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(1) பக்கங்களின் எண்ணிக்கை 67
(2) புதுக்கித் திருப்பிய நாள் 4/07
(3) ஆதாரங் குறிப்பவர் சுருக்கொப்பம்

மிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

MARINE துறை

அரசாணை எண். 430
ழ. கோப்புத் தாள் எண்.

அச்சகம்
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நாள் : 20/12/1861 199

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பாதுகாப்பு பிரிவு – 1.
செப்பனிடுபவர் பெயர்
செப்பனிடுவதற்காக எடுத்துக் கொள்ளப்பட்ட நாள் 7/06
செப்பனிட்டு முடித்த நாள் 4/07
சரிபார்க்கும் முதல் மு. நி. பா. எ. கையொப்பம் 20/4/07
சரிபார்க்கும் 2ம். நி. பா. எ. கையொப்பம் 13/7/07
ஆராய்ச்சி உதவியாளர் கையொப்பம் 16/8/07

Proceedings of the Madras Government, Marine Department, *20th December* 1861.

Read again Proceedings 26th July 1861, No. 242.

Read also the following papers :—

No. 50. From J. J. FRANKLIN, Esq., Superintendent of Marine; to T. PYCROFT, Esq., Chief Secretary to Government, Marine Department, Fort Saint George, dated 25th November 1861, No. 3,300.

I have the honor to inform you that, in compliance with the 1st paragraph of the Order recorded in Proceedings of Government of the 26th July last, No. 242, I forwarded to the Master Attendant at Cochin instructions, copy of which is appended, regarding the examination of the mud bank off Narrakal. The report just received is likewise forwarded, and as I look upon it as containing information of the greatest importance to the Maritime community, I beg to recommend that it be published with the previous papers for the purpose of being furnished to the Chief Marine authorities at all Indian ports. It ought also to be made generally known at the India House for the information of Commanders of ships bound to India.

2. The facts brought to light by Captain Castor, who has evidently bestowed great pains on the investigation, are that about half a mile south of the village of Narrakal, which is situated about five miles north of Cochin, a bank of very soft mud commences and continues some four or five miles in a northerly direction, extending to seaward about three miles, with soundings gradually increasing to 5 fathoms; that upon this bank during the heaviest weather that has been experienced during the past monsoon (which however was a moderate one) a perfectly smooth sea reigned in 3 fathoms, and that in 5 fathoms only a gentle undulation was experienced, insufficient to endanger in the slightest degree even small boats; that the bottom throughout is good holding ground; and that on the shore, while a heavy surf was breaking north and south of this favored spot and the Cochin bar impassable, not a ripple was to be observed.

3. It appears moreover that, although the European community at and near Cochin were not aware of the advantages that existed so close to them, they had long been well known to the neighbouring fishermen and the natives navigating the coast. The extract from the old Dutch work describing a voyage to the various parts of the Indian seas in 1774 to 1778, quoted in the 15th paragraph of Captain Castor's report, likewise shews that the same peculiarities, although since modified, existed nearly a century ago. It may therefore be reasonably expected that whatever change does take place will be very gradual, and that for present purposes the bank may be considered stationary.

4. These points being admitted, it remains to be considered what steps should be taken to render the place as useful as possible.

5. During the fine season on the Malabar Coast, or from September to April inclusive, the sea is generally very smooth, and little difficulty exists in conducting shipping transactions at Cochin. All the mercantile firms being settled there, I doubt whether they would care to have their shipping operations removed to a distance of five or six miles from their immediate supervision, and moreover there is this objection to any attempt at present, at any rate, to transfer the port of Cochin to Narrakal, that it is situated in the territory of the Rajah of Cochin. But it frequently occurs that vessels, either through ignorance, or from having made longer or shorter passages than expected, come on the coast during the south west monsoon which prevails during the remainder of the year, and when frequently a mountainous and always a heavy sea is running. Other vessels are also often backward in loading or unloading in Cochin roads, and similarly find themselves on a dangerous coast. To these some few facilities to enable them to take advantage of the safety afforded by the Narrakal mud bank would be most serviceable, and for the present I think we may confine ourselves to this.

6. I would propose therefore that a white obelisk about 40 feet high should be built on a spot to be selected by Captain Castor, somewhere abreast of the best anchorage; that directions for anchoring should be drawn up by the same officer; and as the water is very shoal towards the beach, that a small wooden jetty on piles be constructed to enable boats drawing 2 or 3 feet to load and unload alongside.

From J. J. FRANKLIN, Esq., Superintendent of Marine; to Captain CASTOR, Master Attendant, Cochin, dated 1st August 1861, No. 2,188.

In forwarding you a copy of the Proceedings of Government of the 26th ultimo, No. 212, on the subject of your report on the anchorage off Narrakal, I have to request that you will make a point of visiting that place during the remainder of the present monsoon on any occasion of a strong breeze or gale. Any expenses while so employed will be allowed.

2. In the event, however, of any ship being in distress at Cochin and requiring your services, you will of course postpone your visit to Narrakal until the necessity for the delay has passed.

3. The principal points which you will be required to report upon will be: 1st, the condition of the sea in 4 to 5 fathoms during heavy monsoon weather, and the state of the beach at similar times, noting whether the limits of smooth water alter with a shift of wind or current. I notice in Lieutenant Selby's chart, copy of which is in your Office, that 2 fathoms and in one place as little as 1 fathom is marked on the bank at a distance of 1½ mile from the newly formed sea beach. To render the anchorage secure it will not be sufficient that the sea should subside here, its force must be broken further out.

4. From the nature of the formation and the fact of its not having been generally known although so near to Cochin, I conclude that it is of recent origin, perhaps more recent than stated by the fishermen, who in common with other natives are vague on the subject of dates. And being recent it is probably still extending. You will endeavour to obtain the best information on this point from the natives on the spot, and with Lieutenant Selby's survey, which was executed in 1851-53, might be able to detect whether it had increased much during the intervening time.

5. With these observations I leave it to you to carry out the Orders of Government, feeling confident that you will not fail in affording the fullest information in your power.

(True Copy.)

(Signed) J. J. FRANKLIN,
Superintendent of Marine.

From Captain JOHN CASTOR, Master Attendant; to J. J. FRANKLIN, Esq., Superintendent of Marine, Madras, dated Cochin, 16th November 1861, No. 306.

In obedience to the Order of Government dated 26th July 1861, No. 212, conveyed to me in your letter of instructions dated 1st August, No. 2,188, I have the honor to submit a Supplemental Report on the anchorage of Narrakal.

2. During the S. W. monsoon just passed, the place was visited by me on every occasion the weather was in any way disturbed, so as to afford me an opportunity of observing the state of the sea, and other peculiarities on the mud bank.

3. Before I proceed to notice the facts which came under my observation, I must record the circumstance, which is not without some importance, that the monsoon this year has been one of unusual mildness, so far as it has reference to the force of the wind, although the sea has been frequently very high.

4. My particular attention was directed to the [illegible] fathoms, the water below three fathoms having invariably retained its stillness. Between the two depths beforementioned, the water is comparatively smooth; there was a little swell, though neither its force nor its height would have disturbed even a small vessel at anchor.

5. It is in a W. N. W. direction from the village of Narrakal, that the sea subsides in the depths I have named; but to the south the bank being narrower, the deep water, as well as the stillness are at a less distance from shore, and to the north, the water is shallower, and smooth further out to sea.

6. In the ordinary course of professional observation, I would have pronounced the anchorage in the depths mentioned; smooth, and the little swell which has been perceptible to a close and continued scrutiny, would have passed unnoticed by a casual Mariner anchoring on the ground on an open coast.

7. The beach, on every occasion I visited the spot, was perfectly still, and beyond what the wind would create on a lake or tank, there was nothing remarkable; but there was no surf or sea arising from the ocean swell thrown on the beach, as in other parts of sea shores.

8. Whether the limits of smooth water alter with any shift of wind or current, I regret the mild state of the monsoon, and the absence of violent shifts of wind, afforded me no opportunity of deciding. The [illegible] it appears smoother during the ebb than the flood tides. When the sea rages high on the adjacent shores, the formation and extent of the bank are clearly defined by the rising swell without the limits, contrasting greatly with the smooth surface of the water within.

9. There appears to be a singular feature in connection with this locality, which is worthy of note, though it would be desirable to keep it under observation with a view to further elucidation. The more turbulent the sea became in the contiguous parts, the greater stillness seemed to prevail on this bank. This peculiarity not only presented itself to me but to others who visited the spot; and attracted the attention of the Commander of the "John Cobbold" to which ship allusion was made in my former report. The only way this phenomenon could be accounted for, is by the turbulence of the surrounding sea disturbing the mud in suspension, and increasing the density of the water on the bank.

10. The soundings I obtained, differ somewhat from those marked in Lieutenant Selby's chart. I have been very carefully over a large extent within the space of the dotted line, embracing the anchorage of Narrakal, but my efforts to discover the spot marked one and two fathoms, 1½ mile from the shore, have proved unsuccessful.

11. From further enquiries, I find that the existence of the bank is more generally known than at first I was led to believe. The Syrang and Tindals of coasting craft, with whom I have conversed on the subject, state that its still anchorage has been known among them for years, and is commonly resorted to during gales of wind. Without exception they all bear testimony to the total absence of surf on the beach; and the safety and security which the place affords.

12. The statements of the natives and fishermen, residents of the place, confirm those of the coasting seamen; but on questioning them as to the limits of smooth water in very heavy weather, their replies are vague and unsatisfactory. This probably is owing to their not venturing out in very bad weather, and the usual indefiniteness of this class of men on subjects requiring close observation. But to the still condition of the beach in all weathers, the evidence is unanimous and conclusive.

13. The question as to whether the bank is of recent formation, or of long existence being one of vital importance to the subject in its future bearings, I have gathered the fullest information I could obtain. Living witnesses not only confirm its duration to 30 years back, but shew its advantages as a place of refuge. The depositions* which accompany this letter will bear out these facts. I must be permitted at the same time to embody two references one of recent, and another of older date, tending to prove the existence of this bank at a remote period.

14. The late Captain Biden, who was ever watchful on matters tending to promote the interests of navigation, on his visit to this coast in 1841, must have had his attention drawn to the subject of the bank; for among the recorded enquiries made by him on that occasion, in connection with Cochin, I find the following:—

Q.—"There is said to be a particular sort of mud bank parallel with the coast, and near "Cochin, on which vessels may anchor in stress of weather, and if they part from their anchors, "the nature of the ground is such, that they will suffer no material injury if they drift on shore "upon the mud; I have heard that a large ship was disabled and rode out some blowing weather "on this bank and was refitted there, where is the bank? What distance from Cochin and what "is its extent, the soundings indicated thereon, &c."?

The subjoined reply was furnished by the late Fiscal.

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* Six in number.

A.—"This bank is situated at Pooryapoolly about 9 miles to the north of Cochin within the "Cochin Circar's territories, the extent of it is about six miles and the soundings from one to "seven fathoms."

15. The other reference is from the translation of an old work† written by a Dutch Navigator who traded with this coast between the years of 1774-78. In a description of Cochin and its neighbourhood, I find the following notice with reference to this bank:—

"The coast is safe and clear every where along the Company's Establishment, except at the "mouth of the river of Cranganore. South of the abovementioned mouth of the river of Cranga-"nore there is a bay formed of mud banks; the banks forming which extend full a league out "to Sea, and into which vessels may run with safety during the bad monsoon, and may lie in "twenty and less feet water, almost without anchors or cables, in perfect security against the "heavy seas which then roll in upon this lee-shore, as they break their force upon the soft mud "banks, and within them, nothing but a slight motion is perceived."

16. I find an allusion to the Allipee bank in a work descriptive of this coast entitled "A new History‡ of the East Indies" by Captain Cope, published in London in 1755. I cannot refrain from quoting the passage, though not bearing directly on the bank under notice, as it proves the existence for at least a century of a bank similar in its general features to the one in question, and affords strong collateral evidence of the permanent effects of these mud formations.

"Mud Bay is a place that I believe few [illegible] parallel in the world. It lies on the shore of "St. Andrea,§ about half a league out in the "sea, and is open to the wide ocean, and has "neither island nor bank to break off the force of the billows, which come rolling with great "violence on all other parts of the coast, in the south-west monsoons, but, on this bank of mud, "lose themselves in a moment, and ships lie on it, as secure as in the best harbour, without "motion or disturbance. It reaches about a mile along shore, and has shifted from the north-"ward, in thirty years, about three miles."

