

**GENERAL REPORT ON THE
OPERATIONS OF THE
MARINE SURVEY OF INDIA,
FOR THE YEAR 1879-80**

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General Report on the Operations of the Marine Survey of India, for the year 1879-80 by A. Dundas Taylor

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A. DUNDAS TAYLOR

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ON THE OPERATIONS OF

The Marine Survey of India,

FOR THE YEAR

1879-80.

PREPARED FOR SUBMISSION TO THE GOVERNMENT OF INDIA

BY

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SUPERINTENDENT OF MARINE SURVEYS.



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GENERAL REPORT
ON THE OPERATIONS OF
The Marine Survey of India,
FOR THE SEASON
1879-80.

Dated Calcutta, the 1st March 1881.

SECTION I.
GENERAL REPORT.

I have the honour to submit, for the information of the Government of India, my Annual Report of the proceedings of this Department during the surveying year commencing on 1st October 1879 and ending 30th September 1880, giving full details of my inspection of nearly every light-house around the coast of India, of certain cursory examinations of ports executed by myself when on tour, together with the systematic surveys carried out by the Executive Staff of the Department and the out-turn of work in the Drawing Branch and Office,

2. My preliminary General Report on India light-houses, dated 1st June 1879, and printed in last year's Report, was accepted by the Government of India as indicating the necessity of a thorough inspection of all light-houses with the view of ascertaining more particulars regarding the several small lights which have lately been erected or require erection around the seaboard. The Government of India, therefore, gave orders that I should carry out such an inspection, commencing in October 1879 and furnishing a full and detailed report of all the light-houses visited, with such proposals as I deemed it advisable to make; but that attention should be immediately called to any matters requiring, in my opinion, prompt correction. Combining light-house visitation with desultory examinations of the various ports, this inspection tour lasted till the close of April. My General Report (see Appendix A) was duly submitted to the Government of India, and thereupon a resolution, dated 13th August 1880, was issued by the Department of Finance and Commerce thanking me "for the clear exposition of the requirements of each light or port visited," and desiring the local Maritime Governments and the Administration of British Burma to consider my suggestions and "take such measures as they consider necessary for placing the lights in their respective provinces in a satisfactory condition." The Governor General in Council also remarked that "general inspections, such as have been undertaken by Commander Taylor in the two past years, need not in future be made yearly by an officer of the Supreme Government. The whole responsibility for bringing promptly to notice defects in the lights and light-houses rests on the local officers, who should submit annual inspection reports and statements of receipts and expenditure on light-houses, which should be communicated to the Government of India, with the orders of the local Governments or Administration on them, as soon as possible after the close of each official year."

8. I will now state my movements in connection with the light-house inspection. Taking advantage of an opportunity of proceeding to False Point in the Indian Government steamer *Undaunted*, in company with Captain Stiffe, Port Officer of Calcutta, I left Calcutta in that vessel on 7th October 1879. At False Point, having previously engaged the small steamer *Eliza*, I took soundings to correct the existing chart, as Reddie Point had extended considerably northward since the last examination; great changes in the depths of water were known to have occurred, and the spit and fairway buoys had consequently been moved. This re-examination having occupied us two days, we proceeded thence in the *Undaunted* to Pooree, where we inspected the small light and took a few soundings off the port to supplement the coast chart, which previously to my visit showed a complete blank off Pooree. Whilst at Pooree we were informed by Mr. Armstrong, the Collector of the district, that for several years regular monthly measurements had been taken of the breadth and depth of water at the entrance to Chilka Lake, both at high and low tides. These observations are now made fortnightly and forwarded to this Department, where they are recorded for future reference. The information will be valuable in case of another famine in Orissa, as cargo boats, in tow of a steam launch, could enter the lake with some confidence and so distribute grain in the neighbourhood.

4. We left Pooree on the 10th October, and, having such excellent landmarks as Jagannath temple and the black pagoda, took more soundings along the coast and in the neighbourhood of Davy River, near which the British ship *Philosopher* had been totally wrecked about a fortnight previously. We then entered the Dhamra River and inspected the port of Chándballi, where we found that the channel buoys required to be shifted, but that no local means of weighing or painting them were available. I landed on Shortt's Island, which lies on the south side of Dhamra River entrance, and am quite satisfied that a small light-house could easily be built there. A thorough survey of the Dhamra River entrance, together with the adjacent coast southward and the Palmyra reefs, is much required; but to make a complete examination a steamer properly fitted and equipped is absolutely necessary, and the fine weather of December and January should be selected for conducting the survey of Palmyra's shoals. I returned to Calcutta on the 15th October on the completion of this inspection.

