

GOVERNMENT OF MADRAS.

MARINE DEPARTMENT.

READ—the following paper:—

Additional recommendations respecting the Marine Survey operations on the coast of India for the season 1883-84.

The former printed programme for "Investigator" should be adhered to, with the additional point in view, that the request of the Chief Commissioner of British Burma regarding the extension of the Cheduba Strait survey to Sandoway and Tongoup should, if time admit of it, be carried out.

The officers suggested for the "Investigator" are as follows:—

Commander L. S. Dawson, R.N.,	Surveyor in charge.		
Lieutenant A. Channer, R.N.,	Assistant Surveyor,	1st class.	
Mr. H. B. Simpson, I.M.,	"	3rd	"
" St. L. S. Warden, I.M.,	"	4th	"
" H. A. Livermore, I.M.,	"	4th	"
" G. Mathias, I.M.,	"	4th	"

2. *No. 1 Boat Party.*—Can proceed as formerly suggested. The scale proposed for the enclosed harbour of Quilon should be 8 inches to the nautical mile and not 6 inches as formerly stated.

The following are the officers of which No. 1 Boat Party should consist:—

Navigating Lieutenant T. C. Pascoe, R.N.,	Assistant Surveyor,	1st class.	
Mr. W. H. W. Searle, I.M.,	"	3rd	"
" A. G. Mallock, I.M.,	"	4th	"
Bulwant Rájáram,	Native Assistant Surveyor.		

3. *No. 2 Boat Party.*—There is no necessity for this party to again visit Akyab, as I find, except the topography, that for all practical purposes the chart of Akyab made last season will suffice for the purposes of navigation. Alteration is, therefore, needed in the programme for No. 2 Boat Party.

The port officer at Akyab, who has charge of the gig, tents and certain stores appertaining to No. 2 Boat Party, should be communicated with at once and instructed to forward the same to Calcutta dockyard.

Vizagapatam should be proceeded with as early as possible, after which, if the Madras Government can lend a small steamer for the purpose, the Sacramento Shoal, mentioned by the port officer of Madras as requiring to be properly charted, should be searched for and examined.

Calingapatam requires to be surveyed; the trade is increasing and the position of the sunken rocks in the neighbourhood not perfectly known. February and March are the most favorable months for conducting the survey.

This might be undertaken by No. 2 Boat Party after finding the Sacramento Shoal. Local inquiry should be made by the officer in charge regarding a place of refuge for the Steam Cutter and the experience of the commanders of the coast steamers solicited and benefited by.

Pending the arrival of the officer of the Royal Navy to take command of this party, Mr. P. J. Falle may, I consider, be entrusted with the temporary charge. The *personnel* should be as follows:—

Mr. P. J. Falle, I.M.,	Assistant Surveyor,	2nd class.	
" E. J. Beaumont, I.M.,	"	3rd	"
One Native Surveyor to be procured at Calcutta or Madras.			

I propose that No. 2 Boat Party should leave Poona October 2nd by train, arriving at Calcutta October 5th, and that leaving Calcutta October 11th by British India steamer, they should arrive at Vizagapatam October 17th.

The survey of Cheduba Straits will be undertaken on the completion of the survey of Rangoon; much depends upon the extent to which the latter survey is carried as affecting the time at which that of Cheduba can be commenced; but I should consider the latter end of February to be the approximate date.

POONA,
19th September 1883.

(Signed) L. S. DAWSON, Commander, R.N.,
In charge of the Marine Survey of India.

No. 1292.

Endorsement on the above.

Copy of the foregoing forwarded to the Chief Secretary to the Government of Madras for the information of His Excellency the Governor in Council in continuation of No. 696 S, dated the 4th July 1883.

MILY. (MARINE) DEPT.,
FORT WILLIAM,
21st December 1883.

(By Order.)
(Signed) A. CROOKSHANK, Lieut.-Col.,
Offg. Dy. Secy. to the Govt. of India.

ORDER—dated 8th January 1884, No. 8, Marine.

Communicated to the Master Attendant and to the Collectors concerned in continuation of G.O., No. 393, dated 27th July 1883, Marine.

(True Extract.)

E. F. WEBSTER,
Chief Secretary.

To the Master Attendant, Madras.
„ Collectors concerned.
Copy to the Public Works department.

Exd. J. Henricus.

P. W. D.

Govt. of (1884) Madras.
MARINE.



Issued

Recd.

Encl.

G.O., 8th January 1884, No. 8.

JANUARY.

Marine Survey.