17. By Lieutenant Selby's survey in 1851-53, and the information I obtained from the natives of the place, I find that the bank has somewhat shifted to the southward; and the Bay alluded to in the account given in 1778, in all probability, is the ground recovered by the recedence of the sea, and the shifting of the bank, and which is now occupied by paddy fields and cocoanut plantations.

18. The Allipee bank is said, whether correctly or not, I cannot affirm, to have shifted a little to the southward. But the much further advance of the one at Narrakal in the same direction is a matter of less likelihood, from the following circumstance: Situated as it is, in close proximity to an estuary which discharges an immense volume of water to the northward and westward, I am inclined to the [illegible] this tidal stream so impetuous during the greater period of the year, will arrest any considerable progress towards the south.

19. The long existence of the bank can now scarcely be doubted, supported as it is on reliable testimony derived from various sources, and written at different periods, extending even to the last century. Its future permanency can safely be inferred from its past duration—and the induction is strengthened by the almost undisturbed existence, from a remote date, of a similar phenomenon within the same degree of latitude; resembling each other in their general characteristics; and exposed to the same external influences.

20. I will take the liberty of submitting, as arising out of this enquiry, a few observations regarding the anchorage of Narrakal. As a rule, the greatest difficulty and danger experienced in all open roadsteads, where the beach is subject to the action of the surf, is in landing and embarking; but when once over the range of the surf, the danger and difficulty are comparatively surmounted. The communication with the shore is generally interrupted, not so much by the height or force of the swell in the roadstead as by the dangers of the surf at the point of landing and embarking. Where these dangers are entirely absent, as at Narrakal, the mere existence of a swell in the anchoring depths, even should it prevail, cannot tend seriously to disturb shipping operations.

21. Again, [illegible] high sea prevails in an anchorage, the danger to boats is remote, unless there is broken water; but as heavy crested waves have never been seen on this bank, in the depths alluded to, as far as my observation goes, it forms an additional security to free and safe communication.

22. In a gale of wind, it would be difficulty to assert with safety that the limits of smooth water would be strictly preserved. Experience demonstrates that a sea may be created by the violence of a hurricane or a gale even in comparatively sheltered harbours, and should the same effects be produced here by a like cause, they should not of themselves form an objection to the place, considering the general security of the anchorage and the stillness of the beach in all weathers. In the event of serious accidents, the place will still, from the nature of the ground, offer the same security to life and property, that a sheltered harbour would under similar circumstances.

23. I beg to conclude this report by soliciting your attention to the accompanying papers, marginally noted, consisting of original letters from various Commanders of ships in this port during the S. W. monsoon; extracts of a Journal kept by me during my visits to Narrakal; and a Tabular Statement of the depths with their respective distances from shore.

Cover marked A, contains six original letters.
C. Extracts Master Attendant's Journal.
D. Tabular Statement of depths.

24. I beg to subjoin a Chemical Analysis of the mud which was taken from the bank, and sent to Madras. I am indebted to Captain Mitchell, in charge of the Madras Government Central Museum, for the information.

From Lieutenant J. MITCHELL, Officer in charge of the Government Central Museum; to Captain J. CASTOR, Master Attendant, Cochin, dated 17th October 1861, No. 116.

I have the honor to acknowledge, with my best thanks, the receipt this morning of the bottle of mud from the Narrakal bank.

2. Between the despatch of my first letter and the receipt of your reply, a small quantity (about half a cubic inch) of the mud was sent to me for examination; so far as I have ascertained it consists of:

1st. Very minute angular fragments of Quartz, the largest hardly visible without a lens; this is the sand.

2nd. Of Foraminiferous shells of the Genus Rotalia and a few fragments of larger shells.

3rd. Of Diatomacea, of which I have species from upwards of 20 Genera.

4th. A few Specules of sponges and Corals, very minute, and

5th. Some Amorphous matter which was not destroyed after long boiling in strong acids.

3. The liberal supply just received will doubtless afford many more specimens of the Diatomacea and perhaps of the Foraminifera besides those named above.

(True Copy.)

(Signed) JOHN CASTOR,
Master Attendant.

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† Voyage to the Cape of Good Hope, Batavia, Samarang, Surat, East Indies, &c., &c., in the year 1774-78, Book III, Chapter 12.

‡ A new History of the East Indies by Captain Cope, published in London in 1755.

§ St. Andrea is situated about six miles north of Allipee.

From JOHN L. RENELLS, Esq., Master of the "John Cobbold;" to Captain JOHN CASTOR, Master Attendant, Cochin, dated 13th June 1861.

In compliance with your request, I have much pleasure to give you a few particulars regarding the place Narrakal abreast of which I discharged nearly the whole of my cargo during the prevalence of the south west monsoon.

I arrived in Cochin on the 22nd M[illegible] found [illegible] getting boats off owing to the heavy sea on the bar, however I managed to discharge about 50 tons of cargo when the sea about the 25th, increased so high, that all communication with the shipping was at an end. Having heard of a place situated six or eight miles to the north of this, where it was said that owing to a mud bank no surf or sea prevailed, and that no difficulty will be experienced in landing my cargo, or remaining at anchor, I was induced, in company with Mr. Pierce, the Agent of the vessel, to visit the place. I was astonished at the pond-like stillness of its shore, and the smooth sea around.

I returned to Cochin, and as no boats could get off to the ship, I signalled to the Chief Officer to get underweigh and proceed to the north about six miles, and to stand off and on until I boarded him. I myself proceeded by the backwater to Narrakal and went off to the ship, which fell a little to leeward. On the 1st June, I anchored on the mud bank referred to in five fathoms, soft bottom, and discharged the remaining portion of my cargo, with as much ease as if I was lying in the Thames.

During my stay off Narrakal, the weather was very bad at times, blowing in smart squalls with heavy rains; the sea breaking heavy on the adjacent parts of the coast, and no communication could have been held with the ship, were she in Cochin roads; while here I was lying in smooth water, scarcely moving, and discharging my cargo, and landing whenever I wished [illegible]

I have no doubt from the interest you take in these matters, you will bring the place to the notice of Government, and insure a wide publicity being given to the circumstance that no place on this coast, from Kurrachee to Cape Comorin, not even excepting Allipee, affords so safe an anchorage during the south west monsoon, as the locality I have here described.

As you have visited the place yourself, I will not lengthen this communication by suggesting any thing; but leave the whole matter now in your hands, as I am sure it will receive every attention.

From Mr. T. REGNAUD; to Captain J. CASTOR, Master Attendant, Cochin, dated Vypeen, 5th July 1861.

Having had the pleasure to visit in your company that part of the Malabar coast called *Narrakal*, I consider it my duty as a Mariner, to convey to you the remarks I have made regarding that place.

Firstly, at my arrival there, I was struck by the contrast existing between the Cochin, Vypeen and Malapoorum shores where the sea breaks heavily, to the smoothness of the sea at Narrakal, not only on the beach but as far as the eye could see in the offing, though the breeze [illegible] number of fishermen in rather small sized canoes at no less a distance than two or three miles off shore; also on being told that it was a thing of daily occurrence all round the year, the bank being full of fish.

I attribute the quietness of Narrakal roads to the nature of the muddy ground, and therefore strongly recommend it as the best place for vessels to ride at anchor in bad weather, and the only place in the vicinity of our Port convenient to land and ship cargo during the south west monsoon.

No peculiar mark existing inland to warn Mariners of their approach of the place, it would therefore be advisable to exhibit a light on a column, or flagstaff as a guidance.

I must before concluding tell you that the few remarks contained herein are sincere and not the least exaggerated.

(4)

The writer of this letter is a French gentleman, formerly Commander of a ship, and now a resident of Cochin, and engaged on mercantile pursuits.

(Signed) J. CASTOR.

From Mr. J. BLUNDIN, Commander of the French Bark "Anjelina"; to J. CASTOR, Esq., Master Attendant, Cochin, dated 12th July 1861.

Having had the pleasure of visiting with you that portion of the Malabar coast called Narrakal, I think it my duty as passed Captain to bring to your notice the observations which I made at this place.

Immediately upon my arrival there I was astonished at seeing the contrast which exists between the coasts of Cochin, Vypeen and Maliapoorum where the sea is constantly very high rendering the approach impossible, and the smooth sea at Narrakal, not only upon the immediate coast, but as far as the eye can reach. I was also surprised to see the large number of fishing boats of ordinary size, two or three miles from the shore, and to learn that this was the case, all the year round, the bank being very abundant of fish.

I attribute the smooth sea in the Port of Narrakal to the mud of which the bottom is composed, and would strongly recommend it to ship Captains as excellent holding ground for anchorage, and the only one in the neighbourhood of Cochin, in which it is possible to load and discharge vessels during the south west moonsoon.

No particular mark exists upon the coast to indicate the approach to the spot to seamen.

It would therefore be most urgent that a light should be exhibited, or that a flagstaff sufficiently high to overtop the cocoanut trees be erected, in order to indicate the anchorage.

In conclusion I beg to state that the following remarks are offered in all sincerity.

From THOMAS JONES, Esq., Master Mariner, Barque "Emu"; to Captain JOHN CASTOR, Master Attendant, Cochin, dated 29th July 1861.

In compliance with your request for me to give you my opinion of the capabilities and advantages of Narrakal, as a harbour of refuge during the south west monsoon, I have the honor to inform you,

That in consequence of the reports I had heard circulated, and the many paragraphs in the Cochin Courier, pro and con. the usefulness of the place, I was induced to make a trip there myself in company with a principal of one of the first Mercantile houses in Cochin, and found to my great surprise, that although the sea was breaking heavily on all the adjacent coast, north and south of it, that the place itself to the extent of about 3 miles of beach, was perfectly smooth, and scarce a ripple to be seen to seaward.

I consider it to be a most valuable *auxiliary* to the port of Cochin, during the prevalence of the *south west monsoon*, as it is well known that a ship of any considerable draft of water arriving in that season, would not be able to enter the port without lightening, which could not be effected, in the usual way by boats from Cochin, owing to the impracticability of crossing the bar at that season, but might be done very easily at Narrakal, particularly so, if there was a small jetty ran out, from 20 to 30 yards, so that 3 boats might lay alongside and discharge at the same time.

The steam communication between Bombay and Cochin, might also by that means be continued during the whole year, without any interruption from local causes, which I think would in itself be a great benefit to Cochin.

It being out of place here to give any opinion on the natural *phenomena* of the place, or the causes of the *bituminous* appearance of its waters, I leave that to more able and scientific men than myself, to investigate and report upon.

From Captain THOMAS HARRISON, Commander of the Bark "Glenaln"; to Captain CASTOR, Master Attendant, Cochin, dated 16th August 1861.

Having since my arrival here heard a great deal in favour of Narrakal as a safe anchorage during the S.W. monsoon, and having at your request made a journey to, and examination of, the place, I beg leave to lay before you my opinions of its appearance and utility. On the occasion of my visit on the morning of the 8th instant, a strong surf was rolling at the entrance of Cochin and along the coast as far as the eye could reach, thus affording a tolerably good opportunity of forming a judgment as to the capabilities of Narrakal as an anchorage.

On reaching Narrakal I found the sea perfectly smooth, with scarcely a ripple either on its surface or against the beach, the activity of the waves being completely deadened by a soft mud bank extending a great distance from the shore. At a distance of a mile and a half (measured) W.S.W. from the beach, abreast of the village, at about 2¼. flood, I found 25 feet water, the bottom of good holding mud, the surface of the water of a very peculiar oily appearance, and a gentle swell from the westward, but nothing to endanger even the fishing canoes, although the surf was breaking heavily along the coast to the southward. In sounding as I pulled off from the beach I found the mud very soft for the first half mile, after which it grew gradually more tenacious as I proceeded seaward. The apparent large extent of the bank to the northward prevented my seeing any surf in that direction. I could see no mark of any sort that might assist in finding Narrakal.

So much for the appearance of the place, now, secondly, as to its utility.

A knowledge of this secure anchorage during bad weather, must be of great value to any Master of a disabled vessel.

I am of opinion that with good ground tackling a vessel might here ride out any storm, or if [illegible] absence of any sea, drive on to the mud with little danger of receiving material injury, and, what is of more importance at such a time, without the dread of losing life.

Boats also, containing crews of vessels lost through fire, foundering at sea, or any of the various casualties by which vessels are lost and the crews saved, might land here easily when from surf other parts of the coast are unapproachable.

Vessels bound to, and unable to get into Cochin may land cargo here and send it to its destination by backwater, as I believe was lately done in the case of the "John Cobbold."

Narrakal may, I am firmly of opinion, be made a valuable auxiliary to the port of Cochin, and I can only conclude by saying that I am well pleased at having learned its existence.

The writer of this letter is the Commander of the Bark "Glenaln."

(Signed) J. CASTOR.

