturing and transport season the Sub-Inspectors have, of course, full work, but for at least six months in the year they have next to nothing to do. This renders it peculiarly advisable to employ as few officers of this class as possible, in situations where a cheaper agency is sufficient for the purpose. I propose, therefore, to reduce their number to four and to allow more petty officers, and those to some extent of higher grades, than would otherwise be required, for employment on the duty of supervising manufacture and estimating scrapings. As revised on these principles, the establishment will be as under, in addition to the usual allotment of one Inspector and one Assistant Inspector—

4 Sub-Inspectors.
2 Clerks.
21 Petty Officers.
106 Peons, of whom 56 will be temporarily employed for six months annually.

133

7. The employment of the peons will be as under:—

	Permanent.	Temporary.	Total.
Line of guards	29	29	53
In attendance on Sub-Inspectors	...	8	8
In attendance on Petty Officers employed on estimation ...	...	6	8
Office	...	2	2
Tappal	...	1	1
Transport	8	...	8
Orderly	12	...	12
Petty repairs	...	8	8
Total ...	49	56	105

8. Allowing for the employment of the Inspector, the Assistant Inspector, and four Sub-Inspectors at the average rates of pay of officers of those classes, this force will cost about Rs. 16,900 per annum, or Rs. 4,800 less than that now employed. This substantial saving is mostly due to the proposed employment of petty officers instead of Sub-Inspectors on the duties of estimating the scrapings and supervising the manufacture, and would of itself be well worth securing, even if the arrangement was not otherwise a most economical one, because of the very great difference in the pensionary liability on account of officers in superior and in inferior service. The pension of a Sub-Inspector ranges from Rs. 10 to Rs. 25 per mensem after fifteen, and from Rs. 15 to Rs. 35 after twenty-five, years' service. That of a petty officer can never exceed Rs. 4 after thirty years' service. The saving, however, which will result from this proposal will be dearly earned if accompanied by decreased efficiency. In order to prevent this result it will be absolutely necessary that the Inspector shall be furnished with a steam launch about 20 to 25 feet in length, as to the cost of which I have already requested that inquiries may be made, in order that he may be able to get about with reasonable speed.

Board's Proceedings, No. 3037, dated December 3, 1881.

He can otherwise only inspect his factories by rowing or sailing along the canal, for there are no roads, nor are there ever likely to be; and movement on the canal against a contrary wind is very slow and tedious. It is often impossible to make as much as two miles an hour in a well-manned boat. Time thus unnecessarily spent by an officer in moving from point to point within his charge is not only time wasted, but leads to the greater waste involved in men's incapacity to stand exposure to the sun for more than so many hours a day in the hot weather. An officer kept out in the sun for two or three hours longer of a morning than necessary from want of means to move with moderate speed is not only likely to suffer in health but is more or less unfitted for work during the rest of the day, as I and all my officers who have had to work in the Chingleput Factories can testify from personal experience. The provision of a steam launch will in fact nearly or quite double the efficiency of an officer whose work lies along a navigable canal. I trust that on these considerations the Board will move Government to sanction the purchase of two steam launches, one for the Northern Factories and another for Covelong. A second will ultimately be required for the Ennore Circle, but one should be ordered immediately so as to be on the spot and ready for use by the end of December. It is also most advisable that the Covelong Circle should be furnished with a launch without further delay. The launches may either be ordered from Calcutta through the Public Works Department, or I can, if permitted, make my own arrangements for procuring them. They will cost, I imagine, under Rs. 2,000 a-piece to buy, and about Rs. 600 or 700 per annum each to work. The total cost of buying and working them for a year will about be covered, that is, by a year's savings.

9. If, however, the proposal to furnish steam launches does not commend itself to the Board and Government, I request that I may be permitted to revise the scheme now submitted for the reorganization of these factories by a reduction in the number of petty officers, and an increase in the number of Sub-Inspectors, to be employed; for I cannot recommend the transfer to petty officers of any of the duties now entrusted to Sub-Inspectors save on the distinct understanding that the Inspector shall be furnished with the necessary means of exercising the most thorough supervision over their work.

10. I may add, that if a steam launch is supplied to Covelong Circle I shall probably be able to revise on the same principle the establishments there employed so as to effect a saving of about Rs. 120 per mensem, irrespective of decreased pensionary liability.

ENCLOSURE No. 1.—Proposition Statement in duplicate.

Resolution—dated 19th August 1882, No. 2090.

Submitted for the orders of Government.

2. The Board support the Commissioner's proposals. It is observed that the establishment now recommended will be found adequate only in the event of steam launches being obtained for service on the canal, and considering the substantial economy which will be effected by affording this additional facility of communication

with the works, the Board are of opinion that good ground exists for incurring the initial expenditure which will be involved.

(A true Copy and Extract.)

(Signed) E. GIBSON,
Acting Secretary.

To the Secretary to Government, Revenue Department, with original Proposition Statement, through Accountant-General.
Copy to the Commissioner of Salt Revenue.

ORDER—dated 2nd October 1882, No. 1051, Revenue.

Separate Revenue, No. 231.
Salt.

The establishment proposed is sanctioned, subject to the confirmation of the Government of India, to which a copy of these Proceedings will be forwarded with the Proposition Statement accompanying the Board's Proceedings.

2. The question of providing steam launches will be referred to the Public Works Department, in continuation of this Department docket, No. 155, dated 16th January last, for early disposal.

(True Extract.)

Secretary to Government.

To the Board of Revenue.
" Accountant-General.
" Public Works Department.

No. 1051A.

Copy to the Government of India, Department of Finance and Commerce.

(Signed) E. F. WEBSTER,
Secretary to Government.

Ed. W. H. French.

80 Copies.

Govt. of (1882) Madras.

REVENUE.

Order, &c., dated 2nd *October* 1882,
Nos. 1051, 1051A.

Attipat and Vallur Salt Factories—Chingleput.—Proposed establishment for working the—under the reorganization scheme, sanctioned, subject to confirmation of India Government, and the question of providing steam launches referred to Public Works Department in continuation of previous correspondence.

PROCEEDINGS OF THE BOARD OF REVENUE.

Read—the following letter from H. W. BLISS, Esq., Commissioner of Salt Revenue, to the Secretary to the Board of Revenue, dated Madras, 1st August 1883, No. 9641 :—

In continuation of my letters printed with the Government Orders marginally noted, I have the honor to submit proposition statement, in duplicate, for the complete force required to guard and work the Salt Factories* in the Ennore Circle on the withdrawal of the Salt Police and for the preventive parties required in the circle. The latter are included in the proposition statement for the convenience of having the whole circle force covered by one sanction, not because any change is now proposed in them.

No. 1051, dated 2nd October 1882.
„ 1243, „ 11th November 1882.

* Kattur. (a) Attipat.
Vayalur. (a) Vallur.
Puladiwak.
(a) Already guarded departmentally.

2. The existing sanctioned establishments are as under in addition to one Inspector, one Assistant Inspector, and four Sub-Inspectors :—

Number.	Designation.	Cost Per Mensem.	Cost Per Annum.
		Rs. A. P.	Rs. A. P.
	SALT.		
	Attipat and Vallur Factories (already reorganized).		
	Permanent.		
2	Clerks on Rs. 20 and 15	35 0 0	420 0 0
21	Petty officers on Rs. 15 to 9	239 0 0	2,868 0 0
49	Peons on Rs. 8, 7, and 6	325 0 0	3,900 0 0
	Temporary for six months annually.		
56	Peons on Rs. 6	336 0 0	2,016 0 0
	Kattur, Vayalur, and Puladiwak Factories (to be reorganized).		
	Permanent.		
11	Superintendents and Assistant Superintendents now classed as Sub-Inspectors	330 0 0	3,960 0 0
3	Clerks on Rs. 15	45 0 0	540 0 0
46	Peons and other menials	250 0 0	3,009 0 0
	Preventive for whole Circle.		
2	Petty officers on Rs. 9	18 0 0	216 0 0
13	Peons on Rs. 8, 7, and 6	90 0 0	1,080 0 0
203	Total, Salt ...	...	18,000 0 0

Number.	Designation.	Cost. Per Mensem.			Cost. Per Annum.		
	POLICE.	RS.	A.	P.	RS.	A.	P.
	Permanent.						
1	Inspector	100	0	0	1,200	0	0
13	Head Constables	192	0	0	2,304	0	0
82	Constables	587	8	0	7,050	0	0
	Temporary for six months annually.						
6	Head Constables	94	0	0	564	0	0
31	Constables	222	0	0	1,332	0	0
	Clothing and contingencies, including horse allowance of Inspector, about	...			1,950	0	0
133	Total, Police ...	...			14,400	0	0
336	Grand Total ...	...			32,400	0	0

3. The grading, however, of the Superintendents and Assistant Superintendents as Sub-Inspectors since October 1881 has led to an annual increase of cost of Rs. 1,716. Allowing for this and for the employment of the Inspector, Assistant Inspector, and Sub-Inspectors at the average rates of pay of officers of their classes, the total present cost of the force employed in the circle (Salt and Police together) is Rs. 41,800.

4. The factory force now required is as under in addition to one Inspector, two Assistant Inspectors, and eight Sub-Inspectors :—

Number.	Designation.	Cost. Per Mensem.	Cost. Per Annum.
	Permanent.	RS.	RS.
5	Clerks and Shroffs on Rs. 25 to 10	85	1,020
45	Petty officers on Rs. 15 to 9	509	6,108
96	Peons on Rs. 8, 7, and 6	616	7,392
	Temporary for six months annually.		
95	Peons on Rs. 6	570	3,420
241	Total ...	...	17,940

5. The employment of the peons will be as follows :—

	Permanent.	Temporary.	Total.	Petty Officers.
Line Guard	56	56	112	14
In attendance on Sub-Inspectors	8	...	8	...
Do. on Petty officers employed on estimation	...	16	16	16
Do. on Petty officers employed on transport	10	...	10	5
Office and toppal	2	3	5	
Petty repairs	...	20	20	10
Orderly	20	...	20	
Total ...	96	95	191	45

6. The circle preventive force, consisting of fifteen petty officers and peons, and costing Rs. 1,296 per annum, will remain unaltered.

7. Superior officers included, the total force employed in the circle will number 267 hands and will cost Rs. 30,936 per annum. There will thus be a saving of seventy-five hands and of Rs. 10,866 per annum as compared with the number and cost of the existing partly reorganized force, and of eighty-nine hands and about Rs. 14,400 per annum as compared with those of the original establishments which had to be dealt with, and in which no provision was made for preventive work in the circle.

8. This scheme for the working of the Chingleput Northern Factories has been prepared on the spot after careful consultation with the local officers. The factories dealt with are of great size and extend for a distance of about eleven miles, and the system on which they are worked is peculiar in that the salt made in them has to be sent to Madras for storage. The problem how best to work them is, therefore, of special difficulty; and I do not feel certain that in attempting to solve it I have not carried too far the reductions in the number and cost of the establishments which I now propose. I trust, therefore, that if the experience of next season should show that modifications are necessary, Government will not object to sanction them.