5. On the 7th November I proceeded by rail to Bombay and embarked on board the Indian Government steamer *May Frere* for the purpose of visiting the gulfs of Cutch and Cambay with the intermediate coast ports. On this occasion Captain Baird, R.E., Superintendent of Tidal and Levelling Operations, conveyed to Bhavnagar the self-registering tide-gauge which His Highness the Thakore of Bhavnagar had purchased. On the 12th November we examined the Portuguese port of Diu, and ascertained that it would be easy to erect a tide-gauge at some future time near this place. In paragraph 14 of my General Report upon Indian lights (see Appendix A) I described the kind of light which is needed for Diu Head. In the next two days I inspected Porbunder and Dwarka lights. We then proceeded to Bet harbour and I visited Sainia light; the result of my examination and correspondence with the Baroda Durbar has been that an all-round dioptric light of the fourth order—which is to be obtained from Messrs. Chance Brothers of Birmingham—has been sanctioned for this little islet, whilst the present light apparatus will be transferred to Dwarka. From the 15th to 19th November I inspected all ports and lights between Dwarka and Bhavnagar, as detailed in the General Report (Appendix A), and I recommended the erection of a small revolving light on Diu Head.

6. Between the 20th and 24th November I utilised the *May Frere* in taking some lines of soundings off Bhavnagar and Gogo, and here I may mention that Mr. W. Proctor Sims, C.E., the Executive Engineer of the Durbar, has been making a sectional survey of Bhavnagar creek to be incorporated with my recent work outside the light-house of that place, showing the deep channel into the port. The Bhavnagar Durbar obligingly lent me their Executive Engineer's bunder-boat, which was most useful both for sounding and for the purpose of landing to inspect all the Cambay Gulf lights. I also visited the mouth of the Kim or Kantiajal creek, and, as we had to wait till nearly half

flood before a boat drawing four feet water could enter, it is obvious that the idea of making this creek the Guzerat terminus for a steam ferry is quite unreasonable. In my remarks at page 82 of my Annual Report for 1878-79 I expressed my preference of the village of Karanj, near Bhagwa, but at the mouth of Kantiajal-Kari, as the most likely position for the Guzerat terminus.

7. I inspected the Tapti and Bulsar lights on the 25th and 26th November. So small a steamer as the *May Frere* could not anchor nearer than six miles from the small light at the last-named place, and a large steamer must not come within nine miles, otherwise she would be liable to ground at dead low-water. Between Bulsar and Bombay there is not a light, but one is needed near Dānu-point, as mentioned in my report. Having thus finished the inspection of lights in the Gulf of Cambay, we returned to Bombay, arriving there at noon of the 28th November. In the remaining days of that month I inspected the Pronga and Kenery lights and the light-vessels at the mouth of the harbour.

8. On the 2nd December I left Bombay in the *May Frere*, and proceeded to Ratnagiri, where I inspected the light on the highest bastion of the old fortress. In the forenoon of the 4th we anchored off Malwan, where a few hours were spent in examining the lights, as also in obtaining bearings and angles to test the positions of the buoys, and taking soundings throughout the inner harbour; the corrected chart has since been sent to the Hydrographer. On the same day I landed on the outer Vingorla rocks and inspected the light. Afterwards we examined the two lights on the top of Vingorla point. These lights, vertically placed 20 feet apart, are reported by the commanders of coasting steamers as most efficient; their original cost was about half that of the Vingorla rocks apparatus.

9. Having obtained permission from His Excellency the Governor General of Portuguese India to make an inspection of the Goa light-house, I visited the Agoda light-house on the 6th December, and subsequently selected a site for a light-house in Marmagao harbour, having been requested by the Governor of Goa to do so. We then proceeded to Karwar, where I examined the Oyster rocks light, and afterwards to the Coompta light-house, which was also inspected. In the forenoon of the 9th December we arrived off Mangalore and I inspected the light-house. The following day, with the assistance of the boats of the *May Frere*, I examined the bar of Mangalore River and the channel inwards, and also took fresh measurements along the coast sand to determine the changes that have occurred since last south-west monsoon. The corrected chart has been forwarded to the Hydrographer of the Admiralty.

10. The Government of Madras having placed the steamer *Margaret Northcote* at my disposal, I left Mangalore in that vessel and inspected the light-houses at Cannanore, Tellicherry, and Calicut. At the latter place I also took bearings to fix the positions of certain buoys recently relaid by the Port Officer, and prepared a corrected Notice to Mariners on the subject. Having completed this work on the 12th December, we left Calicut and arrived at Cochin on the following day. At that port the light-house was inspected and bearings were taken to determine accurately the positions of the bar buoys; and, as the sand had accumulated westward of the light-house, measurements of it were taken again. I subsequently went with the Port Officer to see the Cruz Milagre Gap (about 2 miles northward of the river mouth), where the sea made a breach about 10 years ago; but this opening has now been effectually closed by the local engineers. It is satisfactory to know that *now*, in consequence of that gap being stopped, there is a greater depth by more than one foot on the bar of Cochin. The great out-rush of tidal and storm water from Cruz Milagre Gap considerably diminished the volume from Cochin entrance, and the result was that after four or five consecutive monsoons, the ridge of sand, which forms Cochin bar, was forced bodily inwards by the hammer of the monsoon swell to the extent of 700 feet; and where the bar buoys formerly stood in 13 feet, I found nearly 20 feet on the occasion of this visit.

11. On the 14th December we left Cochin and proceeded to Aleppey, where I inspected the light as it was burning. In the forenoon of the 15th we anchored off Quilon, where I landed and took bearings and angles to fix the position of the new factory chimney, which is the best leading mark into the anchorage; I also made additions to the soundings and obtained a copy of