From ROBERT H. PIERCE, Esq.; to Captain JOHN CASTOR, Master Attendant, Cochin, dated 23rd August 1861.

I am in receipt of your letter, No. [illegible], 1861, asking me to furnish you with any information it may be in my power to afford respecting the neighbouring port of Narrakal, and I have much pleasure in complying with your request. Finding it impossible to continue discharging the "John Cobbold" at this place in May last, the Master and myself had come to an agreement to unload her at Alipee, having heard however some years since that it was frequently quite smooth during our heaviest weather at a point a little to the northward of Maliapooram. I, before the ship left for Alipee, sent a peon to inspect the state of the coast in the neighbourhood of that place, the account the man gave on his return was so favorable that the Captain at once agreed to accompany me to the place and see if we could turn it to account; we accordingly went there on the morning of the 28th of May, and found the sea so perfectly smooth and resembling the state of things at Alipee that the Captain consented to move up and anchor off the place; he accordingly on returning to this, signalled to the ship to stand up coast 6 miles and wait for orders, he then

went up himself, got a fishing boat and stood off for his ship, in consequence however of a strong current to the north, he was some hours in reaching her, this was on the 30th, and he did not anchor till the morning of the 1st June; he informed me that on coming in to where he anchored, he passed through in 6 fathoms water a broad belt of very thick muddy water, that here he first found the sea losing its force and that he gradually drew into smooth water, clear but with mud bottom; he lay as quiet as if he were in an harbour during the whole time he was there although outside him, and along the adjacent coast there was heavy sea on. I experienced no difficulty whatever from the sea in landing the cargo, but of course had great trouble with the boatmen who had to be taken from this, as well as boats; we landed a great many large tanks on rafts made by lashing 2 canoes together with a few bamboos as a platform, and not a single accident happened. The sea on the beach was always as smooth as glass, and the Captain was out constantly in his own boat sounding during the time he was anchored off the place, the ship's long boat too was left riding at anchor some little distance from the ship all the time she was there. I have had a good deal of experience in shipping at Alipee during the south west, monsoon, and I consider Narrakal quite equal if not superior to Alipee, indeed had I had any idea some years since that the bank at Narrakal was so extensive and afforded such good anchorage and facilities for shipping and landing goods, I should never have used Alipee. When we paid our first visit to the place we approached it from Maliapoorum, the surf on the beach kept getting duller and the water more intensely muddy, as we drew near the bank, the water seemed so heavy and dense with mud that it could not rise and break, and this fact coupled with the observation of Captain Rendle that he passed through a belt of thick muddy water before coming to his anchorage, leads me to conclude that in the density of the sea from the presence of a large body of mud in it which mud is stirred up on the edge of the bank by the action of the sea itself, we have the real cause of the smooth anchorage, the belt of liquid mud forming a natural and self-acting breakwater the more valuable [illegible] more dense, the rougher the weather is outside.

This gentleman represents the Firm of Messrs. Wilson Ritchie and Co., and was the Agent to the "John Cabbold," which vessel discharged her cargo at Narrakal in June last.

(Signed) J. CASTOR.

I am a Syrang, and I have commanded two or three coasting vessels. I knew the existence of the mud-flat off Narrakal when I was an Apprentice lad to my father, who also was a Syrang out of this port, and I have often been to the place. For the last five years I have been in charge of small vessels myself. During the heavy gale which blew in Cochin in April 1859, I happened to be in the roads, in command of the Schooner "Ariel," belonging to Messrs. A. C. Brice and Co., of this Port, and parted my best bower chain, I let go a second anchor, which did not hold. I immediately slipped and proceeded to Narrakal and brought up with a kedge and hawser in three fathoms. The water was perfectly smooth in the roads, I landed in a canoe between Nairambolom and Narrakal, in total absence of surf on the beach. The sea was very high on the adjoining coast.

(Signed) BAVA MEERAN,
Syrang.

COCHIN, *6th August* 1861.

During the gale alluded to in this statement, there was a tremendous sea running at the time. I witnessed the Schooner leaving the roads, but was not aware at the time where she ran to find shelter.

(Signed) JOHN CASTOR,
Master Attendant.

Questions put to Mr. D'Aranjo, late Fiscal of Cochin, by the Master Attendant, with reference to the mud bank off Narrakal.

Q.—How long back do you remember the mud bank north of this Port, off Narrakal?	*A.*—About twenty-five years.
Q.—Did you ever visit that part of the coast where it is situated?	*A.*—Yes.

Q.—Did you observe any surf breaking on the beach on the bank ?	*A.*—No.
Q.—Do you remember if any vessels, coasting or otherwise, which sought shelter on this bank during gales of wind or bad weather ?	*A.*—Yes, Pattamars, &c.
Q.—When you first knew the bank, abreast of what village was it ?	*A.*—This bank I believe is situated between* Coorpally and Iyenpally. You will find a canal from the river to the beach. The southern part of this canal is called Coorpally, and the northern, Iyenpally.
Q.—Was the bank ever examined or surveyed by any one, officially or otherwise ?	*A.*—I believe in the year 1841, Captain Biden, the late Master Attendant of Madras, visited Cochin, when, having mentioned to that gentleman the existence of this bank, Captain Biden together with Mr. Joaquim de Lemes (the then Pilot of this Port) visited the said bank. Mr. Lemes subsequently told me that Captain Biden was much pleased on seeing it and told him that a ship loaded with coal should be kept there for supplying coals to the Steamer.
Q.—Do the fishermen of that part of the coast, where the bank is situated, fish on the [illegible] monsoon ?	*A.*—I was not in the habit of visiting that locality during the south west monsoon.
Q.—Can you tell into what depth of water, or how far they ventured out ?	*A.*—No, I did not take the soundings thereof.
Q.—Was the beach abreast of the bank always free of surf ?	*A.*—From information obtained, I believe it was.

Cochin, *27th August* 1861.

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* Coorpally is about three miles to the north of Narrakal.

-Mr. D'Aranjo is now pensioned, and held the office of Fiscal in this town formerly.

(Signed) JOHN CASTOR,
Master Attendant.

The deposition of WARRID ANTHA, inhabitant of Vypeen.

I am a Ship Carpenter by profession, and had been often employed by the late Mr. Poney Gueizelar, Ship builder of this Port. I am now 66 years of age, and have a perfect recollection of having been engaged with several other workmen about 28 years ago, by the late Mr. Gueizelar, to proceed to the mud—flat off Narrakal, for the repair of a Arab Ship of about 500 [illegible] the end of May or beginning of June. While we worked on board, we experienced no inconvenience from the rolling or pitching of the vessel, as the sea was perfectly smooth. One of the workmen who accompanied me on the occasion referred to, is now living at Cochin. I frequently visited the place since that period, and always found the sea calm and fishermen carried on their occupation there throughout the year. I am prepared, if needed, to affirm this statement upon oath.

His + mark
Cochin, *4th September* 1861. WARRID ANTHA.

Before me,
(Signed) JOHN CASTOR,
Master Attendant.

The deposition of SHERAMALLY, Syrang of the Brig "Mooydeen Bux" of 154 tons, belonging to the Port of Cochin.

I am a Native of this coast, and have been sailing out of this Port in different capacities for twenty years; and for the last eight, I have been in command of the "Mooydeen Bux." I have known the mud bank off Narrakal for many years back, but particularly noticed it within the last 10 years. The sea never breaks on the beach, and I have known vessels in stress of weather frequently resorting to Narrakal, where they lay perfectly still. Within my experience, I have found the sea, comparatively smooth, in 7 fathoms; and from this depth, as the shore is neared the stillness becomes greater. The advantage of the place is commonly known to coasting vessels.

(Signed) SHERAMALLY,
Syrang.

Cochin, *6th November* 1861.

Before me,
(Signed) JOHN CASTOR.

The deposition of DERVISH HADJEE, Agent of His Highness the Imaum of Muscat, residing at Cochin.

I have been a resident of Cochin for upwards of 30 years. I have known the mud bank off Narrakal resorted to by ships in heavy weather. Thirty years ago, the Ship *Hamee Shaw* belonging to the Imaum of Muscat arrived at Cochin during to south west monsoon, disabled but owing to the heavy sea, she could hold no communication with the shore, and proceeded to Narrakal, to have her repairs effected, which was done under the supervision of the late Mr. Poney Gueizelar, Ship builder of Cochin. There was no sea at Narrakal at the time; and the workmen employed on the repairs had no difficulty whatever in going off to, and coming from [illegible]

Five years later, another vessel of the Imaum arrived at Cochin with the loss of her rudder, during the monsoon, and she also, being unable to remain in these roads, proceeded to Narrakal and refitted. The safety of Narrakal as a port, is generally known among the Native community of this Port, and coasting craft frequently resort to the place in bad weather.

العبد
درويش حاجي

Cochin, *6th November* 1861. (Signed) DERVISH HADJEE.

This deponent is personally known to me, and is a very respectable person.

(Signed) JOHN CASTOR.

The deposition of CAIMULT ANDAY, inhabitant of Cochin.

I am a Ship Carpenter by profession, and had been often employed by the late Mr. Poney Gueizelar, Ship builder of this Port. I am now 63 years of age, and have a perfect recollection of having been engaged* by the late Mr. Gueizelar, to proceed to the mud-flat off Narrakal, for the repair of a Arab vessel of about 500 tons, which took refuge there owing to the rough state of the sea at Cochin. It was then about the end of May or beginning of June. While we worked on board, we felt no inconvenience from the rolling of the vessel, as the sea was perfectly smooth. I often visited the place subsequently, and always found the sea calm. The fishermen carried on their occupation there throughout the year.

I am prepared if required to affirm this statement upon oath.

Cochin, *6th November* 1861.

Taken at my Office.

(Signed) JOHN CASTOR.

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* About 28 years ago.

The deposition of Mr. CORNELIUS JOHN GUEIZELAR, Master Ship builder in the Port of Cochin.

About the year 1830, I was serving my time under my late father Mr. Poney Gueizelar, who was Master Ship builder of this Port. In June or July, an Arab vessel of about 500 or 600 tons arrived at Cochin from Muscat, but unable to remain in these roads owing to the [illegible] My father proceeded to the vessel and contracted for the repairs, and supplied Carpenters from Cochin. The vessel remained at Narrakal for a period of two months, and went on to Calcutta. I have frequently been at Narrakal, and always found the sea smooth and without surf.

On another occasion, about fifteen years ago, in the month of August, a vessel arrived in these roads, with the loss of her rudder, but owing to the heavy sea, proceeded on close to Narrakal, and anchored there. I went on board while she was at anchor, and undertook the work. The vessel lay in smooth water at the time. She afterwards came to Cochin when the weather moderated.

(Signed) C. J. GUEIZELAR,
Master Ship Builder.

COCHIN, 16th *November* 1861.

Extracts from the Master Attendant's journal of Narrakal with reference to the condition of the Sea on the mud bank.

Finding the wind and sea increase on the afternoon of the 7th, I resolved to visit Narrakal on the following morning, 8th August 1861.

8th August 1861—Visited Narrakal at 10 A. M. Weather cloudy, with light winds, and occasional squalls. To ascertain the depths from various distances off shore, went prepared with [illegible] in a direction at right angles, or W. S. W. of the coast. First distance, in a straight line of 640 yards, depth 11 feet, bottom very soft, water *perfectly* smooth. Second distance from the termination of the first, in a straight line of 640 yards, depth 15 feet, bottom very soft, water perfectly smooth. Third distance from the termination of the second, in a straight line of 640 yards, depth 20 feet, bottom very soft, a small bubble of a sea. Fouth distance, from the termination of the third, in a straight line of 640 yards, depth 24 feet, bottom soft, a little swell.

I must here observe, that these soundings and distances were conducted on a bearing of E. N. E. of a flag planted on the beach abreast of Narrakal; on this line, and at the distance of 2,560 yards, it takes you off the smooth water, and you are met by the swell, on the confines of the mud-flat. From this limit I pulled away in a N. W. direction, to 5 fathoms, with the village of Narrakal bearing E. b. S to E.S.E. ½ S; found the sea in this locality perfectly smooth, bottom of a more consistent nature, and the sea and swell to the north and south, appearing as they rise, like sand banks at a distance. I was in a canoe of 25 feet long, 2 feet 6 inches wide, and 22 inches deep, and wrote my notes on my knee with little or no inconvenience. Many fishing boats were plying their daily occupation; and the beach was without a ripple. In 4 fathoms Cruz Milagre well open.

Before leaving Cochin I noticed that the bar was impassable, and a tolerable high sea prevailing on the coast to the north and south.

Remarks—Saturday, the 17th August 1861.