9. I should add that the system of employing petty officers on certain duties in lieu of Sub-Inspectors, which was proposed in paragraph 8 of my letter printed with the Government Order first above quoted, has been found to answer very fairly well during the past manufacturing season in the Attipat and Vallur Factories, and that I have, therefore, framed these proposals so as to provide for its extension to the remaining factories of the circle. It must, however, be understood that this arrangement is contingent on the provision of steam launches, regarding which Government are now in correspondence with the Secretary of State. Attipat and Vallur have been worked this year without a steam launch, and can be so worked again, though at a great waste of valuable time and at the cost of much unnecessary exposure to the officers concerned, for they are comparatively close to the Inspector's place of residence. But he cannot work the more distant factories without more assistance of a superior description, unless he is provided with proper means of locomotion. Two launches are required for the Ennore Circle as before reported, and should be provided without delay. One has already been ordered, I find, in compliance with G.O., January 11, 1883, No. 107 W., and is stated to be under supply in the bi-monthly return of stores under provision in England, dated May 31, 1883. No doubt this will be an expensive vessel, for she is to be built to satisfy difficult conditions. But the second might be a more ordinary launch and of a maximum draught of two feet of water. The occasions on which the water in the canal is so low as to prevent a boat of that draught from plying are, in my opinion, far too infrequent to render it worth while to build two expensive light draught boats. An ordinary launch would not have been useless for want of water to ply in for a single day during the season just past; nor, so far as I am aware, for more than six weeks in all during the six seasons for which I have known the canal. If such difficulty should recur one launch can be made to do the work of two for the short time it will last. But two are needed for the ordinary efficient working of the northern and more distant factories. I therefore trust that very early steps may be taken to procure two such launches, one additional for the Ennore Circle and one for Covelong, as before stated to be required. I think they should be ordered out from England. As they will not require any special fittings or modification of usual designs, they should be sent out without difficulty by the beginning of next season, say in January. Indeed one must be, or there will be an appreciable risk of a breakdown in the Ennore Circle.

ENCLOSURE No. 1.—Proposition Statement in duplicate.

RESOLUTION—dated 22nd August 1883, No. 2464.

Submitted for the sanction of Government.

2. The very large reduction in the cost of establishments proposed by Mr. Bliss is, as he explains, to be made subject to modification if found to be necessary after

experience of the next season's work, and is also contingent upon the provision of two more steam launches, the necessity for which is pointed out by him with reference to previous correspondence on the subject.

3. The Board support Mr. Bliss' proposals regarding these launches, and request that early orders may issue for their supply.

(A true Copy and Extract.)

(Signed) J. A. DAVIES,
Acting Secretary.

To the Secretary to Government, Revenue Department,
through the Accountant-General, with original Proposition Statement.

Copy to the Commissioner of Salt Revenue.

Fort St. George,

23

1883.

Board of Revenue,

MADRAS.

Printed August 28th.

Proceedings, 22*nd August* 1883, *No.* 2464.

Submitting for sanction of Government proposals of the Commissioner of Salt Revenue for the *Factory Establishments* and *Preventive Force* required for the Ennore Circle.

No. 3037.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 3rd December 1881.

Read the following letter from H. W. BLISS, Esq., Commissioner of Salt Revenue, to the Secretary to the Board of Revenue, dated Madras, 22nd November 1881, No. 9202:—

With reference to G.O., 18th October 1881, No. 2881, Revenue Department, Mis. No. 9695, dated 5th November 1881. communicated to me in the Board's Proceedings marginally noted, I have the honor to report that I have been in communication with the Secretary to Government, Public Works Department, in respect to the specification to be sent to Calcutta of the steam launch to be built for use on the Buckingham Canal. As this matter is peculiarly one for professional disposal, I will not trouble the Board with the perusal of my letter on the subject; but take this opportunity of bringing to their notice that further consideration has convinced me that more than one steam launch is required for the efficient working of the Salt Factories along the Buckingham Canal. The launch for which specification has been prepared is a comparatively large vessel, 60 feet in length, and suitable for use by a superior officer of any department proceeding on a lengthened tour of inspection of the districts traversed by the canal. It will contain ample accommodation for an officer to be reasonably comfortable during a voyage lasting (with the necessary halts for inspection) for a fortnight or three weeks, and it will be proportionately costly both to build and to work. But to work the Chingleput Salt Factories properly we require more than this. Under the new scheme one Inspector with two Assistants will have charge of the whole of the Northern Chingleput Factories and of the transport of salt over a length of canal exceeding twenty miles; while another Inspector will be in charge (single-handed) of Covelong and Vadasummanjeri Salt Factories, of the transport of the salt from themce to Madras, and of the saliferous tracts all along the canal from the Palar to the Adyar. In order that these officers may do their work properly at least three steam launches should in my opinion be provided, two for the Northern and one for the Southern Factories. It is certain that no mercantile firm engaged in so extensive a manufacture as that controlled by this department would neglect to provide their agents with the means of getting about their works, and what is a good rule for a manufacturing firm can hardly be a bad one for a manufacturing department of Government, which, in that capacity, must be judged by the same standard of success as would be applied to a private establishment. Boats for the use of Inspectors need not be large nor expensive. If from 20 to 25 feet in length, drawing about 18 inches of water, and provided with good awnings over their bows they would answer all requirements. I should say such launches could be built in Calcutta for less than Rs. 2,000 apiece. There is no need to determine on the purchase of any until the probable cost is known, and this I would request the Board to move Government to take the present opportunity of ascertaining.

SUBMITTED for the orders of Government.

2. The Board support the proposal that the cost of building steam launches of the description recommended be ascertained, and think that information as to the cost of working also should be obtained.

(A true Copy and Extract.)

Secretary.

To the Secretary to Government, Revenue Department.

Copy to the Commissioner of Salt Revenue.

Exd. W. J. Lewis.

1881.

Board of Revenue,

MADRAS.

To

The SECRETARY to GOVT.,
REVENUE DEPARTMENT.

Printed December th.

Received

PROCEEDINGS, 3RD DEC. 1881, No. 3037.

SUBMITTING for orders of Government letter from the Commissioner of Salt Revenue regarding building of *steam launches* for the effective working of the Salt Factories along the Buckingham Canal.

Steam Launch

for the Buckingham Canal

Madras

Specification

General description — To be built of teak planks on iron ribs and frames with Arkino and fittings of Teak as shown

per hour in still water,
and the engines and boilers
to be of sufficient capacity
to obtain this speed without
over firing.

Propeller — Single screw with 4 blade
of suitable length diameter
and pitch with 2 leg sails
to be shown in the drawing.

Engines — Builders, to submit three
alternative engines of the best
construction with all
fittings
necessary and duplicate
bearing pistons, of dimensions
sufficient to obtain the
speed named above with

Dimensions

Length over all from stem to stern — 60'

Breadth of beam moulded from outside to outside of skin not less than — 9'

Depth of Hull — 3½'

The draft of the vessel draft when fully loaded with two tons weight of coal and ten tons of passengers and stores not taking ground to exceed 2½ feet. Free board not less than one foot.

The required speed to be ten statute miles

a pressure of 80 lbs to
the square inch.

The boiler will be Boiler
horizontal tubular of
suppricent size, contain-
-ed of mild steel and
brass tubes, tested to 160
lbs with hydraulic pressure,
fitted with the necessary
man and dodge doors,
fire doors and bars for
burning wood, the fire
doors to be not less than
1/2" x 1", the top and ends
to be capped with steel
stayed with brass

Pumps, a Donkey ejector,
and all necessary pipes
and cocks, sufficy tubes
steam and water gauges, 2
by cocks, a steam whistle,
and brass steam washer
pipe to be carefully fitted
to their proper positions.
The feed pumps to be capable
of being worked by hand
as well as by steam.

Boiler The Engine and boiler
Stand should be fitted on a
strong iron frame so
that they can be easily
removed, and so that
the vessel will be in

one aft end keel, with
an outboard boat.

The vessel will be supplied Steering
with a teak bronze mounted Wheel
wheel with all necessary
stands, blocks, chains, leads,
fair leads to be complete for
steering forward and a
tiller for steering aft.

The funnel will be Funnel
constructed to turn back
on the upper deck by a
hinge with balance weight

The Engine room will Flooring
be floored with teak
iron chequered. The

Cabins will be floored
with teak 3/4 inch thick

Main deck The main deck fore
and aft and the passways
to mid cabins will be
of teak planking 1 inch thick,
habitted tongued on teak
frames, attached by suitable
angle irons to the hull.

Upper deck The upper deck or roof
of cabins and Engine house
will be of teak planking
1 inch thick, similar to the
main deck. The saloon
cabin and lavatory will

have a ceiling of teak
planking fitted with thick
teak which will answer the
purposes of a double coat
Rattan "Chicks" or roller "Chicks."
will be attached to the
outer edge of the coop all
around the cabins.

There will be a galva: Hand Rail
=nized iron hand rail all
round the vessel as shown
in the Drawings.

There will be a double Rubbing
of teak 4"×3" with a cope belts.
iron 2½"×⅝" securely fastened
with bolts and nuts and

tenons right fore and
aft at the moulded level
to protect the hull from
rubbing against the wharves
or against the sides of the
Canal, a similar belt ex=
=tending along the midship
on both sides, between the
curves of the bow and
stern, and tapering at
the ends, will be fastened
in a similar manner
3" above the load line.

Bulkheads. Water tight bulkheads
will be fixed between the
Saloon Cabin and forecas,
between the Lavatory and

engine [illegible] between
the engine room and forward
cabins and aft the steerage
cabin. The bulkheads will
extend right through from
side to side of the hull
and up to the gangway floor
level.

Keel Will be securely fastened to
the keelson of the vessel
from end to end amidships with chain
or rods keeping under it
above the foundations or
outside the hulls as may
be considered most suitable,
with the necessary bows
keep and hooks for the

Timber heads

low ropes travelling.

To be fixed forward
and aft in a suitable
manner.

Anchors

Two anchors with 5 shackles
of suitable chain each and
2 warps to be provided, one
at the stem and one at
the stern of the vessel.

Masts and Sails

The vessel will be supplied
with two movable masts
with sails, proper for
a steamer in the drawings

Duplicate fittings

Boiler tubes, water gauges
and all fittings liable to
injury shall be supplied

in duplicate. Dry spare
screws shall also be supplied.

Implements

The necessary implements,
such as, set squares, tank
hammers, chisels, shovels,
rake, take finish, oliver,
oil can, tallow kettle
drill oil cups shall be
supplied also.

Dimensions to builder

The hull and the ma-
=chinery with all the iron
work and iron fittings,
should be constructed
in England. The cabins and
all wooden fittings will
be constructed in India.
The hull to be sent to India

in sections, carefully num-
bered and marked, so that
it can be put together easily
in the Madras Workshop.
The Cabins and wooden
fittings are shown in the
Drawings to guide the builder
of the hull, in the preparation
of the iron work required.
The materials and
workmanship to be of the
very best description throug-
=out.