Communicating to the Master Attendant and to the Collectors concerned endorsement of Government of India forwarding additional recommendations respecting the — operations on the coast of India for the season 1883-84.

With Order

25TH FEBRUARY 1884, No. 82, MARINE.

GOVERNMENT OF MADRAS.

MARINE DEPARTMENT.

READ—the following paper :—

Proceedings of the Government of India, Military (Marine) department, dated Fort William, 13th February 1884, No. 181.

Navigation—Marine Surveys.

Read—

Copy of a telegram from the Director of the Indian Marine, to the Secretary to the Government of India, Military (Marine) department, dated the 11th February 1884.

My letter 5648, November 13th, 1883. Dawson proposes that, as Madras Government cannot lend steamer for the survey of Sacramento Shoal, number two boat-party should proceed from Calingapatam to Negapatam. Please telegraph whether Government have any objection to change proposed in sanctioned programme.

Copy of a telegram from the Secretary to the Government of India, Military (Marine) department, to the Director of the Indian Marine, dated the 13th February 1884.

Yours eleventh. No objection survey Negapatam after Calingapatam.

Endorsement on the above.

Forwarded to the Chief Secretary to the Government of Madras for information, in continuation of No. 1292, dated the 21st December 1883.

(By Order.)

(Signed) A. CROOKSHANK, Lieut.-Col.,
Offg. Dy. Secy. to the Govt. of India.

ORDER—dated 25th February 1884, No. 82, Marine.

Communicated to the Master Attendant in continuation of previous orders, and to the Collector of Tanjore, who will afford every assistance to the surveying party.

(True Extract.)

E. F. WEBSTER,
Chief Secretary.

To the Master Attendant, Madras.

„ Collector of Tanjore.

„ Public Works department.

Exd. J. W. Fischer.

No 117 W d/15th Jan/84

Communicated
to the officers concerned
in continuation of
G.O. 2192 W
9th August 1883.

/Sgt/ A.S.S.

No 117 W d/15th Jan/84

S. E. I Circle

S. E. IV — a —

S. E. VI — a —

No 621 wdfb March/84

Communicated to the
Suptg. Engr. VII Circle

(Signed) J.H.

P. W. D.
Govt. of (1884) Madras.
MARINE.

Issued

Recd.

Encl.

G.O., 25th February 1884, No. 82.

No 621 wdfb March/84

FEBRUARY.

Marine Survey.

Communicating to the Master Attendant, and to the Collector of Tanjore with instructions, correspondence received from the Government of India regarding certain change in the programme of — operations.

Suptg. Engr. VII Circle.

With order

16TH JULY 1885, No. 296, MARINE.

GOVERNMENT OF MADRAS.

MARINE DEPARTMENT.

READ—the following paper :—

To the Director of the Indian Marine, dated Military (Marine) department, Simla, the 30th June 1885, No. 862.

Navigation—Marine Surveys.

In reply to your letter, No. 2549, dated the 16th June 1885, I am to inform you that the Government of India approve of the programme of Marine Survey operations for the season, 1885-86.

Forwarded to the Secretary to the Government of Madras, Marine department, with copy of programme.

(By Order.)

(Signed) A. CROOKSHANK, Col.,
Deputy Secy. to the Govt. of India.

Copy to the Secretary to the Government of Bombay, Marine department.
" " Chief Commissioner of British Burma.

ENCLOSURE.

Recommendations for carrying out the Marine Survey of India for the Season, 1885-86.

H. M.'s I. M. S. "INVESTIGATOR"

AND

No. 2 MARINE SURVEY PARTY.

The chain of islands, lying off the south end of Tennasserim in British Burma, called the Mergui Archipelago number some three hundred of all sizes and forms, from half a mile long to twenty-three miles in length. The protected passage through this group is two hundred and forty miles long, and saves a considerable detour to ships proceeding up and down the coast from Singapore and Penang, to Pakchan, Mergui, and Tavoy.

To completely survey such a large group would take several years even on a small scale, but the direct route may be defined and the most difficult passages examined in one season, and this is proposed to be done by the "Investigator" assisted by No. 2 Boat Survey Party.

Owing to the large outcrop of work from last season it is not anticipated that the survey parties will leave Poona before the second week in October, the fair draughting of 15 or 16 charts, besides the reproduction of several for photozincography, coupled with the necessity of making fair tracings of the whole, will keep the present parties, temporarily reduced by sickness and leave, fully employed till that date.

H. M.'s I. M. S. "Investigator" receiving her crew and stores early in October will take on board the officers and crew composing No. 2 Boat Survey Party with their instruments, &c., and be prepared to start, on the completion of the fair sheets at Poona.