Visited Narrakal. Weather squally, and blowing fresh from the westward, with a tolerable heavy sea on the coast, to the north and south. Planted a flag ¼ of a mile to the north of the village, and ascertained the depths as follows. Pursued the same method as adopted on the 8th instant.

First distance in a straight line of 650 yards, flag E. N. E., depth 8 feet 6 inches, sea perfectly smooth, bottom very soft. Second distance, 650 yards, same bearings, depth 13 feet 6 inches, bottom very soft, water very smooth. Third distance, 620 yards, 16 feet, bottom very soft, a small bubble of a sea. Pulled out to 4 fathoms, found a little swell, which would never be felt

or remarked in a small vessel. Seeing a very heavy squall rising to the westward, and the canoes employed on this occasion being very small, pulled in shore. I find to the north of Narrakal, the shoal water extends further out. The beach perfectly smooth, without a ripple.

Monday, the 19th August 1861.

The wind being strong yesterday (Sunday) with unsettled weather, and violent squalls, and a fresh breeze still prevain[illegible] I procee[illegible] Narrakal, and embarked in [illegible] at 1-30 P. M., and pulled out to 3½ fathoms and anchored. Wind west, bottom very soft, sea smooth. Narrakal bearing E. b S.—Cruz Milagre, S. E. Started from this point, and pulled out to 4 fathoms and anchored, bottom soft, Narrakal bearing E. b S. to E. b S. ¼ S. Cruz Milagre, well open, S. E. Pulled out to 4½ fathoms, Narrakal E. b S. Cruz Milagre, S. E. ½ E. Coorpally high tree, N. N. E. ½ E., bottom somewhat sticky, and appears good holding ground. Paid particular attention to the state of the sea. From 3 to 4½ fathoms, there was a little swell, but in nowise to disturb a small vessel at anchor, and as a proof of this, I may mention that the canoe I was in remained at anchor with eight men in her, and I wrote my notes, and took my bearings without any inconvenience. There was as much sea in 4 to 5 fathoms as there would be in Madras roads, with a light sea breeze in the month of March in fine weather. The sea encircling the mud bank, and to the north and south, was high; but, further on to the W. N. W. it appeared smooth. I did not wish to venture further out, as a heavy squall was rising to the westward, and the canoe I was in, small. Found the beach without a ripple. Narrakal E. b S. ¼ S. to E. S. E. appears a good bearing.

Tuesday, the 20th August 1861.

The weather being very unsettled and blowing strong at intervals in squalls, and a heavy sea prevailing on the Cochin bar, I proceeded to Narrakal; but, before I reached there the [illegible] and went into four fathoms, found a [illegible] swell in this depth, but nothing to disturb shipping operations, had ships been lying there. The beach perfectly smooth, and without a ripple. This smoothness extended to some distance from the land.

Thursday, the 22nd August 1861.

The weather being very monsoonish, and blowing strong at intervals, during the night of the 21st, and a very *high* sea prevailing on the coast for these last two days. I visited Narrakal. On arriving at the village, found the margin of the sea without a ripple. Engaged a canoe and pulled out to ¼ less 5 fathoms and anchored. There were a great many fishing boats in this depth pursuing their occupation. I found a gentle swell, as is often noticed in a calm out in the open ocean, occasionally lifting the canoe, but beyond this the boat scarcely moved. The absence of all crested waves was very remarkable, the sea to the north and south was clearly visible and breaking with great force, and its roar was distinctly heard. It may be only fancy, but I cannot refrain from recording that, the more turbulent the sea rages on the adjacent coast, the greater is the stillness which appears to prevail on this bank. I shall carefully watch whether this is a prevailing feature of this locality. Pulled out to 5 fathoms, found the sea in the same state, now and then a little swell. The wind was very light at the time. Narrakal E. b S. ½ S. to E. S. E. Cruz Milagre S. E. ½ E. Coorpally high tree N. E. ¾ E. to N. E. ½ E. bottom sticky and soft. In 18 to 16 feet the sea resembled a tank or pond in its stillness. Had there been any ships in the roads of Cochin, no communication could have been maintained with them from the tremendous sea on the bar.

(True Copy.)

(Signed) JOHN CASTOR,
Master Attendant.

N. B.—Cruz Milagre, or the "Marvellous Cross," takes its name from a Roman Catholic Church which once stood on the beach, about a mile and a half from Cochin. The Church was destroyed by the ravages of the sea. The gap formed in the belt of cocoanut trees which fringes this coast, is still called, "the opening of Cruz Milagre."

(Signed) JOHN CASTOR,
Master Attendant.

Tabular Statement of Depths with their re[illegible]ive distances from shore.

Date.	Abreast of Narrakal.		Na[illegible]re of [illegible]e bo[illegible]om.	Date.	Quarter of a mile to the North of Narrakal.		Nature of the bottom.	[illegible]te.	Half to three-quarters of a mile north of Narrakal.		Nature of the bottom.	
	Distance off shore.	Depth.			Distance off shore.	Depth.			Distance off shore.	Depth.		
1861.	Yards.	Feet.		1861.	Yards.	Feet.		[illegible]61.	Yards.	Feet.		
Aug. 8th..	640	11	Ver[illegible] soft	Aug. 17th..	650	8	Very soft.	Nov[illegible] 13th.	330	2½	Very soft	Independent of th[illegible] results herein indicated, othersoundings were carefully taken on the bank abreast of Narrakal. (Signed) JOHN CASTOR.
„ „ ...	1,280	15	d[illegible] ...	„ „ ...	1,300	13½	do. ...	„ „ ...	660	4½	do. ...	
„ „ ...	1,920	20	d[illegible] ...	„ „ ...	1,920	16	do. ...	„ „ ...	990	9	do. ...	
„ „ ...	2,560	24	Sof[illegible] ...					„ „ ...	1,320	12	do. ...	
								„ „ ...	1,650	12	do. ...	
								„ „ ...	1,980	14	do. ...	
								„ „ ..	2,310	16¾	do. ...	
								„ „ ...	2,640	18	do. ...	
								„ „ ...	2,970	19	do. ..	
								„ „ ...	3,300	21	do. ...	
								„ „ ...	3,630	22	do. ...	
								„ „ ...	4,000	24	do. ...	

The soundings were conducted [illegible] the aid of three boats—two for laying out the lin[illegible] from point to point, one of which alternately remain[illegible] anchor, till the other exhausted the line, and an[illegible]ored. I was in the third boat, following the ope[illegible]ion and sounding at the termination of each leng[illegible] line was previously measured, and strict allow[illegible]nce was made for the bight or deflection caused by [illegible] tide. This method of measuring, in fast pullin[illegible] could not involve any great practical error.

(Signed) JOHN [illegible]TOR

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No. 60. From FRANCIS N. MALTBY, Esq., Resident of Travancore and Cochin; to T. PYCROFT, Esq., Chief Secretary to Government, Fort Saint George, dated 27th November 1861, No. 58.

I have the honor to report for the information of His Excellency the Governor in Council, that I yesterday visited in company with [illegible] Cochin the shore of the sea at N[illegible]

2. Captain Castor the Master Attendant of Cochin met me on the spot.

3. The Government have received full reports on this subject, so that I need not recapitulate the information which has been collected by others, and submitted to them. I shall only state that at the present time the shore is so entirely free from surf that canoes were run ashore with their sails set. Both the Dewan and Captain Castor assured me that during the south-west monsoon the sea had not even the slight ripple which I saw yesterday.

4. Of the value of the bank as a roadstead, I think there can be no doubt, but it has undergone considerable changes, and it will be necessary to watch the movement of the bank for some time, before it can be safe to construct any expensive or permanent works.

5. The course which I have suggested to the Government of His Highness the Rajah of Cochin is, that a timber scaffold be erected on the beach sufficiently conspicuous to guide the shipping to the bank. This should be about 60 to 80 feet in height with a flagstaff on the top. It should be publicly notified that ships are allowed to land their cargo there on giving in their manifests at the neighbouring port of Maliapooram.

6. This, I think, is all that is desirable at present. The place is already convenient for trade, as the beach is only separated from the backwater by a bank of a quarter of a mile, over which there is a ro[illegible] shipping, it would be easy to construct [illegible] jetty on screw-piles, and to bring a [illegible] beach, as at Alipee.

8. As it is desirable that any arrangements made in His Highness the Rajah's territories should be made in concert with the British Government, I have the honor to request that I may be informed, whether the above views meet with the approval of His Excellency the Governor in Council. Should they do so, Captain Castor's assistance in selecting the site for the structure and notifying the bearings of the bank will be valuable.

No. 61. ORDER THEREON, 20th December 1861, No. 430.

Ordered accordingly that Proceedings 26th July last, No 242, and the papers received with the first of the above letters, be published in the Fort Saint George Gazette. The Superintendent of Marine will be furnished from the Gazette Press with as many copies as he may require for distribution as he proposes. Copies will also be sent to the Agent to the P. and O. Company.

2. The Government approve the proposal in Mr. F. Maltby's letter as to the works to be immediately constructed at Narrakal. The Superintendent of Marine will instruct the Master Attendant at Cochin to afford the required assistance.

3. Captain Castor will also be ordered to draw up directions for anchoring. His Excellency in Council desires that the Mud bank be further watched during the next south-west monsoon, and its condition during heavy weather reported.

(Signed) T. PYCROFT,
Chief Secretary.

Exd. F. Cartledge.

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Proceedings of the Madras Government, Marine Department, *20th December* 1861.

Read again Proceedings 26th July 1861, No. 242.

Read also the following papers :—

No. 59. From J. J. FRANKLIN, Esq., Superintendent of Marine; to T. PYCROFT, Esq., Chief Secretary to Government, Marine Department, Fort Saint George, dated 25th November 1861, No. 3,300.

I have the honor to inform you that, in compliance with the 1st paragraph of the Order recorded in Proceedings of Government of the 26th July last, No. 242, I forwarded to the Master Attendant at Cochin instructions, copy of which is appended, regarding the examination of the mud bank off Narrakal. The report just received is likewise forwarded, and as I look upon it as containing information of the greatest importance to the Maritime community, I beg to recommend that it be published with the previous papers for the purpose of being furnished to the Chief Marine authorities at all Indian ports. It ought also to be made generally known at the India House for the information of Commanders of ships bound to India.

2. The facts brought to light by Captain Castor, who has evidently bestowed great pains on the investigation, are that about half a mile south of the village of Narrakal, which is situated about five miles north of Cochin, a bank of very soft mud commences and continues some four or five miles in a northerly direction, extending to seaward about three miles, with soundings gradually increasing to 5 fathoms; that upon this bank during the heaviest weather that has been experienced during the past monsoon (which however was a moderate one) a perfectly smooth sea reigned in 3 fathoms, and that in 5 fathoms only a gentle undulation was experienced, insufficient to endanger in the slightest degree even small boats; that the bottom throughout is good holding ground; and that on the shore, while a heavy surf was breaking north and south of this favored spot and the Cochin bar impassable, not a ripple was to be observed.

3. It appears moreover that, although the European community at and near Cochin were not aware of the advantages that existed so close to them, they had long been well known to the neighbouring fishermen and the natives navigating the coast. The extract from the old Dutch work describing a voyage to the various parts of the Indian seas in 1774 to 1778, quoted in the 15th paragraph of Captain Castor's report, likewise shews that the same peculiarities, although since modified, existed nearly a century ago. It may therefore be reasonably expected that whatever change does take place will be very gradual, and that for present purposes the bank may be considered stationary.

4. These points being admitted, it remains to be considered what steps should be taken to render the place as useful as possible.

5. During the fine season on the Malabar Coast, or from September to April inclusive, the sea is generally very smooth, and little difficulty exists in conducting shipping transactions at Cochin. All the mercantile firms being settled there, I doubt whether they would care to have their shipping operations removed to a distance of five or six miles from their immediate supervision, and moreover there is this objection to any attempt at present, at any rate, to transfer the port of Cochin to Narrakal, that it is situated in the territory of the Rajah of Cochin. But it frequently occurs that vessels, either through ignorance, or from having made longer or shorter passages than expected, come on the coast during the south west monsoon which prevails during the remainder of the year, and when frequently a mountainous and always a heavy sea is running. Other vessels are also often backward in loading or unloading in Cochin roads, and similarly find themselves on a dangerous coast. To these some few facilities to enable them to take advantage of the safety afforded by the Narrakal mud bank would be most serviceable, and for the present I think we may confine ourselves to this.

6. I would propose therefore that a white obelisk about 40 feet high should be built on a spot to be selected by Captain Castor, somewhere abreast of the best anchorage; that directions for anchoring should be drawn up by the same officer; and as the water is very shoal towards the beach, that a small wooden jetty on piles be constructed to enable boats drawing 2 or 3 feet to load and unload alongside.