L
20.0

22-10-79

E. Rd.

N: 56 Madras 27th August 1879

To

J. H. Garstin Esquire

Secretary to Government

Revenue Department -

Enclosures 2:
1 Plan
1 Specification

Sir

We the undersigned members of the committee appointed by G. O. dated the 7th March 1879 N: 575 &, have the honor to submit a Plan and Specification of a steam boat which we consider suitable for the use of Government Officers on the Buckingham Canal.

The flats to be towed should we think be of the same design as the steam boat, and of dimensions suitable to the purpose for which they may be required.

We have the honor to be

Sir

Your Most Obedient Servants

Master attendant
Administrative Department

Executive Engineer
Buckingham Canal Division

32

Revenue (1879) Dept.

No. 6667.

The Secretary to Government

Revenue Department

From

The Master Attendant
Madras

Dated 27th August 1879

Rec'd 2nd — 17th Sept.

8:56

Enclosures 2

Steam Boat for the use of Government Officers on the Buckingham Canal —

Submits Plans & specification of —

In order.

The sanction of Govt

2/9/79 £ 245

Transferred to the Public Works Department with the Rest of the Records of Government

Mr. Campbell
Under Secy to Govt

Transferred

No. 5615

3rd Circle, Superintending Engineer's Office,

Chepauk, 25th Sept. 1879.

From

The Superintending Engineer,
3rd Circle,

To

The Acting Deputy Chief Engineer
Public Works Department.

Sir,

Encl 2
1 Specifcatn
1 Plan —

Referring to your Memo No 3006 of the 22nd instant forwarding specification and plan for the construction of a steam boat for use on the Buckingham Canal I have the honor to inform you that I do not consider that such an estimate can be properly framed here. The best course would probably be to forward the papers to Messrs Yarrow or some other well known ship builder at home, asking them to prepare an estimate for the work including engines &c. the vessels being built and fitted out here.

I have the honor to be
Sir
Your most obedient servant

A. Cunningham Major R.E.
Actg Supg Engineer 3rd Circle.

P.W.D.
26 SEP 79
6002

1879.

From
The Supt Engr &c.

No 5615

dated 25th
Rect 3 Septr 79.

Enc 2.—

Steam Boat for use in the Buckingham Canal
——— Forwards Specification and Plan for the Construction of a ———, with certain reasons stated within ———

Rect 29 Sept 79
Cir 6 Oct 79
Ret 8 Oct 79

No 2939 A-W P.W.D. 35 35

Proceedings of the Madras Govt

Under date the 31st Octr 79

Reads the following

From the Master Attendant Madras 23 Sept 79 (No 5627 dated 27th Augt 79)

From, The Supt Engineer 3rd Circle (No 5615 dated 25th Septr 79.)

Ordered that the specification as amended in the Chief Engineer's office be forwarded to the Secretary of State with the request that tenders may be called for ~~from the Bombay~~ ~~boards building firms~~.

JR 1/11

5

No 63 of 31 Oct 79

To

The Right Honorable
the Secretary of State
for India.

My Lord.

I have the honor
to forward a specifica-
tion and sketch for a
steam ~~boat~~ launch for use
on the Buckingham
Canal, and to request
that your Lordship
will cause tenders
for its construction
called for ~~from~~
~~leading boat building~~

3b

~~firms~~. On receipt of
an estimate of the
cost of such a vessel,
a further communi-
cation will be
made to your Lordship
on the subject.

I have
30/10/79

M.M.
31/10

Mr Secy of State with
Sketch & Specification
despd 5/11.

37

C. F. 33
8902

Govt. of {1879} Madras.

PUBLIC WORKS.

To

Dated

Issued

Recd. Encl.

G. O. 31 Oct 1879, No. 2739 P.W.

Nos.

Steam Launch for use on the Buckingham Canal

The specification solicited for — forwarded to the Secty of State in Ct regret that tenders may be called for.

—

P.W.

I annex a specification solicited for a steam launch for use on the Buckingham Canal, and regret that tenders may be called for. Its construction may be

8902

38

D. O.

Would it be advisable referring these papers to an expert here or in Calcutta? If not easily arranged for I should prefer laying down certain requirements such as specified by the E. I. and Comth Steel to the Home Authorities — stating Section of the Canal

6/10/79

Pk I do not think any reference to experts in India necessary, and would adopt your proposal of laying down the requisite

6912

GOVT. OF MADRAS. 1879. P. W. DEPT.

SECRETARY.

Fort St. George, 8th Oct 1879.

OFFICE NOTE.

To W.

I do not think a reference to experts here or in Calcutta would be worth the delay caused thereby, and worth, as suggested by you by adopting the arrangements as specified by E.I. and leave the rest to the Local Govts. to which the plan being sent may as a general guide - I would however recommend that Public* engines be specified; they are cheaper, fewer to keep

OF 187.

* steam especially -

41

REVENUE DEPARTMENT.

Pencil No. 2082.

From Master Attendant

Dated 27 August 1879.

FOR ORDERS.

P.W.D.
FOR ORDERS 79
No.

Steam Launch for the Buckingham Canal

Madras

Specification

General description — To be built of steel plates on iron ribs and frames, with cabins and fittings of Teak as shown in the drawings

Dimensions — Length over all from stem to stern — 60'
Breadth of Beam or width from outside to outside of skin not less than — 9'
Depth of Hull — 3½

Weight of Hull about — 6 Tons
Cabins and wooden fittings — 1 — Do
Machinery — (probably) — 3½ — Do
Fuel — (wood) — 5 — Do
Passengers and crew with baggage 1½ Do

Total ordinary load 20 Tons

Draft — The draft of the vessel at the deep load line is 2½ The displacement at this

depth will be 27½ Tons in salt and
36½ Tons in fresh water.

The draft of the vessel with the
ordinary load causing a displacement
of only 20 Tons will be 18 inches.

Speed

The maximum speed of the vessel
when fully loaded is to be 10 miles
or 8½ knots an hour.

Propellers

A Single Screw with 3½ blades of
suitable length diameter and pitch,
with 2 dog sails as shown in the drawing.

Note. Twin screws would doubtless be
more effective in shallow water, but
they would not be so well protected by
the stern of the vessel and they would
be more liable to injury by contact with
the banks of the canal than a single
screw.

Engines

A pair of inverted high pressure direct
acting Engines - Cylinders 9 inches diameter
and 20 inches stroke, worked with a pressure
of 80 lbs to the square inch, equal 8 nominal
or about 31 Indicated horse power. Cylinders to be
in one casting of best iron, with valves,
pistons, feed pumps, drain cocks at top
and bottom, with drain pipes attached
by union nuts. The Cylinders and valves
casings to be lagged with Mahogany, fixed
with brass belts; To have steel columns,
crank shaft, quadrants connecting rod
piston rods, gun metal bearings, and
brass stern pipe. all carefully fitted and
finished.

Boiler

The boiler will be horizontal tubular of
sufficient size, constructed of mild steel
and brass tubes, tested to 160 lbs with
hydraulic pressure, fitted with the necessary
man and sludge doors, fire doors and
bars for burning wood, the fire door to be
not less than 1½ x 1', the top and sides to
be lagged with Teak fastened with
brass screws, a Belge ejector, and all necessary

pipes

pipes and cocks, safety valves, steam and water gauges 2 by cocks a steam whistle, and brass steam waste pipe, the carefully fitted in their proper positions. The feed pump pipes to be capable of being worked by hand as well as by steam.

The Engine and boiler should be fitted on a strong iron frame so that they can be easily removed, and so that the vessel will swim on an even keel, with an ordinary load. Boiler frame

The vessel will be supplied with a Teak Steering wheel brass mounted wheel with all necessary stands, blocks, chains, rods, fair leads &c. complete for steering forward and a tiller tiller for steering aft.

The funnel will be so constructed to Funnel turn back on the upper deck by a hinge, or to be portable [or be socketted at the deck level so that it can be taken off, when the vessel has to pass under bridges.].

The Engine room will be lined with sheet Lining iron

iron $\frac{3}{16}$ inch thick the remainder of the vessel will be lined with teak $\frac{1}{4}$ inch thick, rabbetted tongued and beaded.

Flooring The Engine room will be floored with sheet iron chequerred. The cabins will be floored with teak $\frac{3}{4}$ inch thick

Main deck The main deck fore and aft and the gangways around cabins will be of Teak planking $\frac{1}{4}$ inch thick, rabbetted tongued and beaded, on teak frames, attached by suitable angle irons to the Hull.

Upper deck The upper deck or roof of Cabins and Engine house will be of teak planking $\frac{1}{4}$ inch thick Similar to the Main deck. The Saloon Cabin and Lavatory will have a ceiling of teak planking $\frac{1}{4}$ inch thick which will answer the purposes of a double roof.

"Chicks" Rattan "chicks" on Rollers will be attached to the outer edge of the roof all around the Cabins.

Hand rail There will be a brass or galvanised iron hand

band rail all round the vessel as shown in the drawing

Rubbing bolts

There will be a wale of teak 4"x3" with iron 2½" x ⅝" securely fastened with bolts and nuts and screws right fore and aft at the gunwale level, to protect the hull from rubbing against other vessels or against the sides of the canal, a similar bill extending along the midships on both sides, between the curves of the bow and stern, and tapering at the ends, will be fastened in a similar manner 3 above the load line.

Bulk heads

Water tight bulk heads will be fixed between the Saloon Cabin and foredeck, between the lavatory and Engine room, between the Engine room and Servants' Cabin and aft the Servants' Cabin. The bulk heads will extend right through from side to side of the hull and up to the gangway floor level

Towing hooks

Will be securely fastened on both sides of the vessel near midship with chains or rods leading under or above the gang boards or outside the rails as may be considered most suitable, with the necessary bows abaft, and hooks for the tow ropes travelling.

45

Tiller heads — To be fixed forward and aft in a suitable manner

Anchors — Two anchors with 50 fat of suitable chain each and Davits to be provided, one at the stern and one at the stern of the vessel

Masts & Sails — The vessel will be supplied with two moveable masts with sails ropes &c. as shown in the drawings

Duplicate fittings — Blocks for steering, Boiler tubes, water gauges, and all fittings liable to injury shall be supplied in duplicate — Six feet wheels to be also supplied

Implements — The necessary implements, such as, set Spanners, hand hammers, chisels, shovel, rake, tube brush, slice, oil cans, tallow kettle and oil cups shall be supplied also

Directions to Builders — The hull and the machinery with all the iron work and iron fittings should be constructed

constructed in England. The Cabins and all wooden fittings will be constructed in India. The hull to be sent to India in sections carefully numbered and marked, so that it can be put together easily in the Madras Workshop. The Cabins and wooden fittings are shown in the drawings to guide the builders of the hull, in the preparation of the iron work required. The materials and workmanship to be of the very best description throughout.

W Taylor
Master Attendant
Administrative Department

Bhanspurkey.
Executive Engineer
Madras 27th August 79 Buckingham Canal

P.W.D.
10573/79 12

Specification

of

Steam Launch

for the

P. Buckingham Canal

Madras

Rec 6669/79

R 2002/79

47

Read the following :—

Letter from the Superintending Engineer Third Circle dated 25th September 1879. No. 5615.