Having lately received from England an excellent steam-sounding machine, she will commence a line of deep sea-soundings south of Cape Comorin, which will be continued across to Burma passing between the Andaman and Nicobar Islands.

Putting into Mergui, local assistance, it is hoped, will be obtained so far as borrowing an extra steam launch, a cargo boat, and material for making marks.

The Chief Commissioner of Burma will shortly be communicated with as to the loan of two interpreters.

No. 2 Boat Party will prepare their boats for service which were left in Burma at the end of last season, and another detached party of two officers and two boats will be fitted out from the "Investigator."

The ship and the two parties will then take up positions about twenty miles apart on the line of route and commence the triangulation. When some sixty miles of route is thus triangulated the boat parties will be left to fill in details and finally sound out the passage so far. In the meanwhile the "Investigator" will continue the main triangulation, returning from time to time to re-provision, or move the parties from one part of their survey to another.

Prominent natural features, such as lofty island peaks, will be fixed by angles from this central triangulation, so that the most western islands of the Archipelago, frequently reported by sailing vessels to be out of position, may in turn be correctly fixed by back angles taken from them.

The whole season, from October to the end of April, will be devoted to this intricate but useful route.

NO. 1 MARINE SURVEY BOAT PARTY.

This party, under Lieutenant Helby, R.N., having last season made a complete survey of Bhávnagar creek, Káthiáwár, on a 20-inch scale, as far down as the lighthouse at the entrance, cannot do better than continue the survey of its approaches as far south as Perim Island, Cambay.

This may be done on a scale of 3 inches to the nautical mile, and should show the eastern edge of the bank on which Perim Island appears to stand.

To do this, considerable local aid will be required, and the State Engineer of Bhávnagar has been communicated with in regard to the loan of larger steam launches, the erection of beacons, and extra tide watchers.

It is possible that this survey may be completed by February or early in March, in which case the party should be moved to Diu Head where a small but convenient harbour of refuge, called Mohdwa bay, has long called for a survey. The officer in charge could suit the remaining weeks of the season by extending the survey of this harbour more or less eastward according to the time at his disposal, but the scale should be six inches to a mile. The Gáikwár of Baroda has not yet been communicated with on this subject, but he will doubtless allow it to be carried out.

It is quite an understood matter now that Marine Surveys on Indian coasts are directly connected with the Revenue Surveys, and that the tidal data of charts is to be in harmony with the computations of the tidal and levelling operations in India.

POONA,
5th June 1885.

ALFRED CARPENTER,
Commander, R. N.,
In charge of Marine Survey of India.

ORDER—dated 16th July 1885, No. 296, Marine.

Communicated to the Master Attendant.

(True Extract.)

Mammie

Ag. Under Secy. to Govt.

To the Master Attendant, Madras.
„ Collector of Tinnevely.
„ Revenue department.
„ Public Works department.

B. no 2192 w. 9. 8. 83
" 117 w. 15-1-84
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(4) Dec 6688
Govt. of (1885) Madras.

MARINE.

No 1825 w. 6th August 1885.

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30.7.85

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Recd. 30/7/85

Encl.

G.O., 16th July 1885, No. 296.

No 1825 w. 6th August 1885.

JULY.

Marine Surveys.

Communicating to the Master Attendant the programme of the Marine Survey operations for 1885-86 as approved by the Government of India.

29TH JULY 1886, MIS. No. 422, MARINE.

GOVERNMENT OF MADRAS.

MARINE DEPARTMENT.

READ—the following paper :—

From the Officiating Secretary to the Government of India, Military (Marine) Department (Navigation—Marine Surveys), to the Director of the Indian Marine, dated Simla, 9th July 1886, No. 740.

In reply to your letter, No. 1953, of the 26th June 1886, I am desired to inform you that the Government of India approve of the programme of Marine Survey operations for the season 1886-87.

Copy of the above, with copy of programme, forwarded to the Chief Secretary to the Government of Madras, for the information of His Excellency the Governor in Council.

(By Order.)

(Signed) J. E. BROADBENT, Captain, R.E.,
Asst. Secy. to the Govt. of India.

Programme of Marine Survey Operations for Season 1886-87.

By the programme of work for 1885-86 it was intended to devote the entire past season's work of H.M.I.M.S. *Investigator* and one boat party to the survey of the Mergui Archipelago. Owing, however, to the employment of the Marine Survey Party with the Burma expedition up the Irrawaddy river during the months of November, December, and January, the southern half of the Archipelago remained unfinished.