From J. J. FRANKLIN, Esq., Superintendent of Marine; to Captain CASTOR, Master Attendant, Cochin, dated 1st August 1861, No. 2,188.

In forwarding you a copy of the Proceedings of Government of the 26th ultimo, No. 242, on the subject of your report on the anchorage off Narrakal, I have to request that you will make a point of visiting that place during the remainder of the present monsoon on any occasion of a strong breeze or gale. Any expenses while so employed will be allowed.

2. In the event, however, of any ship being in distress at Cochin and requiring your services, you will of course postpone your visit to Narrakal until the necessity for the delay has passed.

3. The principal points which you will be required to report upon will be: 1st, the condition of the sea in 4 to 5 fathoms during heavy monsoon weather, and the state of the beach at similar times, noting whether the limits of smooth water alter with a shift of wind or current. I notice in Lieutenant Selby's chart, copy of which is in your Office, that 2 fathoms and in one place as little as 1 fathom is marked on the bank at a distance of 1½ mile from the newly formed sea beach. To render the anchorage secure it will not be sufficient that the sea should subside here, its force must be broken further off.

4. From the nature of the formation and the fact of its not having been generally known although so near to Cochin, I conclude that it is of recent origin, perhaps more recent than stated by the fishermen, who in common with other natives are vague on the subject of dates. And being recent it is probably still extending. You will endeavour to obtain the best information on this point from the natives on the spot, and with Lieutenant Selby's survey, which was executed in 1851-53, might be able to detect whether it had increased much during the intervening time.

5. With these observations I leave it to you to carry out the Orders of Government, feeling confident that you will not fail in affording the fullest information in your power.

(True Copy.)

(Signed) J. J. FRANKLIN,
Superintendent of Marine.

From Captain JOHN CASTOR, Master Attendant; to J. J. FRANKLIN, Esq., Superintendent of Marine, Madras, dated Cochin, 16th November 1861, No. 306.

In obedience to the Order of Government dated 26th July 1861, No. 242, conveyed to me in your letter of instructions dated 1st August, No. 2,188, I have the honor to submit a Supplemental Report on the anchorage of Narrakal.

2. During the S. W. monsoon just passed, the place was visited by me on every occasion the weather was in any way disturbed, so as to afford me an opportunity of observing the state of the sea, and other peculiarities on the mud bank.

3. Before I proceed to notice the facts which came under my observation, I must record the circumstance, which is not without some importance, that the monsoon this year has been one of unusual mildness, so far as it has reference to the force of the wind, although the sea has been frequently very high.

4. My particular attention was directed to the condition of the sea from three to five fathoms, the water below three fathoms having invariably retained its stillness. Between the two depths beforementioned, the water is comparatively smooth; there was a little swell, though neither its force nor its height would have disturbed even a small vessel at anchor.

5. It is in a W. N. W. direction from the village of Narrakal, that the sea subsides in the depths I have named; but to the south the bank being narrower, the deep water, as well as the stillness are at a less distance from shore, and to the north, the water is shallower, and smooth further out to sea.

6. In the ordinary course of professional observation, I would have pronounced the anchorage in the depths mentioned; smooth, and the little swell which has been perceptible to a close and continued scrutiny, would have passed unnoticed by a casual Mariner anchoring on the ground on an open coast.

7. The beach, on every occasion I visited the spot, was perfectly still, and beyond what the wind would create on a lake or tank, there was nothing remarkable; but there was no surf or sea arising from the ocean swell thrown on the beach, as in other parts of sea shores.

8. Whether the limits of smooth water alter with any shift of wind or current, I regret the mild state of the monsoon, and the absence of violent shifts of wind, afforded me no opportunity of observing. The water appears smoother during the ebb than the flood tides. When the sea rages high on the adjacent shores, the formation and extent of the bank are clearly defined by the rising swell without the limits, contrasting greatly with the smooth surface of the water within.

9. There appears to be a singular feature in connection with this locality, which is worthy of note, though it would be desirable to keep it under observation with a view to further elucidation. The more turbulent the sea became in the contiguous parts, the greater stillness seemed to prevail on this bank. This peculiarity not only presented itself to me but to others who visited the spot; and attracted the attention of the Commander of the "John Cobbold" to which ship allusion was made in my former report. The only way this phenomenon could be accounted for, is by the turbulence of the surrounding sea disturbing the mud in suspension, and increasing the density of the water on the bank.

10. The soundings I obtained, differ somewhat from those marked in Lieutenant Selby's chart. I have been very carefully over a large extent within the space of the dotted line, embracing the anchorage of Narrakal, but my efforts to discover the spot marked one and two fathoms, 1½ mile from the shore, have proved unsuccessful.

11. From further enquiries, I find that the existence of the bank is more generally known than at first I was led to believe. The Syrang and Tindals of coasting craft, with whom I have conversed on the subject, state that its still anchorage has been known among them for years, and is commonly resorted to during gales of wind. Without exception they all bear testimony to the total absence of surf on the beach; and the safety and security which the place affords.

12. The statements of the natives and fishermen, residents of the place, confirm those of the coasting seamen; but on questioning them as to the limits of smooth water in very heavy weather, their replies are vague and unsatisfactory. This probably is owing to their not venturing out in very bad weather, and the usual indefiniteness of this class of men on subjects requiring close observation. But to the still condition of the beach in all weathers, the evidence is unanimous and conclusive.

13. The question as to whether the bank is of recent formation, or of long existence being one of vital importance to the subject in its future bearings, I have gathered the fullest information I could obtain. Living witnesses not only confirm its duration to 30 years back, but shew its advantages as a place of refuge. The depositions* which accompany this letter will bear out these facts. I must be permitted at the same time to embody two references one of recent, and another of older date, tending to prove the existence of the bank at a remote period.

14. The late Captain Biden, who was ever watchful on matters tending to promote the interests of navigation, on his visit to this coast in 1841, must have had his attention drawn to the subject of the bank; for among the recorded enquiries made by him on that occasion, in connection with Cochin, I find the following:—

Q.—"There is said to be a particular sort of mud bank parallel with the coast, and near "Cochin, on which vessels may anchor in stress of weather, and if they part from their anchors, "the nature of the ground is such, that they will suffer no material injury if they drift on shore "upon the mud; I have heard that a large ship was disabled and rode out some blowing weather "on this bank and was refitted there, where is the bank? What distance from Cochin and what "is its extent, the soundings indicated thereon, &c."?

The subjoined reply was furnished by the late Fiscal.

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* Six in number.

A.—"This bank is situated at Pooryapoolly about 9 miles to the north of Cochin within the "Cochin Circar's territories, the extent of it is about six miles and the soundings from one to "seven fathoms."

15. The other reference is from the translation of an old work† written by a Dutch Navigator who traded with this coast between the years of 1774-78. In a description of Cochin and its neighbourhood, I find the following notice with reference to this bank:—

"The coast is safe and clear every where along the Company's Establishment, except at the "mouth of the river of Cranganore. South of the abovementioned mouth of the river of Cranganore there is a bay formed of mud banks; the banks forming which extend full a league out "to Sea, and into which vessels may run with safety during the bad monsoon, and may lie in "twenty and less feet water, almost without anchors or cables, in perfect security against the "heavy seas which then roll in upon this lee-shore, as they break their force upon the soft mud "banks, and within them, nothing but a slight motion is perceived."

16. I find an allusion to the Allipee bank in a work descriptive of this coast entitled "A new History‡ of the East Indies" by Captain Cope, published in London in 1755. I cannot refrain from quoting the passage, though not bearing directly on the bank under notice, as it proves the existence for at least a century of a bank similar in its general features to the one in question, and affords strong collateral evidence of the permanent effects of these mud formations.

"Mud Bay is a place, that, I believe, few can parallel in the world. It lies on the shore of "St. Andrea,§ about half a league out in the "sea, and is open to the wide ocean, and has "neither island nor bank to break off the force of the billows, which come rolling with great "violence on all other parts of the coast, in the south-west monsoons, but, on this bank of mud, "lose themselves in a moment, and ships lie on it, as secure as in the best harbour, without "motion or disturbance. It reaches about a mile along shore, and has shifted from the north"ward, in thirty years, about three miles."

17. By Lieutenant Selby's survey in 1851-53, and the information I obtained from the natives of the place, I find that the bank has somewhat shifted to the southward; and the Bay alluded to in the account given in 1778, in all probability, is the ground recovered by the recedence of the sea, and the shifting of the bank, and which is now occupied by paddy fields and cocoanut plantations.

18. The Allipee bank is said, whether correctly or not, I cannot affirm, to have shifted a little to the southward. But the much further advance of the one at Narrakal in the same direction is a matter of less likelihood, from the following circumstance: Situated as it is, in close proximity to an estuary which discharges an immense volume of water to the northward and westward, I am inclined to the opinion—not without a strong probability in its favor—that this tidal stream so impetuous during the greater period of the year, will arrest any considerable progress towards the south.

19. The long existence of the bank can now scarcely be doubted, supported as it is on reliable testimony derived from various sources, and written at different periods, extending even to the last century. Its future permanency can safely be inferred from its past duration—and the induction is strengthened by the almost undisturbed existence, from a remote date, of a similar phenomenon within the same degree of latitude; resembling each other in their general characteristics; and exposed to the same external influences.

20. I will take the liberty of submitting, as arising out of this enquiry, a few observations regarding the anchorage of Narrakal. As a rule, the greatest difficulty and danger experienced in all open roadsteads, where the beach is subject to the action of the surf, is in landing and embarking; but when once over the range of the surf, the danger and difficulty are comparatively surmounted. The communication with the shore is generally interrupted, not so much by the height or force of the swell in the roadstead as by the dangers of the surf at the point of landing and embarking. Where these dangers are entirely absent, as at Narrakal, the mere existence of a swell in the anchoring depths, even should it prevail, cannot tend seriously to disturb shipping operations.

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† Voyage to the Cape of Good Hope, Batavia, Samarang, Surat, East Indies, &c., &c., in the year 1774-78, Book III, Chapter 12.

‡ A new History of the East Indies by Captain Cope, published in London in 1755.

§ St. Andrea is situated about six miles north of Allipee.

21. Again, even when a high sea prevails in an anchorage, the danger to boats is remote, unless there is broken water; but as heavy crested waves have never been seen on this bank, in the depths alluded to, as far as my observation goes, it forms an additional security to free and safe communication.

22. In a gale of wind, it would be difficulty to assert with safety that the limits of smooth water would be strictly preserved. Experience demonstrates that a sea may be created by the violence of a hurricane or a gale even in comparatively sheltered harbours, and should the same effects be produced here by a like cause, they should not of themselves form an objection to the place, considering the general security of the anchorage and the stillness of the beach in all weathers. In the event of serious accidents, the place will still, from the nature of the ground, offer the same security to life and property, that a sheltered harbour would under similar circumstances.

23. I beg to conclude this report by soliciting your attention to the accompanying papers, marginally noted, consisting of original letters from various Commanders of ships in this port during the S. W. monsoon; extracts of a Journal kept by me during my visits to Narrakal; and a Tabular Statement of the depths with their respective distances from shore.

Cover marked A, contains six original letters.
C. Extracts Master Attendant's Journal.
D. Tabular Statement of depths.

24. I beg to subjoin a Chemical Analysis of the mud which was taken from the bank, and sent to Madras. I am indebted to Captain Mitchell, in charge of the Madras Government Central Museum, for the information.

From Lieutenant J. MITCHELL, Officer in charge of the Government Central Museum; to Captain J. CASTOR, Master Attendant, Cochin, dated 17th October 1861, No. 116.

I have the honor to acknowledge, with my best thanks, the receipt this morning of the bottle of mud from the Narrakal bank.

2. Between the despatch of my first letter and the receipt of your reply, a small quantity (about half a cubic inch) of the mud was sent to me for examination; so far as I have ascertained it consists of:

1st. Very minute angular fragments of Quartz, the largest hardly visible without a lens; this is the sand.

2nd. Of Foraminferous shells of the Genus Rotalia and a few fragments of larger shells.

3rd. Of Diatomacea, of which I have species from upwards of 20 Genera.

4th. A few Specules of sponges and Corals, very minute, and

5th. Some Amorphous matter which was not destroyed after long boiling in strong acids.

3. The liberal supply just received will doubtless afford many more specimens of the Diatomacea and perhaps of the Foraminfera besides those named above.

(True Copy.)

(Signed) JOHN CASTOR,
Master Attendant.

From JOHN L. RENELLS, Esq., Master of the "John Cobbold;" to Captain JOHN CASTOR, Master Attendant, Cochin, dated 13th June 1861.