FOR ORDERS.

W. Lawley Col R.E.
Secy to Govt P.W.D
5th Octr 79

FOR ORDERS.

Ltd. 7/co

Recd. 22.10.79. Ltr. 2-11-79.
Cir. 1.10.79. Ltd. 2.11.79.
2 Copy

No. 6.

Steamer for Buckingham Canal.

The designer was much accommodation taking the general form, length, beam of the boats in the Godavari & Kistna and there is no more economical form at present known.

Note advantage of placing the gangways outside the hull as in these the engines, these are placed inboard with as a result much loss of room.

For a length of 60 feet it is not thought desirable to have a beam of 12 feet because such a width is undesirable for reasonable stability, and it renders much greater engine power to secure any given rate of speed & consequently a larger boiler, greater consumption of fuel, greater amount of space to be occupied by machinery &c.

The steam launches built at Coconada for the Delta keep about the same length with about 9 feet and the

Cir. 22.10.79. Ltr. 2.11.79.
2 Copy

I do not think that with a draught of 16 inches effectual satisfactory speed can be obtained even with a diminution of beam of feet - Without such diminution the speed would be so small as to make it not worth while to have the Wheel provided with machinery the power of a steam propeller is proportional to the ratio between the area of its face and the immersed midship section of the vessel, and I believe with pocket book does not show a less ratio than 1 to 6 where with a 16 inch diameter and the ratio would be about 1 to 10, and the pitch probably not more than 1 foot - What this difference makes I have no idea, but assuming it that some 880 revolutions a minute would be necessary, supposing it practicable to get 10 miles an hour speed with any degree. On the other hand with 3 feet beam and a draught of 2½ in fine ask - I deem 2½ feet diameter, the pitch 4 feet and 220

* not on the Canal but in Still water of ample width and depth.

might be 4 or 5 feet and with 10 per cent slip 226 revolutions would suffice.

I would give these cases merely to show that it will be desirable not to sacrifice a beam of one fifteenth the length, and a draught of one ninth the beam, without taking into account that these proportions might probably would be fatal to getting a speed more than about 4 to 5 miles an hour at most.

I am not very sanguine that the length be forced at 60 feet

Beam or width from outside to outside 9 "
not less than
Draught not more than 2½ "
but if possible limited to 2 "
Free board not less than 1 foot

Desired speed in still water 10 statute miles.

I may mention that a steamer which could run at 10 miles an hour in a canal 100 feet wide and 7 or 8 feet deep will not go more than 6 or 6½ miles an hour in a canal 50 feet

for with details of the
engines in the Specification
as they are only made
of one pattern (of different
sizes) and I believe
I only use four (Winter
and English) -

The width of the
boat has been reduced
by 9", and the pump
now brought outside -
as required by E.D. -

I don't see the object
of returning the papers to
the Revenue Department
as required by C.A.W;
it will I think be better
to dispose of the matter
entirely in the D.W.D; the

Ltr W Hadlestone
52

For orders

Please see Mr's note
on the Dr W as also
the amended Specification
Dr Jr Steamer on the
Birmingham Canal
I beg to recommend
the suggested disposal
in this Department

Attt

22/10/79.

739 t

Yes RH

Cir 22.10.79. Attt 4-11-79
Mr Shaul 52 Bdle

land should be in
charge of the Canal
Engineer, who will
regulate its use by
Officers of various De-
partments, according to
the requirements of the
service -

Attt

22.10.79

53

No. 88

4

OFFICE OF THE SUPERINTENDENT OF WORKS,
BUCKINGHAM CANAL,
Camp, Chepauk 5th April 1881.
Despatched 9th do

From

THE SUPERINTENDENT OF WORKS,
BUCKINGHAM CANAL.

To

THE CHIEF ENGINEER,
PUBLIC WORKS DEPARTMENT,
Madras.

SIR,

Enclosure.

I have the honor to request information as to whether I am desired to communicate while in England with any Ship builders on the subject of Steam Launches suitable for the Buckingham Canal.

2 I perceive that the Commissioner of Salt Revenue has made a suggestion to the Board of Revenue that he should be authorized in communication with me to obtain a suitable steam launch for his Department.

3 At the same time it might be desirable that I should procure a

for a Steam Vessel suitable for the
inspection purposes of the Department,
as it will be a great convenience to be
able to move rapidly to any point
where work is urgently required which
[illegible] possible under the present
system of towing it will moreover give
a great stimulus to private enterprise in
that direction if Government set the example
of using steam.

4 The Steamer that I should
endeavour to obtain would be one of very
light draught from 12 to 18 inches so as to
be available over shoal flats, and
my [illegible] is it would be about 6½ feet
above the Canal paint in the generality,
so that it might be by being loaded down to
within 6 inches of the gunwale be able to pass

under the South Indian Railway Bridge
when the Coorum is at its maximum height
of 3·50 feet above Mean Sea Level.

5 The Steamer should be
wood and be propelled by paddle
either in its centre or at its stern.

6 If it is desired that I
should purchase such a Vessel
I have the honor to request
instructions to do so and inform
as to the maximum cost to which
I should go.

I have the honor to be
Sir,
Your Most Obedient Servant
A. Anstey Captain R.E.
Superintendent of Works
Buckingham Canal

8·53 feet above M.S.Level

55

From

THE SUPERINTENDENT OF WORKS,

BUCKINGHAM CANAL,

P.W.C. No 2262

To

THE CHIEF ENGINEER,

PUBLIC WORKS DEPARTMENT,

Madras.

Dated 8th April 1881.

Signal 9th do

No. 88

ENCLOSURE/

No 1258 K. 18/5/81

B Recorded with reference to G.O. No 1216 W-8 18 May 1881.

CEC

Cy

D/W.

Steam launches suitable for the Buckingham Canal—

Requests information as to whether communication with ship builders can be made on the subject of—

Steam Launches suitable for use on the Buckingham Canal

(Sd) G.S.

Ext.d hea

P.W.D

56

No 2626 a/ 10 Nov/81.

Memorandum

Pros: of Govt Revenue Dept No 1248-9 a/ 22d August 1881.

Ditto- No 2881 a/ 18 October 1881.

Ditto- No 3107 a/ 2 November 1881.

Referred accordingly to the Commissioner of Salt Revenue for opinion.

2. It is proposed to send to Calcutta a copy of the Specification previously sent to the Secretary of State.

By order,

Sd/ Ross Rempson.

Lt Col. R.E.

Actg. Dy. Ch. Engr & Under Secy to Govt P.W.D

To

The Commr of Salt Revenue, with papers in Orig: (to be returned)

Encl with Chief's No 6509 - 6265 - 10-11-81-

B № 1258 W of 18-5-87

Cr № 895 of 6-6-87.

Ge № 674

B № 1216 W of 16-5-87.

Cr № 911 of 7-6-87.

O. Note: № 334 N of 23-3-87.

S. S. Despatch № 16 of 16-3-87.

G.O № 595 W of 11-3-87

S. S. Despatch № 63 of 31-10-79

G.O № 2739-A-W of 31-10-79

Memo № 3879 of 17-12-79

Cr № 3016 of 22-9-79.

Rev: G.O № 595 of 7-3-79

G.O № 735 Jud of 25-9-78

G.O № 2739-A-W of 31-10-79 Encls 2636 of 10-11-87.

Enclosed 11/11

Correspondence Department.

No. 3846 OFFICE OF THE COMMR. OF SALT REVENUE,

Madras, 57

Dated Noor 14 · 1887.

From

H. W. BLISS, Esq.,

Commissioner of Salt Revenue,

To

The Secretary to Government

Public Works Department

SIR,

Referring to memorandum No 2636 dated 10th instant, I have the honour to request that I may be furnished with a copy of the specification previously sent to the Secretary of State, as the same has not been sent to this office.

I have the honour to be,

Sir,

Your most obedient Servant

Assistant Secretary

Personal Assistant.

for Commissioner Salt Revenue

29

Ltr to

Correspondence Department.

188 .

From

The Commissioner of

Salt Revenue,

Madras,

To The Secy to Govt P.W.D.

Dated 17th Nov 1881

Received 185

No. 8846.

Enclosure.

Subject.

Copy of Specification of a Steam Launch for the Buckingham Canal dated 22-10-77, original of which was forwarded to the Secy to State for India with Despatch No 63 dated 31st idem.

Salt in Receipt Regr

Salt

CHEPAUK,

No. 2714 17th November 1881.

56
58

MEMORANDUM.

THE undersigned has the honor to forward the following documents to the Comm^r of Salt Revenue with reference to his letter, No. 8846, dated 12th November 1881.

Copy of Specification of a Steam Launch for the Buckingham Canal dated 22-10-77, original of which was forwarded to the Secy to State for India with Despatch No 63 dated 31st idem.

(By Order.)

Sgd/ Ross Thompson.

Lt R.
~~Major~~, R.E.,

Ag. Under Secy. to Govt., P. W. D.

To

The Commissioner of Salt Revenue

with one enclosure

dated 17-11-1881

Ch. No 2636 of 10-11-71
S of S. Agst 13 16 of 16-3-80
Govt 575 N of 11-3-80.
Govt No 2739 A N of 31-8-79
Govt No 7353 of 25-9-75
Rev. Govt No 576 of 7-3-77

From

THE SECY. TO GOVERNMENT,

P. W. D.,

To

THE Commissioner
of Salt Revenue

Dated 4th January

Despd.

Read

1884.

No 2714.

ENCLOSURES —

C. R. W. 59

It might
be as it stands
to Commissioner
Abkarkhand

I have marked
noted my con-
clusions in
margin of the
Blue Letter

Attk
8/12/84

Re 2983 a/9-12-81.

P.W.D

Memorandum

File of papers relating to the proposed provision of a steam launch on the Buckingham Canal for the Commissioner of Salt Revenue.

~~Forwarded to the~~ Master Attendant for opinion, with reference to the pencil notes by the undersigned on Mr Bliss' last letter.

Sgd R.A.S.

(Sgd C.S.

C.E. & secy to Govt.

P.W.D.

To

The Master Attendant, with file of papers (to be returned).

dcaptd 9-12-81.

c No 932 with 3 enclos:
draft letter by sub-V dy 5-12-80
c No 932.
Ch No 2714 of 17-11-80.
Ch No 2626 of 10-11-80.
B No 1259 R of 10-5-80.
Rec: from Bby of 12-12-80.
S 95. dupl Ch No 16 of 16-3-80
G o No 597 R of 10-3-80
G o No 2959 R of 31-10-79
G o No 597 of 5-3-79
G o No 7-8 of 25-9-78

12/12

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following letter from the Government of India Military (Marine) Department dated 7th October 1880 & No 1197 dto

With reference to your letter No 1819 dated the 22nd August 1880 in the Department of Marine enquiring to be furnished with a plan and Estimate for a Steam Launch for use in the Back Waters of Malabar I am to state that before any steps for the preparation of a plan or Estimate can be taken, it will be necessary to furnish Mr Stephen Superintendent of Marine, Calcutta, with certain particulars regarding the Launch required. When these have been received the plan and Estimate furnished by the Superintendent of Marine have been approved by the Government

To

of a Madras than the Government of India will, on receiving a report to that effect, direct the Superintendent of Marine to undertake the work. The time at which the Dockyard will be able with advantage to observe on the ability of the Dockyard to take up the work at once and continue it through to the end, but it will also depend on the extent of any outstanding that may be caused necessarily or otherwise, by any change in the design when the work is in hand.