That part, however, immediately affecting trade to Mergui, both from north and south, was completed on a scale of two inches to a mile, and comprises nearly the whole of the intricate portion of the beaten track. There still remains the actual track in which from time to time, since the old survey in 1850, pinnacle rocks have been reported with, in some cases, insufficient data to locate them exactly. It was proved during last season's visit that the positions of the islands were correctly charted, and it is now proposed to complete the charts to present requirements by sounding out the beaten track and by fixing accurately the dangers lately discovered.

There is still so much work required on the more populous parts of British India coasts that no attempt will be made for many years to come to survey the actual coast of Southern Burma between Tavoy and Pakchan.

The *Investigator*, leaving Bombay on the 25th October, will convey No. 2 Boat Party to Burma and then proceed to carry out the above. On finishing this, about the end of the year, she will proceed to Chittagong with the object of re-sounding the flats that lie off that port between the Megna river and the south patches, so as to give vessels accurate soundings by which to feel their way along in the thick weather of the south-west monsoon or through the fogs of the north-east.

The soundings have always been insufficient here to enable ships to navigate safely round the projecting sands from the mouths of the Megna.

This piece of work will be surveyed on a scale of four miles to an inch and will entail the use of a well-found hoy or lighter to form a movable astronomical station at the western limit of the chart, without which there would be no check on the error introduced into the long lines of soundings, by the influence of the tides.

Should these soundings be completed by the 10th March, the time may be well employed up to the beginning of April in connecting Kyauk-pyu harbour to the Cheduba Survey of 1884, a small portion of that coast having been left unexamined at the end of that survey.

The Tripalur reef on the Madras coast having been found to extend much farther than was previously supposed, will be examined by the *Investigator* on her return voyage towards Bombay. Various small discrepancies on the south-west coast of India also require examination, and will, with the Tripalur reef, occupy the time of the Survey Party until the 15th May when the *Investigator* should again be laid up for recess.

No. 2 Boat Survey Party.

The Commissioner of Tenasserim having asked for a survey of the ports of Yé and Hinzé, the former of which is a small but flourishing river port, it is proposed that this party, whose boats and stores are lying at Rangoon, shall be conveyed to that port by the *Investigator* at the end of October, and make a survey from the entrance of the Yé river up to the town of that name on a scale of 4 inches to a mile. Should time admit, the party would proceed on the Hinzé and make a cursory examination of that inlet which forms a large basin amongst the hills. From present evidence it appears improbable that Hinzé will ever form a working port.

When the *Investigator* visited it in April last, the surf was so high on the off-lying banks that it was quite unsafe to approach the entrance.

No. 1 Boat Survey Party.

This party having carried the survey of the approaches to Bhavnagar last season right across to the eastern shore of the Gulf of Cambay, cannot do better than continue the survey seaward down the Sutherland channel, taking in the Gulwala banks. It will, however, be a small scale survey requiring much steaming about and the use of two hoys or pattimars as mark boats, the land being very low and difficult to see. This will occupy No. 1 Party the entire season.

(Signed) ALFRED CARPENTER, Commander, R.N.,
In charge Marine Survey of India.

ORDER—dated 29th July 1886, Mis. No. 422, Marine.

Communicated to the Port Officer, Madras, and to the Collectors of Chingleput, Malabar, and South Canara.

(True Extract.)

E. F. WEBSTER,
Chief Secretary.

To the Port Officer, Madras.
" Collector of Chingleput.
" " of Malabar.
" " of South Canara.
" Revenue Department.
" Public Works Department.

B. No. 2086 W. d/18 Aug. 1886

Recorded

1/24/86

Exd. P. L. Periera.

S.E. II + VI f

for information

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J.W.G. No. 6275

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29TH JULY 1886, MIS. No. 422, MARINE.

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530

No. 2 Boat Survey Party.

Recd. 12.8.86

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(Signed) ALFRED CARPENTER, Commander, R.N.,
In charge Marine Survey of India.

ORDER—dated 29th July 1886, Mis. No. 422, Marine.

Communicated to the Port Officer Madras, and to the Collectors of Chingleput, Malabar, and South Canara.

(True Extract.)

Indulmutter

Chief Secretary.

- To the Port Officer, Madras.
- " Collector of Chingleput.
- " " of Malabar.
- " " of South Canara.
- " Revenue Department.
- " Public Works Department.

B. No. 2086 W. 2/18 August 1886

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Recorded

13/8/86

Exd. P. L. Periera.

IV 4
28/11/86

for information

2 copies

Sent to
Indulmutter

Asst. Secy.

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20/8/86