In compliance with your request, I have much pleasure to give you a few particulars regarding the place Narrakal abreast of which I discharged nearly the whole of my cargo during the prevalence of the south west monsoon.

I arrived in Cochin on the 22nd May, direct from London, and found great difficulty in getting boats off owing to the heavy sea on the bar, however I managed to discharge about 50 tons of cargo when the sea about the 25th, increased so high, that all communication with the shipping was at an end. Having heard of a place situated six or eight miles to the north of this, where it was said that owing to a mud bank no surf or sea prevailed, and that no difficulty will be experienced in landing my cargo, or remaining at anchor, I was induced, in company with Mr. Pierce, the Agent of the vessel, to visit the place. I was astonished at the pond-like stillness of its shore, and the smooth sea around.

I returned to Cochin, and as no boats could get off to the ship, I signalled to the Chief Officer to get underweigh and proceed to the north about six miles, and to stand off and on until I boarded him. I myself proceeded by the backwater to Narrakal and went off to the ship, which fell a little to leeward. On the 1st June, I anchored on the mud bank referred to in five fathoms, soft bottom, and discharged the remaining portion of my cargo, with as much ease as if I was lying in the Thames.

During my stay off Narrakal, the weather was very bad at times, blowing in smart squalls with heavy rains; the sea breaking heavy on the adjacent parts of the coast, and no communication could have been held with the ship, were she in Cochin roads; while here I was lying in smooth water, scarcely moving, and discharging my cargo, and landing whenever I wished with the ship's boat, without even going through a ripple.

I have no doubt from the interest you take in these matters, you will bring the place to the notice of Government, and insure a wide publicity being given to the circumstance that no place on this coast, from Kurrachee to Cape Comorin, not even excepting Allipee, affords so safe an anchorage during the south west monsoon, as the locality I have here described.

As you have visited the place yourself, I will not lengthen this communication by suggesting any thing; but leave the whole matter now in your hands, as I am sure it will receive every attention.

From Mr. T. REGNAUD; to Captain J. CASTOR, Master Attendant, Cochin, dated Vypeen, 5th July 1861.

Having had the pleasure to visit in your company that part of the Malabar coast called *Narrakal*, I consider it my duty as a Mariner, to convey to you the remarks I have made regarding that place.

Firstly, at my arrival there, I was struck by the contrast existing between the Cochin, Vypeen and Malapoorum shores where the sea breaks heavily, to the smoothness of the sea at Narrakal, not only on the beach but as far as the eye could see in the offing, though the breeze was pretty fresh blowing from the sea: I was also surprized to see a great number of fishermen in rather small sized canoes at no less a distance than two or three miles off shore; also on being told that it was a thing of daily occurrence all round the year, the bank being full of fish.

I attribute the quietness of Narrakal roads to the nature of the muddy ground, and therefore strongly recommend it as the best place for vessels to ride at anchor in bad weather, and the only place in the vicinity of our Port convenient to land and ship cargo during the south west monsoon.

No peculiar mark existing inland to warn Mariners of their approach of the place, it would therefore be advisable to exhibit a light on a column, or flagstaff as a guidance.

I must before concluding tell you that the few remarks contained herein are sincere and not the least exaggerated.

The writer of this letter is a French gentleman, formerly Commander of a ship, and now a resident of Cochin, and engaged on mercantile pursuits.

(Signed) J. CASTOR.

From Mr. J. BLUNDIN, Commander of the French Bark "Anjelina"; to J. CASTOR, Esq., Master Attendant, Cochin, dated 12th July 1861.

Having had the pleasure of visiting with you that portion of the Malabar coast called Narrakal, I think it my duty as passed Captain to bring to your notice the observations which I made at this place.

Immediately upon my arrival there I was astonished at seeing the contrast which exists between the coasts of Cochin, Vypeen and Maliapoorum where the sea is constantly very high rendering the approach impossible, and the smooth sea at Narrakal, not only upon the immediate coast, but as far as the eye can reach. I was also surprised to see the large number of fishing boats of ordinary size, two or three miles from the shore, and to learn that this was the case, all the year round, the bank being very abundant of fish.

I attribute the smooth sea in the Port of Narrakal to the mud of which the bottom is composed, and would strongly recommend it to ship Captains as excellent holding ground for anchorage, and the only one in the neighbourhood of Cochin, in which it is possible to load and discharge vessels during the south west moonsoon.

No particular mark exists upon the coast to indicate the approach to the spot to seamen.

It would therefore be most urgent that a light should be exhibited, or that a flagstaff sufficiently high to overtop the cocoanut trees be erected, in order to indicate the anchorage.

In conclusion I beg to state that the following remarks are offered in all sincerity.

From THOMAS JONES, Esq., Master Mariner, Barque "Emu"; to Captain JOHN CASTOR, Master Attendant, Cochin, dated 29th July 1861.

In compliance with your request for me to give you my opinion of the capabilities and advantages of Narrakal, as a harbour of refuge during the south west monsoon, I have the honor to inform you,

That in consequence of the reports I had heard circulated, and the many paragraphs in the Cochin Courier, pro and con. the usefulness of the place, I was induced to make a trip there myself in company with a principal of one of the first Mercantile houses in Cochin, and found to my great surprise, that although the sea was breaking heavily on all the adjacent coast, north and south of it, that the place itself to the extent of about 3 miles of beach, was perfectly smooth, and scarce a ripple to be seen to seaward.

I consider it to be a most valuable *auxiliary* to the port of Cochin, during the prevalence of the *south west monsoon*, as it is well known that a ship of any considerable draft of water arriving in that season, would not be able to enter the port without lightening, which could not be effected, in the usual way by boats from Cochin, owing to the impracticability of crossing the bar at that season, but might be done very easily at Narrakal, particularly so, if there was a small jetty ran out, from 20 to 30 yards, so that 3 boats might lay alongside and discharge at the same time.

The steam communication between Bombay and Cochin, might also by that means be continued during the whole year, without any interruption from local causes, which I think would in itself be a great benefit to Cochin.

It being out of place here to give any opinion on the natural *phenomena* of the place, or the causes of the *bituminous* appearance of its waters, I leave that to more able and scientific men than myself, to investigate and report upon.

From Captain THOMAS HARRISON, Commander of the Bark "Glenaln"; to Captain CASTOR, Master Attendant, Cochin, dated 16th August 1861.

Having since my arrival here heard a great deal in favour of Narrakal as a safe anchorage during the S.W. monsoon, and having at your request made a journey to, and examination of, the place, I beg leave to lay before you my opinions of its appearance and utility. On the occasion of my visit on the morning of the 8th instant, a strong surf was rolling at the entrance of Cochin and along the coast as far as the eye could reach, thus affording a tolerably good opportunity of forming a judgment as to the capabilities of Narrakal as an anchorage.

On reaching Narrakal I found the sea perfectly smooth, with scarcely a ripple either on its surface or against the beach, the activity of the waves being completely deadened by a soft mud bank extending a great distance from the shore. At a distance of a mile and a half (measured) W.S.W. from the beach, abreast of the village, at about 2*h.* flood, I found 25 feet water, the bottom of good holding mud, the surface of the water of a very peculiar oily appearance, and a gentle swell from the westward, but nothing to endanger even the fishing canoes, although the surf was breaking heavily along the coast to the southward. In sounding as I pulled off from the beach I found the mud very soft for the first half mile, after which it grew gradually more tenacious as I proceeded seaward. The apparent large extent of the bank to the northward prevented my seeing any surf in that direction. I could see no mark of any sort that might assist in finding Narrakal.

So much for the appearance of the place, now, secondly, as to its utility.

A knowledge of this secure anchorage during bad weather, must be of great value to any Master of a disabled vessel.

I am of opinion that with good ground tackling a vessel might here ride out any storm, or if even parting good cables through force of wind—supposing such a thing possible—might, from the absence of any sea, drive on to the mud with little danger of receiving material injury, and, what is of more importance at such a time, without the dread of losing life.

Boats also, containing crews of vessels lost through fire, foundering at sea, or any of the various casualties by which vessels are lost and the crews saved, might land here easily when from surf other parts of the coast are unapproachable.

Vessels bound to, and unable to get into Cochin may land cargo here and send it to its destination by backwater, as I believe was lately done in the case of the "John Cobbold."

Narrakal may, I am firmly of opinion, be made a valuable auxiliary to the port of Cochin, and I can only conclude by saying that I am well pleased at having learned its existence.

The writer of this letter is the Commander of the Bark "Glenaln."

(Signed) J. CASTOR.

From ROBERT H. PIERCE, Esq.; to Captain JOHN CASTOR, Master Attendant, Cochin, dated 23rd August 1861.

I am in receipt of your letter, No. 225, 1861, asking me to furnish you with any information it may be in my power to afford respecting the neighbouring port of Narrakal, and I have much pleasure in complying with your request. Finding it impossible to continue discharging the "John Cobbold" at this place in May last, the Master and myself had come to an agreement to unload her at Alipee, having heard however some years since that it was frequently quite smooth during our heaviest weather at a point a little to the northward of Maliapooram. I, before the ship left for Alipee, sent a peon to inspect the state of the coast in the neighbourhood of that place, the account the man gave on his return was so favorable that the Captain at once agreed to accompany me to the place and see if we could turn it to account; we accordingly went there on the morning of the 28th of May, and found the sea so perfectly smooth and resembling the state of things at Alipee that the Captain consented to move up and anchor off the place; he accordingly on returning to this, signalled to the ship to stand up coast 6 miles and wait for orders, he then

went up himself, got a fishing boat and stood off for his ship, in consequence however of a strong current to the north, he was some hours in reaching her, this was on the 30th, and he did not anchor till the morning of the 1st June; he informed me that on coming in to where he anchored, he passed through in 6 fathoms water a broad belt of very thick muddy water, that here he first found the sea losing its force and that he gradually drew into smooth water, clear but with mud bottom; he lay as quiet as if he were in an harbour during the whole time he was there although outside him, and along the adjacent coast there was a heavy sea on. I experienced no difficulty whatever from the sea in landing the cargo, but of course had great trouble with the boatmen who had to be taken from this, as well as boats; we landed a great many large tanks onr afts made by lashing 2 canoes together with a few bamboos as a platform, and not a single accident happened. The sea on the beach was always as smooth as glass, and the Captain was out constantly in his own boat sounding during the time he was anchored off the place, the ship's long boat too was left riding at anchor some little distance from the ship all the time she was there. I have had a good deal of experience in shipping at Alipee during the south west, monsoon, and I consider Narrakal quite equal if not superior to Alipee, indeed had I had any idea some years since that the bank at Narrakal was so extensive and afforded such good anchorage and facilities for shipping and landing goods, I should never have used Alipee. When we paid our first visit to the place we approached it from Maliapoorum, the surf on the beach kept getting duller and the water more intensely muddy, as we drew near the bank, the water seemed so heavy and dense with mud that it could not rise and break, and this fact coupled with the observation of Captain Rendle that he passed through a belt of thick muddy water before coming to his anchorage, leads me to conclude that in the density of the sea from the presence of a large body of mud in it which mud is stirred up on the edge of the bank by the action of the sea itself, we have the real cause of the smooth anchorage, the belt of liquid mud forming a natural and self-acting breakwater the more valuable as it becomes more dense, the rougher the weather is outside.

This gentleman represents the Firm of Messrs. Wilson Ritchie and Co., and was the Agent to the "John Cabbold," which vessel discharged her cargo at Narrakal in June last.

(Signed) J. CASTOR.

I am a Syrang, and I have commanded two or three coasting vessels. I knew the existence of the mud-flat off Narrakal when I was an Apprentice lad to my father, who also was a Syrang out of this port, and I have often been to the place. For the last five years I have been in charge of small vessels myself. During the heavy gale which blew in Cochin in April 1859, I happened to be in the roads, in command of the Schooner "Ariel," belonging to Messrs. A. C. Brice and Co., of this Port, and parted my best bower chain, I let go a second anchor, which did not hold. I immediately slipped and proceeded to Narrakal and brought up with a kedge and hawser in three fathoms. The water was perfectly smooth in the roads, I landed in a canoe between Nairambolom and Narrakal, in total absence of surf on the beach. The sea was very high on the adjoining coast.

(Signed) BAVA MEERAN,
Syrang.

COCHIN, *6th August* 1861.

During the gale alluded to in this statement, there was a tremendous sea running at the time. I witnessed the Schooner leaving the roads, but was not aware at the time where she ran to find shelter.

(Signed) JOHN CASTOR,
Master Attendant.

Questions put to Mr. D'Aranjo, late Fiscal of Cochin, by the Master Attendant, with reference to the mud bank off Narrakal.