2. I am accordingly to request that the Public Works Department Madras may be advised to communicate at once with the Superintendent of Marine, Calcutta, on the subject as above explained.

Order

Order thereon, 18th October 1881, No. 2881.

Referred to the Public Works Department for consideration and disposal in communication with the Commissioner of Salt Revenue with reference to the papers marginally noted.

G.O. 7th March 79, No. 575 R.D.
" 31st Oct. 79, No. 2739 M.W.
" 11th March 81, No. 595 M.
" 21st April 81, No. 671 R.D.
Despatched to Secretary of State 28th May 1881
" No. 2 R.D.
G.O. 22nd August 1881, Nos. 1248 & 1249

/True Extract/

G. Lawrie

For Secretary to Govt.

To

P.W. Department with G.O. No. 1248.
Board of Revenue with Do
Copy to the Chief Engineer for Irrigation

Encl
El

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following endorsement of the Government of India, Department of Finance, dated 15th December 1836, No. 3670, the Despatch from the Secretary of State for India, dated 25th August 1836, No. 42 Public Works.

With reference to your Excellency's letter in the Department of Finance and Commerce, No. 1183, dated the 8th July last, I have to inform you that all further action in the direction of the supply of a steam launch for use on the Buckingham Canal has been suspended, in consequence of the opinion now expressed in your letter that a vessel sufficient for the purposes required, can be constructed at a less cost in India.

2. No expenditure has been incurred in this country and I request therefore that your Government will, after the receipt of this Despatch, make the

W
For disposal
1/11.

the working arrangements on the
subject with the Government of Madras.

I am directed to forward to the
Government of Madras, in order
to assist the Superintendent of
the Trichinopoly District, the
[illegible]

Order thereon 2nd November 1881, No 3107.

Recorded with reference
to G.O. 22nd August 1881, No 1243 and
15th October 1881, No 2381.

[illegible]

True Extract.

[illegible]

Secretary to Govt.

To
The P. W. Department
Board of Revenue
Chief Engineer for Irrigation

Ext
Cl

Correspondence Department.

No. 9203.

OFFICE OF THE COMMR. OF SALT REVENUE,
Madras,
Dated November 22, 1881.

From

H. W. BLISS, Esq.,
Commissioner of Salt Revenue,

To

Colonel R. A. Sankey, R.E.
Secretary to Government,
Public Works Department,
Madras.

Sir,

With reference to your Memoranda Nos 2636 and 2714, dated 10th and 17th instant, respectively, and the Enclosures to the first of which are herewith returned, I have the honour to submit the following remarks on the specification of a Steam Launch for use on the Buckingham Canal.

General description. It appears to me that, in the event of any accident, steel plates will be very much more difficult to repair, even in Madras, than ordinary teak planking, and will be almost impossible to repair anywhere but in Madras. I should suggest steel ribs and frames and teak planking sheathed with copper as the most suitable build, especially considering that it will be very difficult to keep the bottom of a steel or other uncoppered vessel clean in the dirty Salime water of the Canal.

Draught. I think this should be kept down to 1'9" or 2', and in this connection would draw attention

whether there is any chance that the Launch will ever have to carry ten tons of passengers and stores. Five tons would be a fair allowance, I should think, and would not be likely to be exceeded even if two Inspecting Officers, say the Superintendent of Works, Breaking bank Guard, and myself, were using the Launch together. 5 Tons Suff Abbt

Propeller. I think that in order to keep the draught down the propulsion should be by Paddle Wheels or by a Stern Wheel. 2 prom barge mth Centre wheel Abbt

Engines. Watts Engines will hardly be needed and with a single screw, when they prevent vibration. They are more expensive than ordinary Engines, I believe. A good — but bad. Clear Views Seams all be Abbt

Boiler. I venture to suggest that a horizontal tubular boiler is unsuitable for use in salt water, unless the Launch is to be fitted with a condenser, which would greatly increase the expense, both of first cost and of maintenance; or unless fresh water tanks are provided, which would greatly add to the weight to be carried. If the latter expedient is adopted, there will also be constant trouble and expense as to the provision of fresh water. I think it will be far better to have a different type of boiler. Vertical tubular and no condenser Abbt

2. The Launch, if built in Calcutta, could, I believe, be brought down by Canal and through the Chilka Lake as far as Ganjam. Thence she might run down by sea (coaling, if necessary, at Bimlipatam) to Coconada; and thence come through by Canal to Madras. If her cabins are not fitted until she reaches Madras, there should be no risk about this, as she might be fitted with an extra wash strake and temporary deck with waterways for the voyage, and it would probably be much cheaper to get her down in this way than on the deck of a steamer.

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

D. W. Robertson

Commissioner of Salt Revenue

Correspondence Department.

188.

From

The Commissioner of
Salt Revenue,

Madras.

To

The Secretary to Government,
Public Works Department,
Fort St. George.

Dated 4th January 1879.

Received

No. 6932

Enclosure of

Memo.

Subject Steam launch for the Buckingham Canal.

Ans. 7/1/79.

bT 6932.

By W.

Steam Launch for the Buckingham Canal.

In January 1879. the Hon'ble the Commissioner of Salt Revenue, represented the desirability of the provision of some means for himself & other Officers of the Salt Dept of getting about the East Coast Canal with reasonable comfort & expedition, & suggested that a Steam Launch be procured for the purpose -

In G.O. No. 575 (Revenue) of 7th March 1879. Capt. Taylor & the Chief Engineer were requested to consider the matter as a Committee, & to submit a full specification of a suitable Steam Launch. This

This Specification was forwarded with the Papers recorded in P.C. No 273 dated 31st October 1879, and after undergoing considerable modification in this Office (in accordance with the suggestions of Gen. J. & Dr. W. approved by W.) it was sent on to the Secretary of State with request that tenders for the construction of the Launch might be called for.

It was found however (P.C. No 55 dated 11th March 80) that a Steam Launch such as that Specified, would cost from £1200 to £2000, & as this was considered too expensive for inspecting duties, the Secy of State was informed that no further action would be taken in the matter.

Early this year the subject was revived by Mr. Bliss, who suggested that as he was about to proceed to England, he might in communication with Capt Lowry, find out personally the sum for which a Launch could be built.

In P.C. Rev. Dept No 671 dated 21st April 1881, Mr Bliss & Capt Lowry were requested to make inquiries in England, & authorised to put the work in hand at once (with the approval of the India Office) if the cost did not exceed Rs 10,000. They were told at the same time that the Specification previously sent to the Secy of State was considered best suited to the requirements of the Buckingham Canal.

Since then the Govt. of India have represented to the Home Govt. that a Steam Launch such as

as that described and be
constructed for one third
the cost at either the Bombay
or Calcutta
Dockyard, & the Secretary
of State has approved of
the boat being built in
India

The Marine Dept at
Calcutta now want a
clear specification of
what is required, to
enable them to furnish
this Govt with a design
& estimate of cost, &
the Rev. Dept have referred
the matter to this Dept
for disposal, in commu-
nication with the Commrs
of Salt Revenue.

In this office memo
No 2636 of 10th Nov 81,
it was proposed to send
Bliss to send to Calcutta
a copy of the Specification
previously forwarded to
England, but in his letter
No 9203 of 22 idem,
the Commissioner suggests
certain

certain modifications
in that document.
Orders are now required
whether those modifications
shall be adopted, &
the Specification altered
accordingly. The latter
will be found attached
to the original of G.O. No
2739 & W 2731 Oct 1879.

If Mr Bliss' sugges-
tions be approved, it
will be necessary to
define clearly the descrip-
of Engines & Boiler to
be substituted for those
given in the Specification.
Mr Bliss objects to the
latter, but makes no
definite proposal in
lieu.

CG
29/11/81.

Administrative Department.

Madras,

To Marine Office,

18th December 1881.

No. 1052

From

The MASTER ATTENDANT,

Administrative Department,

Madras,

To Colonel A. Stanley R.E.
Secretary to Government,
Public Works Department,
Chepauk

Sir,

Referring to your Memo: No 2983, dated December 9th 1881, and returning the file of papers forwarded, I have the honor to state that in my opinion wood with Muntz metal is far better for endurance in this country. It is hardly conceivable how rapidly iron and steel become unserviceable in water. Steel ribs and beams are unobjectionable.

2. About draught, the difference between 18 and 24 is a rather serious consideration. I would suggest dividing it, or say 21 inches when loaded.

3. I do not imagine a greater weight than five tons would ever want to be carried.

The Sabb Committee suggest 19" or 2', 18" or 21" or 24"!

4. I have always been an favor of twin boats with centre wheel, as the best distribution of weight & protection for the wheel and also for wash on the canal banks.

5. Land engines will be necessary.

6. Boiler. The only objection to a vertical boiler in the case of a double boat would be that valuable space would be lost, owing to the necessity of placing it in the inner gunwales instead of on the bottom of the boat.

7. I do not anticipate any difficulty in getting her down to Coconada during any of the fine weather periods, and with some extra precautionary fittings.

I have the honor to be
Sir
Your Most Obedient Servant
W.F. Layton
Master Attendant
Administrative Department.

MR

(188) DEPARTMENT.

From

THE MASTER ATTENDANT,

ADMINISTRATIVE DEPARTMENT,

Madras.

To

THE ~~Marine~~ SECY. TO GOVERNMENT,

P. W. ~~Marine~~ DEPARTMENT,

Fort Saint George.

No. 11,052

Dated 12 December, 1881.

Received

No.

Cl No 3059 of 16-12-81

Subject.

Returning file of papers regarding a steam boat for the Salt Department with remarks.

Entd in Record Dept

Cl No 2983 of 9-12-81.
Cl No 2714 of 17-11-81.
Cl No 2636 of 10-11-81.
B No 1258 W of 18-5-81.
B No 1216 W of 14-5-81.
G.O No 595 W of 11-3-80
G.O No 2739 A W of 31-10-79
G.O No 735 I of 25-9-78

GOVT. OF MADRAS. } 188. { P. W DEPT

SECRETARY.

Chepauk, No 3059. of 16-12-1881

Memo.

~~OFFICE NOTE.~~

To Mr Blin
Major Drake Brockman
or
Mr Ottman.

Re. Steam Launch
for Buckingham Canal

Vertical boilers which are a sine qua non with Salt-Water will apparently militate against the plan of twin barges with Centre Wheel — If fresh water can be used however the difficulty disappears — I have therefore to solicit your views as to whether would

C.C No. 3059 of 16-12-81.

DM/12

73

D.W.

I think we are now all agreed except a few points — Vertical boilers which are a sine qua non with salt water will after a time militate against the value of their tubes with centre wheel —

If fresh water can be used however the difficulty disappears

Mr Bliss should be consulted upon the front — and also Messrs Drake-Brockman & Mr Ottaway on the above —

I cannot too strongly

understand why it could not be practicable to have a duplicate of such water as distributing mains into wells also along the canal

13-12-87

74

C.S.R.

It is stated in instance that we should be justified in acting as recently 1st. The Inst. that the Quarterly Cash with water & which charges Bookman Chetties should not pay the boiler duties 2nd. that the supply of fresh & pure water should be abandoned 3rd that it will be hard to any person entitled to it

75

Office of the Comm. of Salt Revenue,
Madras.

it would be desirable
to have all these
points thoroughly
cleared up before
Committee assembles

Please have back
future matter will
if posted if possible
before my return when
we can give a final
decision to Govt.

27/12/81

To W

The draft enquiries
submitted will probably
elicit the required
information.

RS

30.12.81.

C. to W.

This draft - as approved
by Mr. Bliss on 23rd inst.

27/12/81

Correspondence Department.

No. 1080/87

OFFICE OF THE COMMR. OF SALT REVENUE,
Madras,
Dated December 23, 1881.

From

H. W. BLISS, Esq.,
Commissioner of Salt Revenue,

To

The Deputy Chief Engineer,
Public Works Department,
Madras.

Sir,

In reply to your letter No. 3059 dated December 16, 1881, I have the honour to state that in my opinion it would be better not to have a twin vessel with a central wheel. That form of construction would necessitate the raising of the platform which would form the floor of the cabins and engine room &c to at least 6 inches above the deep load line, or (say) 18 inches higher than it otherwise need be. The additional height out of water would tend to make the vessel top heavy and possibly unsafe in the high winds which at times blow along the coast, and especially so if caught in a gale in an open place like the Pulicat Lake.

2. There would I think be considerable difficulty and some expense in maintaining fresh

fresh water depots at suitable intervals along the canal, but of course it could be done. If a fresh water boiler is adopted, and the addition of a condenser is thought objectionable, as I suppose it would be, the vessel must be fitted with the means of carrying enough fresh water for a full day's steaming. Considering these difficulties I should like to know whether it might not be feasible to fit a coil boiler on what is, I believe, known as the Herreshans System. There would be next to no weight to carry and a couple of buckets of water would keep such an engine going for a day, I believe. But no doubt a vertical boiler and the use of salt water would be the simplest solution of the difficulty, if the boiler can be kept low enough.

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

C. Rivington Pearce

To Commissioner of Salt Revenue

cpo DK

Correspondence Department.

188 —

From

The Commissioner of

Salt Revenue,

Madras,

To

The Chief Engineer

P.W.D.

Dated 26 December 188

Received

No. 1005

Enclosure.

Subject.

Stating his views as to the practicability of supplying the Salt Factories on the Buckingham Canal with water from adjacent wells

Executive Engineer

No 2489

OFFICE OF THE ~~SUPERINTENDENT OF WORKS~~

BUCKINGHAM CANAL

Camp, 24th December 188

From

Executive Engineer

THE ~~SUPERINTENDENT OF WORKS~~

BUCKINGHAM CANAL.

To

THE CHIEF ENGINEER,

PUBLIC WORKS DEPARTMENT,

Madras.

SIR,

Enclosure.

With reference to your letter No 3059 dated 16th instant, I have the honor to inform you that there would be no difficulty in laying on water from adjacent wells or Springs along the Buckingham canal into Cisterns constructed at Convenient intervals and from which the feed tanks of the Engines could be fitted. The Communication between the wells and the Cisterns may be by masonry Conduits or iron pipes, the latter to be used for short distances only. The waters may not in every instance be perfectly fresh

fresh, but it is presumed that slightly brackish water will not be objected to.—

I have the honor to be

Sir

Your most obedient Servant

Percy Robt. Kirkaway Major R.E.

Executive Engineer. Bhamo.

From

The Superintendent of Works,

Buckingham Canal.

To

The Chief Engineer,

Public Works Department,

Madras.

Dated 24 December 1881.

No. 2489

Enclosure.

Steam Launch for Buckingham Canal—
Submitting certain information regarding the—

Ce No 3059 of 16-12-81
Ce No 3983 of 9-12-81.
Ce No 2714 of 17-11-81.
Ce No 2636 of 10-11-81.
Ce No 1258 W of 18-5-81.
Go No 1216 W of 14-5-81
Go No 595 W of 11-3-80
Go No 2739 A W of 31-10-79
Go No 735 J of 25-9-78

To No 125 of 17 January 82

The Locomotive Supt.
Madras Ry.

Sir.

It is intended to build a Steam boat for the use of Govt officers on the Buckingham Canal, and to fit her with a tubular boiler. It is anticipated however that there will be some difficulty in obtaining a supply of perfectly fresh water along the whole length of the Canal, and brackish water will in some cases have to be used

May I request that you will be so good as to favor me with your opinion whether the priming of the Boiler tubes is likely to result from the use of water of this description, and

and, if so, whether the
idea of a tubular boiler
will in consequence have
to be abandoned.

A very early reply
will oblige

Yours &c

(Signed) [illegible]
19/R.T.

Ag Dy C.E.

Accepted 17-1-82

Memo
No 126 a/17 Jany/82

Letter from the Executive
Engineer Buckingham
Canal No: 2489 a/24-12-81.

The Executive Engr
Buckingham Canal
is requested to report
whether he is quite
certain that the supply
of fresh or partially
fresh water is sufficiently
abundant along the
Canal. The longest
distance that will
possibly have to be
run before the supply
could be replenished
should be stated,
and an approximate
estimate of the cost
of the arrangements
for maintaining the
supply and feeding

The

The Engineer Submitted.
As very early reply is requested.

(Signed)
19/9 R.I.
19/9 C.E.

Exbgr B. Canal Dept
Secy PWD 17-1-83.

No. 126
T

PUBLIC WORKS DEPARTMENT

To The Executive Engr
Buckingham Canal

Chpt. 20 Jany 1883

The undersigned has the honor to ~~request~~ invite very early attention to the ~~name~~ noted on the margin ~~hereunder~~ and to request that the reply may be expedited.

I have &c
(Signed)
Secy P.W.D.

Letter Sent
An Under Secy to Govt

82

Cato

Sir with much
Submission In
Mr Ottawa
Mecumsuh
I consider but
In watering
Stations shall
not Interfere
about them
20 or at most
25 miles

2611 Abt

L 21

C No: 253.

W Major Brackenbury has with you replied to Memo: 126 d/17 Janry. 82. A reminder has been sent.

C-No: 299. is a further proposal from the Salt Commissioners.

R.S.
20-1.

Capt
Asst. Engrs
Brackenbury
Zanzibar

20/1/82

W C. No: 307 submitted
R.P. 28-1-82

9 L 21

Sp 232

Camp Panaiyoor
23rd January 1882
Depd 25th. 83

From
The Executive Engineer
Buckingham Canal Division,

To The Deputy Chief Engineer
2nd P. W. Department
Choultry,

Sir,

In reference to your Memo N. 126 dy. 17 instant and the reminder N. 176 dy. 20 instant, I have the honor to inform you that I consider that the supply of fresh or partially fresh water along the Canal for the use of tubular boilers for steam launches is sufficiently abundant at all seasons of the year.

As regards the probable cost of laying it on to the premises of the Canal I am unable at present to give you the information, but expect to submit Memo. on the day of its receipt of Mr. Sub. Engineer Ethamma for particulars on the subject and a reminder has this day been sent him.

I presume the catering statistics

need not be closer than say 50
miles or corresponding to the location
of our Toll stations. A couple of tons
or $2\frac{2}{3}$ cub. yds. of water would perhaps
suffice to carry the launch the distance
if not, watering stations and the
establishment at intermediate ~~stations~~ points.
The cost of doing so all along the
Canal at distances of 25 miles
will be by no means excessive.

I have the honor to be
Sir
Your most obedient Servant
Peter Parker Buchanan Esquire
Secy &c
Buckingham Canal Co

From

The Executive Engineer
Buckingham Canal.

To The Dy. Chief Engineer
P. W. Dept.
Madras

Dated 23d
Recd 25.
C.E. No. 226 C of 27-1-82
No. 2632

January 1882.

Guelo. Lone.
W/R Lo. Papers. &c.

Fresh water for the use of tubular boilers for steam launches. —

Informs that — is sufficiently abundant at all seasons, and for the particulars of cost of laying it on & the proximity of the Canal referred to Mr Ottmann Supdt.

(by R.J.)

85

No. 226 C of 27-1-82

Memo

Letter from the Ex: Engr Buckingham Canal No. 2632 dated 23d January 1882.

The further information to be supplied by Mr Ottmann will be awaited. This should be expedited. The Chief Engr considers that watering stations should not be further apart than twenty, or at most twenty five, miles.

(By order)
sgd R.J.
Ag. Dy. CE.

To The Executive Engr
Buckingham Canal

C2 No 126/4 of 20-1-82

C2 No 125/126 of 17-1-82

Memo No 3059 of 16-12-87.

C2 No 2983 of 9-12-87.

C2 No 2914 of 17-11-87.

C2 No 2636 of 10-11-87.

15 No 1258 W of 18-5-87.

Rev: G.O No 671 of 21-4-87.

G.O No 595 W of 11-3-87

G.O No 2-789 A of 31-10-79

Rev: G.O No 575 of 7-3-79

G.O No 735 of 25-9-78

Sent in Receipt Book.

From W. Bengal

dated 21-10-87

86

Telegraphic

I learn from Col. Lambert that no reply has been received from Calcutta.

Please send remainder by letter and wire.

Let us know the lock of Steamboats

Copy of Telegram.

To Marine - Govt. Calcutta.

"My letter 743 E dated fourteenth September. Launches urgently required".

The Rev. Dept are unable to supply a

fresh water along the whole

Ch. No 126 of 20-1-82

Copy of their G.O. 1051 of 21st Oct/82 - quoted by Mr. Blair - the paper not having come up. permitted.

The S.O. file is put up.

R.S. 24.10

Mr. Blair shows these papers to me - with the G.O. which received. 24-10-82. R.S.

To ago

Submitted with the G.O. in question.

R.S. 7/11

Office of the Commr. of Salt Revenue,
On Inward, Lower Burma
Oct 21 1882

89

My dear Shaw Stewart

Vide G.O. Oct 21, 1882, No. 1051, Rev. Dept.—

Sometime ago (in Augt.) I struck off the dock Journal Calcutta Gazette for articles about steam launches

Could you let me
know the result?
as you have
been received here
are received? If I
am to have the
vaccines at all
I ought to have one
at least by the end
of December — or
at latest in January
otherwise I could

Change my place
and the working of
the Salt Factory
from one week I
Quite Uterine
& Menstruation
Barbara

21

Office of the Commissioner of Salt Revenue,
Madras, 1852

X
89.