Q.—How long back do you remember the mud bank north of this Port, off Narrakal?	*A.*—About twenty-five years.
Q.—Did you ever visit that part of the coast where it is situated?	*A.*—Yes.

Q.—Did you observe any surf breaking on the beach on the bank?	*A.*—No.
Q.—Do you remember if any vessels, coasting or otherwise, which sought shelter on this bank during gales of wind or bad weather?	*A.*—Yes, Pattamars, &c.
Q.—When you first knew the bank, abreast of what village was it?	*A.*—This bank I believe is situated between* Coorpally and Iyenpally. You will find a canal from the river to the beach. The southern part of this canal is called Coorpally, and the northern, Iyenpally.
Q.—Was the bank ever examined or surveyed by any one, officially or otherwise?	*A.*—I believe in the year 1841, Captain Biden, the late Master Attendant of Madras, visited Cochin, when, having mentioned to that gentleman the existence of this bank, Captain Biden together with Mr. Joaquim de Lemes (the then Pilot of this Port) visited the said bank. Mr. Lemes subsequently told me that Captain Biden was much pleased on seeing it and told him that a ship loaded with coal should be kept there for supplying coals to the Steamer.
Q.—Do the fishermen of that part of the coast, where the bank is situated, fish on the bank during the whole of the south west monsoon?	*A.*—I was not in the habit of visiting that locality during the south west monsoon.
Q.—Can you tell into what depth of water, or how far they ventured out?	*A.*—No, I did not take the soundings thereof.
Q.—Was the beach abreast of the bank always free of surf?	*A.*—From information obtained, I believe it was.

Cochin, *27th August* 1861.

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[*] Coorpally is about three miles to the north of Narrakal.

Mr. D'Aranjo is now pensioned, and held the office of Fiscal in this town formerly.

(Signed) JOHN CASTOR,
Master Attendant.

The deposition of **WARRID ANTHA**, inhabitant of Vypeen.

I am a Ship Carpenter by profession, and had been often employed by the late Mr. Poney Gueizelar, Ship builder of this Port. I am now 66 years of age, and have a perfect recollection of having been engaged with several other workmen about 28 years ago, by the late Mr. Gueizelar, to proceed to the mud—flat off Narrakal, for the repair of a Arab Ship of about 500 tons, which took refuge there owing to the rough state of the sea at Cochin. It was then about the end of May or beginning of June. While we worked on board, we experienced no inconvenience from the rolling or pitching of the vessel, as the sea was perfectly smooth. One of the workmen who accompanied me on the occasion referred to, is now living at Cochin. I frequently visited the place since that period, and always found the sea calm and fishermen carried on their occupation there throughout the year. I am prepared, if needed, to affirm this statement upon oath.

His + mark
WARRID ANTHA.

Cochin, *4th September* 1861.

Before me,
(Signed) JOHN CASTOR,
Master Attendant.

The deposition of **SHERAMALLY**, Syrang of the Brig "Mooydeen Bux" of 154 tons, belonging to the Port of Cochin.

I am a Native of this coast, and have been sailing out of this Port in different capacities for twenty years; and for the last eight, I have been in command of the "Mooydeen Bux." I have known the mud bank off Narrakal for many years back, but particularly noticed it within the last 10 years. The sea never breaks on the beach, and I have known vessels in stress of weather frequently resorting to Narrakal, where they lay perfectly still. Within my experience, I have found the sea, comparatively smooth, in 7 fathoms; and from this depth, as the shore is neared the stillness becomes greater. The advantage of the place is commonly known to coasting vessels.

(Signed) SHERAMALLY,
Syrang.

Cochin, *6th November* 1861.

Before me,
(Signed) JOHN CASTOR.

The deposition of **DERVISH HADJEE**, Agent of His Highness the Imaum of Muscat, residing at Cochin.

I have been a resident of Cochin for upwards of 30 years. I have known the mud bank off Narrakal resorted to by ships in heavy weather. Thirty years ago, the Ship *Hamee Shaw* belonging to the Imaum of Muscat arrived at Cochin during to south west monsoon, disabled but owing to the heavy sea, she could hold no communication with the shore, and proceeded to Narrakal, to have her repairs effected, which was done under the supervision of the late Mr. Poney Gueizelar, Ship builder of Cochin. There was no sea at Narrakal at the time; and the workmen employed on the repairs had no difficulty whatever in going off to, and coming from the ship.

Five years later, another vessel of the Imaum arrived at Cochin with the loss of her rudder, during the monsoon, and she also, being unable to remain in these roads, proceeded to Narrakal and refitted. The safety of Narrakal as a port, is generally known among the Native community of this Port, and coasting craft frequently resort to the place in bad weather.

العبـــد
درويش حاجي

Cochin, *6th November* 1861.

(Signed) DERVISH HADJEE.

This deponent is personally known to me, and is a very respectable person.

(Signed) JOHN CASTOR.

The deposition of **CAIMULT ANDAY**, inhabitant of Cochin.

I am a Ship Carpenter by profession, and had been often employed by the late Mr. Poney Gueizelar, Ship builder of this Port. I am now 63 years of age, and have a perfect recollection of having been engaged* by the late Mr. Gueizelar, to proceed to the mud-flat off Narrakal, for the repair of a Arab vessel of about 500 tons, which took refuge there owing to the rough state of the sea at Cochin. It was then about the end of May or beginning of June. While we worked on board, we felt no inconvenience from the rolling of the vessel, as the sea was perfectly smooth. I often visited the place subsequently, and always found the sea calm. The fishermen carried on their occupation there throughout the year.

I am prepared if required to affirm this statement upon oath.

Cochin, *6th November* 1861.

Taken at my Office.

(Signed) JOHN CASTOR.

---

[*] About 28 years ago.

Q.—Did you observe any surf breaking on the beach on the bank?	*A.*—No.
Q.—Do you remember if any vessels, coasting or otherwise, which sought shelter on this bank during gales of wind or bad weather?	*A.*—Yes, Pattamars, &c.
Q.—When you first knew the bank, abreast of what village was it?	*A.*—This bank I believe is situated between* Coorpally and Iyenpally. You will find a canal from the river to the beach. The southern part of this canal is called Coorpally, and the northern, Iyenpally.
Q.—Was the bank ever examined or surveyed by any one, officially or otherwise?	*A.*—I believe in the year 1841, Captain Biden, the late Master Attendant of Madras, visited Cochin, when, having mentioned to that gentleman the existence of this bank, Captain Biden together with Mr. Josquim de Lemes (the then Pilot of this Port) visited the said bank. Mr. Lemes subsequently told me that Captain Biden was much pleased on seeing it and told him that a ship loaded with coal should be kept there for supplying coals to the Steamer.
Q.—Do the fishermen of that part of the coast, where the bank is situated, fish on the bank during the whole of the south west monsoon?	*A.*—I was not in the habit of visiting that locality during the south west monsoon.
Q.—Can you tell into what depth of water, or how far they ventured out?	*A.*—No, I did not take the soundings thereof.
Q.—Was the beach abreast of the bank always free of surf?	*A.*—From information obtained, I believe it was.

* Coorpally is about three miles to the north of Narrakal.

COCHIN, *27th August* 1861.

Mr. D'Aranjo is now pensioned, and held the office of Fiscal in this town formerly.

(Signed) JOHN CASTOR,
Master Attendant.

The deposition of WARRID ANTHA, inhabitant of Vypeen.

I am a Ship Carpenter by profession, and had been often employed by the late Mr. Poney Gueizelar, Ship builder of this Port. I am now 66 years of age, and have a perfect recollection of having been engaged with several other workmen about 28 years ago, by the late Mr. Gueizelar, to proceed to the mud—flat off Narrakal, for the repair of a Arab Ship of about 500 tons, which took refuge there owing to the rough state of the sea at Cochin. It was then about the end of May or beginning of June. While we worked on board, we experienced no inconvenience from the rolling or pitching of the vessel, as the sea was perfectly smooth. One of the workmen who accompanied me on the occasion referred to, is now living at Cochin. I frequently visited the place since that period, and always found the sea calm and fishermen carried on their occupation there throughout the year. I am prepared, if needed, to affirm this statement upon oath.

His + mark
WARRID ANTHA.

COCHIN, *4th September* 1861.

Before me,
(Signed) JOHN CASTOR,
Master Attendant.

The deposition of SHERAMALLY, Syrang of the Brig "Mooydeen Bux" of 154 tons, belonging to the Port of Cochin.

I am a Native of this coast, and have been sailing out of this Port in different capacities for twenty years; and for the last eight, I have been in command of the "Mooydeen Bux." I have known the mud bank off Narrakal for many years back, but particularly noticed it within the last 10 years. The sea never breaks on the beach, and I have known vessels in stress of weather frequently resorting to Narrakal, where they lay perfectly still. Within my experience, I have found the sea, comparatively smooth, in 7 fathoms; and from this depth, as the shore is neared the stillness becomes greater. The advantage of the place is commonly known to coasting vessels.

(Signed) SHERAMALLY,
Syrang.

COCHIN, *6th November* 1861.

Before me,
(Signed) JOHN CASTOR.

The deposition of DERVISH HADJEE, Agent of His Highness the Imaum of Muscat, residing at Cochin.

I have been a resident of Cochin for upwards of 30 years. I have known the mud bank off Narrakal resorted to by ships in heavy weather. Thirty years ago, the Ship *Homee Shaw* belonging to the Imaum of Muscat arrived at Cochin during to south west monsoon, disabled but owing to the heavy sea, she could hold no communication with the shore, and proceeded to Narrakal, to have her repairs effected, which was done under the supervision of the late Mr. Poney Gueizelar, Ship builder of Cochin. There was no sea at Narrakal at the time; and the workmen employed on the repairs had no difficulty whatever in going off to, and coming from the ship.

Five years later, another vessel of the Imaum arrived at Cochin with the loss of her rudder, during the monsoon, and she also, being unable to remain in these roads, proceeded to Narrakal and refitted. The safety of Narrakal as a port, is generally known among the Native community of this Port, and coasting craft frequently resort to the place in bad weather.

العبد
درويش حاجي

COCHIN, *6th November* 1861.

(Signed) DERVISH HADJEE.

This deponent is personally known to me, and is a very respectable person.

(Signed) JOHN CASTOR.

The deposition of CAIMULT ANDAY, inhabitant of Cochin.

I am a Ship Carpenter by profession, and had been often employed by the late Mr. Poney Gueizelar, Ship builder of this Port. I am now 63 years of age, and have a perfect recollection of having been engaged* by the late Mr. Gueizelar, to proceed to the mud-flat off Narrakal, for the repair of a Arab vessel of about 500 tons, which took refuge there owing to the rough state of the sea at Cochin. It was then about the end of May or beginning of June. While we worked on board, we felt no inconvenience from the rolling of the vessel, as the sea was perfectly smooth. I often visited the place subsequently, and always found the sea calm. The fishermen carried on their occupation there throughout the year.

I am prepared if required to affirm this statement upon oath.

* About 28 years ago.

COCHIN, *6th November* 1861.

Taken at my Office.
(Signed) JOHN CASTOR.

The deposition of Mr. CORNELIUS JOHN GUEIZELAR, Master Ship builder in the Port of Cochin.

About the year 1830, I was serving my time under my late father Mr. Poncy Gueizelar, who was Master Ship builder of this Port. In June or July, an Arab vessel of about 500 or 600 tons arrived at Cochin from Muscat, but unable to remain in these roads owing to the state of the sea, she proceeded to Narrakal and underwent some repairs. My father proceeded to the vessel and contracted for the repairs, and supplied Carpenters from Cochin. The vessel remained at Narrakal for a period of two months, and went on to Calcutta. I have frequently been at Narrakal, and always found the sea smooth and without surf.

On another occasion, about fifteen years ago, in the month of August, a vessel arrived in these roads, with the loss of her rudder, but owing to the heavy sea, proceeded on close to Narrakal, and anchored there. I went on board while she was at anchor, and undertook the work. The vessel lay in smooth water at the time. She afterwards came to Cochin when the weather moderated.

(Signed) C. J. GUEIZELAR,
Master Ship Builder.

COCHIN, 16*th November* 1861.

Extracts from the Master Attendant's journal of Narrakal with reference to the condition of the Sea on the mud bank.

Finding the wind and sea increase on the afternoon of the 7th, I resolved to visit Narrakal on the following morning, 8th August 1861.