My dear Shaw Stewart

Have you rec.d
any reply from
Calcutta about
Steam launches?

Yours sincerely
R. Sewell

9421

C.A.V.

W

Ag. W

The 2007 C. was
detached
from this appn
on the 8th Inst.

R.A. 10/11

C.A.V.

91

4/7

Rec'd 29.1.82

MADRAS RAILWAY.

LOCOMOTIVE SUPERINTENDENT'S OFFICE, 92

PERAMBORE WORKS.

No. 3192/30

15th January 1882

The Ag: Dy. Ch: Engineer
Public Works Department
Madras.

Dear Sir,

Your No. 125:

Proposed Steamboat for use on Buckingham Canal.

In reply to your enquiry, which I understand to be:- is a small tubular boiler liable to prime when fed with brackish water;- I should say that it was, exceedingly likely to give trouble by priming and not only that but the formation of scale would probably soon choke up the boiler.

In reply to your 2nd question I think a tubular boiler will be a necessity & the remedy for the trouble that the brackish water would cause will be, either to carry a tank of fresh water on board, and draw the feed water entirely from it, or to have a condensing Engine; and even with a condensing Engine it will be necessary to carry a small tank of fresh water.

It is stated in your letter that "there would be some difficulty in obtaining "a supply of perfectly fresh water along the "whole

"whole length of the canal and brackish
"water will in some cases have to be used."
and I do not understand from this whether
the supply of perfectly fresh water alluded
to, means water drawn from the canal itself
or brought from other sources on shore. If
a supply of fresh water can be got at con-
venient distances along the banks the boat
might be driven with a high pressure engine
of the same style as a locomotive; but if it
is necessary to draw the feed water from
the canal I should strongly recommend the
adoption of a surface condensing engine.

From Shore.

Yours faithfully

W. Coulthard

Locomotive Superintendent

W. For Orders

20.1.82

No 343 Ed of 14 g 82

Statement showing the places where good water can be had along the Canal, with reference to the Executive Engineer's Endorsements of 18th and 25th January on the Deputy Chief Engineers Memos Nos 126 and 126 of 17th & 20th January 1882.

(Stations at 50 Miles apart as per Executive Engineers instructions)

Miles	Place	Nature of Supply	Remarks.
0	Madras	Basin Seven wells from Hydrant at the Basin within 50 yards — (Perennial)	Between Madras and the next Station, good water can be had at Miles, Ennore (11) Kattoopully (17), Kalangee (19) Pulicat (25) Caramandel (27) Tettypett (38) Jonagapallam (44) Cudbah (46) - all good water principally from wells, within a stones throw of Canal.
49	Redpank	Well within 40 yards Very good water (Perennial)	Between Redpank and the next Station good water can be had at Cheangalpudy Chittoor (51) - Chinnathotam Toll Station (59) Pambaly (64) Doogaypadam - Jar (69) Pondoopallam (72) - Sholavaram (79) Sorrudi - pallam (89) Tirutnapatam Village not Basin (94) all good water, principally from wells and most of the supply near to Canal.

103 Kodoor | Well (and Pond good water within 2 yards (Perennial) | Between Kodoor and next Station, good water can be had at Kanapadu-pally (110) Ramair Kland (117) Ramam (121) Takapally-pad (127) Gunvaldim-pally pallem (134) Thummalap (139) Chennayapallem (146) a good water mostly wells, Spring ponds but all not clo[se] by.

151 Ramapatam | Wells good water within 50 yards (Perennial) | Between Ramapatam and last Station the thin canal there is good water at Chapa Sheela (154). Nagap (156) Nannavaram North Pillap (161) Pakapallem (163) Pakal (166) Rajavendarpallem (170) Eathamukkela (173) Kattapa Very far (179) Kamparikuppam all good water Some wells some Spring ponds & them some are close by canal, others far, particularly Kattapatnam half Mile off.

196 Bodda Cavan | Wells good water 2 furlongs off (Perennial) | A Mile further on the Cavanam Canal good water can be drawn from Canal.

Southern Canal.

Madras Bar, Hydrants & Wells Supply. | Water about Madras can be drawn from any of the Hydrants and wells about the Canal.

Sadras | wells good water 100 yards off (Perennial) | A Mile north of Bridge from Village east side of Bridge, Supply can be had two furlongs off. Between Madras & Sadras good water can be got at Several places, the Mileages of which I do not remember the Sources are not near canal generally, as on Northern canal.

Note - South of Sadras I am not correctly acquainted with the Sources of good water Supply, about canal, though I am aware it can be had all along, but not near by, there are Spring ponds generally every where along the canal.

(Signed) S. Ottmann
Sub Engr. PWD.
27-1-82

(True Copy)

Recorder - Madras

for Major RE
Executive Engineer Buckingham Canal

Buckingham Canal Dr

Statement showing the places where good water can be had along the Canal.

No. 2704

Office of the Executive Engineer
Buckingham Canal
31st January 1882
Despd 1st February — do —

From

The Executive Engineer
Buckingham Canal.

To

The Chief Engineer
P.W.D. Department

Sir

Encl 1

With reference to your Memo No. 126 dated 17th instant, I have the honor to forward a copy of Statement received from Mr Ettiramm Sub Engineer showing the several stations where good water is procurable on the Canal, and to state that the station where water is most remote is Kottapatnam, and that the cost of bringing this to the Canal by a masonry Conduit will be under Rs 1,000. The water would be either pumped into the tanks or boilers by the Engine itself or it could be fed by the Bhears employed on the steamers or Coolies for the purpose.

The resources of the Southern Canal

are:

one or more part with those detailed for
the Northern Coast.

I have the honor to be
Sir
Your most obedient Servant
Pro Brig. Archway Major RE
Executive Engineer 1st Coast

From
The Secretary to the Admiralty
Whitehall Gardens London S.W.

To
The Chief Engineer
H.M. Dockyard
Devonport

Dated 3rd January 1882
Letter No. 1 January 1882.
Date

Ans. 27th

Engd. 3rd Jan. 82
Entered 4th Jan. 82

Mr Bliss' suggestions

The Chief Engineer's letter

Master attendant's letter.

Original Specification	Mr Bliss' suggestions	Chief Engineer's letter	Master attendant's letter.
General Description. To be built of steel plates on iron ribs.	Thinks steel ribs & frames, with teak planking, shelters with copper would be more suitable.	Agrees.	Wood with mostly metal for, better for endurance in this country - Steel ribs & beams unobjectionable.
Draught. Not to exceed 2'½ feet when full, laden with 5 tons fuel & 10 tons of passengers & stores.	Draught to be kept down to 1'9" or 2', & 5 tons only allowed for passengers stores	5 tons sufficient.	Suggests 21 inches draught. Does not think a greater weight than 5 tons would ever want to be carried.
Propeller - Single Screw with 4 blades of suitable length, diameter & pitch, with 2 big sails.	To keep down draught, 2 paddle wheels, or a Stern wheel should be used. Thinks it would be better not to have a twin vessel with central wheel, on the ground that it would necessitate the raising of the platform forming the floor of cabin or to 6 inches above deep load line, or 18 inches higher than it would otherwise need be. This would make vessel top heavy & unsafe in high winds, & especially so in an open bay like Portland Lake.	Twin barges with Centre wheel.	Has always been in favor of twin barge with centre wheel.



CAW

Ten case may now be disposed of —

Sergio Bros Bennis letters Chemos but must act on one point (Notification) such matter is now possible and in the event that case can be put under Command by a Monthly Small Arms

In marked passage Mr Lewis Wales letter of 18. Jan Shows that in his opinion the boats can be worked by a little Greasers Engine [illegible]

Subject: William's application Landing Waiter & Searcher Examination with a view to Promotion

Referring to the above mentioned application I beg to forward herewith a letter from the Rev. Silvester Williams requesting that he may be examined with a view to his promotion to the office of Landing Waiter & Searcher.

Williams' application Landing Waiter & Searcher Examination with a view to Promotion

Barker - Honyatt } Referring to the above mentioned application I beg to forward herewith a letter from the Rev. Silvester Williams requesting that he may be examined with a view to his promotion to the office of Landing Waiter & Searcher.

Sec. Supt. Inspr. Treasurer Collr.

To W

What is now required is to send to the Supt of Marine Calcutta "a clean Specification" in view to that officer framing a plan and estimate for approval of the Madras Govt.

The Specification prepared in 1873 for the Secretary of State will have [illegible] to be recast in several particulars with reference to recent correspondence, and it would probably be more satisfactory if the Revised Specification were drawn up by a Professional officer. Do W ?

This being done the papers can be further disposed of in the office.

I attach a synopsis of the opinions collected.

R S

8/82.

100

Ootacamund
August 15, 1882.

My dear Webster,

Would you kindly allow one of your Assistants to let me know what, if anything, was done on the Board's Proceedings No 3037 of December 3/81. I cannot find that any order has been passed thereon and I am urgently require the information asked for as to the cost of steam launches of small size. If nothing was done thereon, would you kindly now arrange for the P.W. Secretariat obtaining the information without delay both from the dockyard in Calcutta and from any private builders there may be there or in Bombay, or pass orders allowing me to make the necessary

[illegible] document for the whole cost as suggested

necessary enquiries myself. Perhaps the latter course would involve the least delay.

Yours sincerely
(Signed) H. W. Wilkins.

True Copy
Frederick Chichester
Secretary to Govt.

101

Steam Launches

Sd Dept.

Work to Bliss

20/8/82

GOVERNMENT OF MADRAS,

Revenue Department,

Stonehouse, Ootacamund,

17th August 1882.

102

Dear Sanitary,

Bliss asks what has been done with Board's Proceedings No. 3037, dated 3rd December last, relative to the construction of steam launches for use on the Buckingham Canal. The paper was transferred to your Department on the 18th January last and nothing has been heard of it since. Enclose a copy of Bliss's letter.

Yours sincerely

[illegible]

No. 743 Ed/14-9-82

No 743 Ed/14-9-82

Ooty:
August 29, 1882

My dear Sankey

I think the questions of the provision of
i. A large launch 55' to 60' long for
   early inspecting officers, and
ii. Some small launches for daily use
   by the officers in charge of salt
   Factories
should be kept quite distinct.

I quite see the difficulties as to i
caused mainly by the shallowness
of the canal in it present state
and by the uncertainty as to the
amount of depth of water can be
maintained until a great deal
more money has been spent.

But I do not think that any
of these difficulties will be felt to
a serious degree with respect to ii

There cannot be any difficulty in getting small launches to it drawing only 21" of water, which is a depth that can almost always be maintained easily enough over the length of this canal on which I want to see them, viz, between Vadasamandiram & Cowlong and between Emur and Pulicat (or Rattan Bazar) with occasional trips as far as from both the rivers and across the Pulicat Lake to Tada and Sullurpeta from the Southern side. I don't say that it may not occasionally happen that portions of these distances may become too shallow for use. But [illegible] accounts of

any experience which we have had over 5 hot weathers, that this will be oftener than once in 3 or 4 years or for more than a month at a time. When it is so, we must lay up our launches & go about in native flat bottomed boats at 1 rupee an hour as we do now, but the advantage of being able to use a boat with reasonable rapidity at all times will remain, and will amply justify, in my judgment, the expenditure on the launches, without which I must spend a great deal more money than is necessary with them or the provision of which in comparison for the suspension of work in the salt factory. I fully expect on

fact the position that, do what
you may, you cannot guaranty
the full depth of water at all
seasons or any thing like it,
and in spite of it I still say
that I must have these small
Canches. The big ones may
stand over as likely to be for
more costly, and to be for more
often rendered useless for want
of water than the smaller ones.
Enclosed is a plan in which
I have tried down the points
which I consider should be
attended to in the building
of the small Canches. You
will note that I propose to
have boilers in which bath
water can be used. I think it
will alter the whole character
of vessel to do so than to have

fresh water tanks at intervals
along the banks of the canal.
Though of course in wet dry
fresh water ponds are
called, when the canal was
deep and a deep draught would
be significy. In this purpose
tanks may as well be fitted
under the floor so far as this
can be done without inconvenient
increase of expense and weight.
So far as I can judge the cost
of such a boat as I have named
should not exceed £250 at the utmost.
Rs 3000 should, I should say, build
her at Calcutta delivered here.
As to the cost of working such a
craft I should put it as follows
per annum —

	Rs
Depreciation at 20%	500
Coals for 6 months, at 3 cwt per day of 12 hours, for 6 hours per diem for 6 days per week for 26 weeks, 12 tons at Rs 30	360
Driver and fireman at Rs 40 per mensem (at the outside)	480
Oil & Sundries	160
Total	Rs 1500

I think this a most liberal allowance. I shall save fully this sum in hard cash, irrespective of greatly increased administrative convenience and efficiency and of greatly decreased pensionary liability in consequence of the employment of an inferior class of men for certain duties which the greater power the Superior [illegible] will have of getting about will render feasible.

I should be glad to get at least one such launch down by Xmas, if not sooner.

Of course if three of exactly the same pattern are ordered simultaneously there should be a substantial reduction in price.

Yours sincerely

[illegible signature]

P.S. I return Brockman's letter.

PROCEEDINGS of the MADRAS GOVERNMENT.

READ ~~the following letter~~

Proceedings of the Board of Revenue, dated 22nd August 1883, No 2464, submitting for sanction proposals of the Commissioner of Salt Revenue for the Factory Establishments and Preventive Force required for the Tuticorin Circle.

Order thereon, 21st September 1883, No 1150.

The foregoing statement submitted with the foregoing papers shows the entire establishment required for the Tuticorin Salt Circle on the reorganization scheme, including the establishments sanctioned in the G.O.s noted separately for the two Southern factories, viz: Kilpaut and Vallur, and for preventive work in the whole Circle. Sanction is granted, subject to the confirmation of the Government of India, for those proposed for the other three factories: Kattur, Vayalur and Puladivadi.

2. The total annual cost of the establishment for the whole circle is Rs 39,936

Sheet

showing a saving of Rs 14,000 compared with the original establishment which did not include any preventive staff. This large saving is due to a material alteration in the scheme of supervision, whereby the direct superintendence of manufacture and the estimating of scrapings devolves on petty officers under the personal control of the Circle Inspector, instead of being vested as elsewhere in Officers of the grade of Sub Inspectors. To enable the Inspector to discharge the additional work thus devolving upon him efficiently, it is proposed to provide him with two steam launches, so that he might move about quickly from point to point by the Canal. It is observed, however, that the additional cost incidental to the provision and working of the launches, of which no accurate estimate can be now framed, forms a set off against the saving exhibited.

3. Mr. Bliss will, under the circumstances, be at liberty to propose any modifications in the establishments now sanctioned which the experience of the next season may show to be necessary.

4. The needful steps will be taken in the Public Works Department for the speedy supply of a steam launch of the required description, besides the one now coming out from England, for this Circle; also one for the Cawnpore Circle.

5. Ordered that a copy of these Proceedings, with the Proprietors Statement accompanying, be forwarded to the Government of India.

(True Extract)

W. Edwin
Ag Secy to Govt

To the Public Works Department

Ex? Mss.

A735 d 25.9.78
- 2739 R - W 31.10.79
- 595 W 11.3.80
Despatch 16 of 1880 d 16.3.80
B 218 W 14.5.81
- 1258 W 18.5.81
C.E. 2636 - 10.11.81
- 2714 17.11.81
- 2983 9.12.81
- 3069 16.12.81
- 2261 27.1.82
743 E 14.9.82
2076 C 14.11.82
A 107 W 11.1.83
Despatch 5/107 W 11.1.83
A. 1135 W 16.4.83

Pub. Wks. 8517

Pub 3/15 C

Encl

2958
69 W

Pub 14/10 Circ 13/10 Rest

Pub.

8517

Dup.

In Sec. No 10, W 3/11:

January 1883, after a long correspondence & much discussion, the Secy. of State was requested to send out for the Salt Dept, a steam launch of the description given at above page 2 of the Proc. of Govt.

In the Proc. now Communicated (Sec. Rev. Dept Dy No 1156 dy 21 Sept 83) the Pub. dept is requested to take the needful steps for the speedy supply of two more launches for the Salt Dept.

The question now is as to the description of launches to be ordered out.

Dy No 8517

S.a.w.

109

It is not very clear which class should be adopted, but as the steam launch from Europe will no doubt be very expensive, and as the cost of the launches will form a very important element in the comparison between the two, one required should be as inexpensive as can be managed, due regard of course being paid to efficiency. I am inclined to think I should therefore be right in procuring launches from the Calcutta or Bombay dockyard. The specification would be that of Col. Sankey's No 743 E. 14th Sept. 1882 with the amendments (duly carried) but with the important modification that the maximum draught is to be 2 ft.

I am to request, in forwarding this, that you will inform the Board that these two launches should be sent out without difficulty by the beginning of next year, say in January. I presume he anticipates that he can get them to work in January. This is 4 months hence, & whether we send the order to England or Calcutta the above is clearly impossible. The Resolution of Board of Revenue is dated 22nd August in Mr Elliot's letter (in which he asks that every steps may be taken in the matter) & August 1st order of Government to Pub. Dept for the "speedy supply" of the two Launches is dated 21st Sept. No time must be lost in the issue of any order in dealing with the matter & such order should be issued by August.

Col
3/10.

1735 D 25.9.78
- 2739 K - W 31.10.79
- 595 W 11.3.80
Despatch 16 of 1880 D 16.3.80
B 216 W 14.5.81
- 1258 W 18.5.81
C.E. 2636 - 10.11.81
- 2714 17.11.81
- 2983 9.12.81
- 3059 16.12.81
- 2261 27.1.82
743 E 14.9.82
2076 C 14.11.82
A 107 W 11.1.83
Despatch 51/107 W 11.1.83
A 1135 W 16.4.83

Rd 14.10 Cir 13/10 R 10/10

8517

110

Dw.

In G.P. No 107, W 3/11 January 1883, after a long correspondence & much discussion, the Secy. of State was requested to send out for the Salt Dept; a steam launch of the description given at page 2 of the Proc. of Govt. In the Proc. now Communicated (Ch.P. Rev. Dept Dy 1156 dy 21 Sept 83) the P.W. Dept is requested to take the needful steps for the speedy supply of two more launches for the Salt Dept.

The question now is as to the description of launches to be ordered out.

Mr Bles 1900

2968
Govt 29.69 WJ 13-10-13 110

Ct No 8517 - Steam launches for the Emore & Cuveling Units for the Salt Dept.

These Notes are connected with the above Ct which was returned to Madras on the 15/10/13

with enquiries

P. Cu 15/10 17/10.

Represented

1735 d 25.9.78

118

Dw.

In Lt.P. No 107 W 3/11
January 1893, after a
long correspondence &
much discussion, the
Secy. of State was re-
quested to send out
for the Salt dept, a
steam launch of the
description given at
page 2 of the Pro. of Govt.
alone
In the Pro. now
Communicated (Lt.P. Rev.
Dept Dy 1156 dy 21st Sept 93)
the Pb. dept is requested
to take the needful
steps for the speedy
supply of two more
launches for the Salt
Dept.

The question now
is as to the description
of launches to be
ordered out.

Mr Bles says

appreciation

24 21

Pd 14.10

in para 9 of his letter forwarded with Govt. of the Board of Rev. No. 2464 of 22.8.93, with regard to the launch already ordered - "No doubt this will be an expensive vessel for she is to be built to satisfy different conditions Steamers now required, he thinks, might be more ordinary Launches of a maximum draught of two feet fore & aft - He says also that "they will not require any special fittings or modification of usual design" -

In requesting the Secretary of State to send out the two additional launches, orders are required on behalf from the Superintendent at page 2 of P.C. No. 107 of 15 Jany 1883 will be modified.

As the point for consideration is whether

with reference to the remarks of the Govt of India contained in P.C. No 1135 W of 16 April 1883, the order for the launches should not be sent to the Marine Dept at Calcutta -

The Calcutta Dockyard failed previously to meet the requirements of this Govt, & the Bliss in the present correspondence advocates getting these boats from England.

For orders.

Ch
5/10/93

Rs 2968 W

PUBLIC WORKS DEPARTMENT.

113

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 18th October 1883

READ the following

Proceedings of the Revenue Department No. W. 1156 of 20th September 1883

Sanctioning certain Establishments for the Kistna Tangadur & Pulicat Salt Factories Ennore Circle & regulating the Public Works expenditure thereon for the current year

In the foregoing Proceedings the Public Works Department is requested to take the needful steps for the supply of two Launches and Cutcherry for the Ennore and Cuddalore Circles of the Salt Department.

2. With reference to G.O. No. 1135 W dated 6th April 1883, it is considered in this department that, prior to ordering the launches out from England, the suggested by the Commissioner of Salt the application should be

be made for their Con-
-struction either in the
Calcutta or Bombay
Dock yards.

3. The Director of
Indian Marine will
therefore be requested
to furnish with the
least practicable delay
an estimate of the Cost
for launch of the
description now required.

No. 2983 Marine Dept. dated 23.

To
The Director of
Indian Marine
Calcutta.

Sir

With reference to
your letter to the Govt.
of India No 375 dated
28th February 1883
and previous Correspon-
dence on the Subject
of which I am directed

To Marine Dept—1st
" Board of Rev.
" Comm. of Rev. &c.
Secy
21/10

to state that two additional
steam launches are urgently
required by the Admiralty
Salt Department and to
request that you will be
good enough to furnish
this office with the earliest
practicable delay with
an estimate of the Cost if the
same if made up either
in the Calcutta or Bombay
Dock yards.

2. The specification
for these launches would
be that given in Colonel
Sankey's letter to your address
No. 643 E dy 14th Septr/82
and its annexed memo-
-randum but with this
important difference as to
the maximum draught
which should be two feet.

3. In forwarding
the estimate I am
to request that you will
be good enough to state
the probable time within
which the order could be
complete

115

PUBLIC WORKS.