8th August 1861—Visited Narrakal at 10 A. M. Weather cloudy, with light winds, and occasional squalls. To ascertain the depths from various distances off shore, went prepared with a line of 712 yards long. Engaged three small canoes, and started from the margin of the water in a direction at right angles, or W. S. W. of the coast. First distance, in a straight line of 640 yards, depth 11 feet, bottom very soft, water *perfectly* smooth. Second distance from the termination of the first, in a straight line of 640 yards, depth 15 feet, bottom very soft, water perfectly smooth. Third distance from the termination of the second, in a straight line of 640 yards, depth 20 feet, bottom very soft, a small bubble of a sea. Fouth distance, from the termination of the third, in a straight line of 640 yards, depth 24 feet, bottom soft, a little swell.

I must here observe, that these soundings and distances were conducted on a bearing of E. N. E. of a flag planted on the beach abreast of Narrakal; on this line, and at the distance of 2,560 yards, it takes you off the smooth water, and you are met by the swell, on the confines of the mud-flat. From this limit I pulled away in a N. W. direction, to 5 fathoms, with the village of Narrakal bearing E. b. S. to E.S.E. ½ S; found the sea in this locality perfectly smooth, bottom of a more consistent nature, and the sea and swell to the north and south, appearing as they rise, like sand banks at a distance. I was in a canoe of 25 feet long, 2 feet 6 inches wide, and 22 inches deep, and wrote my notes on my knee with little or no inconvenience. Ma[illegible]ng boats were plying their daily occupation; and the beach was without a ripple. In 4 fathoms Cruz Milagre well open.

Before leaving Cochin I noticed that the bar was impassable, and a tolerable high sea prevailing on the coast to the north and south.

Remarks—Saturday, the 17th August 1861.

Visited Narrakal. Weather squally, and blowing fresh from the westward, with a tolerable heavy sea on the coast, to the north and south. Planted a flag ¼ of a mile to the north of the village, and ascertained the depths as follows. Pursued the same method as adopted on the 8th instant.

First distance in a straight line of 650 yards, flag E. N. E., depth 8 feet 6 inches, sea perfectly smooth, bottom very soft. Second distance, 650 yards, same bearings, depth 13 feet 6 inches, bottom very soft, water very smooth. Third distance, 620 yards, 16 feet, bottom very soft, a small bubble of a sea. Pulled out to 4 fathoms, found a little swell, which would never be felt or remarked in a small vessel. Seeing a very heavy squall rising to the westward, and the canoes employed on this occasion being very small, pulled in shore. I find to the north of Narrakal, the shoal water extends further out. The beach perfectly smooth, without a ripple.

Monday, the 19th August 1861.

The wind being strong yesterday (Sunday) with unsettled weather, and violent squalls, and a fresh breeze still prevailing, I proceeded to Narrakal, and embarked in a small canoe at 1-30 P. M., and pulled out to 3½ fathoms and anchored. Wind west, bottom very soft, sea smooth. Narrakal bearing E. b S.—Cruz Milagre, S. E. Started from this point, and pulled out to 4 fathoms and anchored, bottom soft, Narrakal bearing E. b S. to E. b S. ¼ S. Cruz Milagre, well open, S. E. Pulled out to 4½ fathoms, Narrakal E. b S. Cruz Milagre, S. E. ¼ E. Coorpally high tree, N. N. E. ½ E., bottom somewhat sticky, and appears good holding ground. Paid particular attention to the state of the sea. From 3 to 4½ fathoms, there was a little swell, but in nowise to disturb a small vessel at anchor, and as a proof of this, I may mention that the canoe I was in remained at anchor with eight men in her, and I wrote my notes, and took my bearings without any inconvenience. There was as much sea in 4 to 5 fathoms as there would be in Madras roads, with a light sea breeze in the month of March in fine weather. The sea encircling the mud bank, and to the north and south, was high; but, further on to the W. N. W. it appeared smooth. I did not wish to venture further out, as a heavy squall was rising to the westward, and the canoe I was in, small. Found the beach without a ripple. Narrakal E. b S. ¼ S. to E. S. E. appears a good bearing.

Tuesday, the 20th August 1861.

The weather being very unsettled and blowing strong at intervals in squalls, and a heavy sea prevailing on the Cochin bar, I proceeded to Narrakal; but, before I reached there the wind died away. I pulled off in a fishing canoe, and went into four fathoms; found a little swell in this depth, but nothing to disturb shipping operations, had ships been lying there. The beach perfectly smooth, and without a ripple. This smoothness extended to some distance from the land.

Thursday, the 22nd August 1861.

The weather being very monsoonish, and blowing strong at intervals, during the night of the 21st, and a very *high* sea prevailing on the coast for these last two days. I visited Narrakal. On arriving at the village, found the margin of the sea without a ripple. Engaged a canoe and pulled out to ¼ less 5 fathoms and anchored. There were a great many fishing boats in this depth pursuing their occupation. I found a gentle swell, as is often noticed in a calm out in the open ocean, occasionally lifting the canoe, but beyond this the boat scarcely moved. The absence of all crested waves was very remarkable, the sea to the north and south was clearly visible and breaking with great force, and its roar was distinctly heard. It may be only fancy, but I cannot refrain from recording that, the more turbulent the sea rages on the adjacent coast, the greater is the stillness which appears to prevail on this bank. I shall carefully watch whether this is a prevailing feature of this locality. Pulled out to 5 fathoms, found the sea in the same state, now and then a little swell. The wind was very light at the time. Narrakal E. b S. ½ S. to E. S. E. Cruz Milagre S. E. ½ E. Coorpally high tree N. E. ¼ E. to N. E. ½ E. bottom sticky and soft. In 18 to 16 feet the sea resembled a tank or pond in its stillness. Had there been any ships in the roads of Cochin, no communication could have been maintained with them from the tremendous sea on the bar.

(True Copy.)

(Signed) JOHN CASTOR,
Master Attendant.

N. B.—Cruz Milagre, or the "Marvellous Cross," takes its name from a Roman Catholic Church which once stood on the beach, about a mile and a half from Cochin. The Church was destroyed by the ravages of the sea. The gap formed in the belt of cocoanut trees which fringes this coast, is still called, "the opening of Cruz Milagre."

(Signed) JOHN CASTOR,
Master Attendant.

Tabular Statement of Depths with their respective distances from shore.

Date.	Abreast of Narrakal.		Nature of the bottom.	Date.	Quarter of a mile to the North of Narrakal.		Nature of the bottom.	Date.	Half to three-quarters of a mile north of Narrakal.		Nature of the bottom.	
	Distance off shore.	Depth.			Distance off shore.	Depth.			Distance off shore.	Depth.		
1861.	Yards.	Feet.		1861.	Yards.	Feet.		1861.	Yards.	Feet.		
Aug. 8th..	640	11	Very soft	Aug. 17th..	650	8	Very soft.	Nov. 13th.	330	2½	Very soft	Independent of the results herein indicated, other soundings were carefully taken on the bank abreast of Narrakal. (Signed) JOHN CASTOR.
,, ,, ...	1,280	15	do. ...	,, ,, ...	1,300	13½	do. ...	,, ,, ...	660	4½	do. ...	
,, ,, ...	1,920	20	do. ...	,, ,, ...	1,920	16	do. ...	,, ,, ...	990	9	do. ...	
,, ,, ...	2,560	24	Soft. ...					,, ,, ...	1,320	12	do. ...	
								,, ,, ...	1,650	12	do. ...	
								,, ,, ...	1,980	14	do. ...	
								,, ,, ...	2,310	16¾	do. ...	
								,, ,, ..	2,640	18	do. ...	
								,, ,, ...	2,970	19	do. ..	
								,, ,, ...	3,300	21	do. ...	
								,, ,, ...	3,630	22	do. ...	
								,, ,, ...	4,000	24	do. ...	
								,, ,, ...				

The soundings were conducted by the aid of three boats—two for laying out the line from point to point, one of which alternately remaining at anchor, till the other exhausted the line, and anchored. I was in the third boat, following the operation and sounding at the termination of each length. The line was previously measured, and strict allowance was made for the bight or deflection caused by the tide. This method of measuring, in fast pulling boats, could not involve any great practical error.

(Signed) JOHN CASTOR

No. 60. From FRANCIS N. MALTBY, Esq., Resident of Travancore and Cochin; to T. PYCROFT, Esq., Chief Secretary to Government, Fort Saint George, dated 27th November 1861, No. 58.

I have the honor to report for the information of His Excellency the Governor in Council, that I yesterday visited in company with the Dewan of Cochin the shore of the sea at Narrakal in the neighbourhood of the mud bank which has lately attracted much attention.

2. Captain Castor the Master Attendant of Cochin met me on the spot.

3. The Government have received full reports on this subject, so that I need not recapitulate the information which has been collected by others, and submitted to them. I shall only state that at the present time the shore is so entirely free from surf that canoes were run ashore with their sails set. Both the Dewan and Captain Castor assured me that during the south-west monsoon the sea had not even the slight ripple which I saw yesterday.

4. Of the value of the bank as a roadstead, I think there can be no doubt, but it has undergone considerable changes, and it will be necessary to watch the movement of the bank for some time, before it can be safe to construct any expensive or permanent works.

5. The course which I have suggested to the Government of His Highness the Rajah of Cochin is, that a timber scaffold be erected on the beach sufficiently conspicuous to guide the shipping to the bank. This should be about 60 to 80 feet in height with a flagstaff on the top. It should be publicly notified that ships are allowed to land their cargo there on giving in their manifests at the neighbouring port of Maliapooram.

6. This, I think, is all that is desirable at present. The place is already convenient for trade, as the beach is only separated from the backwater by a bank of a quarter of a mile, over which there is a road.

7. Should the place become the resort of shipping, it would be easy to construct a small jetty on screw-piles, and to bring a canal from the backwater to a Custom House close to the beach, as at Alipee.

8. As it is desirable that any arrangements made in His Highness the Rajah's territories should be made in concert with the British Government, I have the honor to request that I may be informed, whether the above views meet with the approval of His Excellency the Governor in Council. Should they do so, Captain Castor's assistance in selecting the site for the structure and notifying the bearings of the bank will be valuable.

No. 61. Order thereon, 20th December 1861, No. 430.

Ordered accordingly that Proceedings 26th July last, No 242, and the papers received with the first of the above letters, be published in the Fort Saint George Gazette. The Superintendent of Marine will be furnished from the Gazette Press with as many copies as he may require for distribution as he proposes. Copies will also be sent to the Agent to the P. and O. Company.

2. The Government approve the proposal in Mr. F. Maltby's letter as to the works to be immediately constructed at Narrakal. The Superintendent of Marine will instruct the Master Attendant at Cochin to afford the required assistance.

3. Captain Castor will also be ordered to draw up directions for anchoring. His Excellency in Council desires that the Mud bank be further watched during the next south-west monsoon, and its condition during heavy weather reported.

(Signed) T. PYCROFT,
Chief Secretary.

Exd. F. Cartledge.

16

15 to 20
Encl

Six Original letters
from Commanders
of Ships and others,
who visited Narrakel
during the prevalence
of the S.W. Monsoon
1861.

John Castor

Mar/61 D
No 406

20 Dec
No 430

F.W.D. 3 ff 43 Coll R.R. 128
No 322

Marine 1861 Despatch
No 430

Proceedings of Govt
Dated 20th Decr 61.

Direct the papers
respecting the Mud bank
off Narrakal be published
in the Fort St George
Gazette copies also be sent
to the Agent to the
P & O Company approve
the proposal of Mr
F. Maltby as to the
works being immediately
constructed at Narrakal

⑰ No. 3300

Madras
Marine Superintendent's Office
25th November 1861

From
J. J. Franklin Esqre.
Superintendent of [illegible]

To
T. Pycroft Esqre.
Chief Secretary to Government
Marine Department
Fort Saint George

Sir

I have the honor to inform you that, in compliance with the 1st para. of the order recorded in Proceedings of Government of the 26th July last, No. 242, I forwarded to the Master Attendant at Cochin instructions, copy of which is appended, regarding the examination of the mud bank [illegible]. The report just received is likewise [illegible] as I look on its importance to the [illegible]ritime community, I beg to recommend that it be published with the previous papers for the purpose of being furnished to the Chief Marine authorities at all Indian Ports. It ought also to be made generally known at the India House for the information of Commanders of Ships bound to

of

to India.

2 The facts brought to light by Captain Castor, who has evidently bestowed great pains on the investigation, are ~~that~~ that half a mile South of the village of Narrakal which is situated [illegible] five miles North of Cochin, a bank of [illegible] commences and continues con[illegible] four or five miles in a Northerly direction extending to seaward about three miles with soundings gradually increasing to 5 fathoms; that upon this bank during the heaviest weather that has been experienced during the past monsoon (which however was a moderate one) a perfectly [illegible] sea reigned in 3 fathoms, and that in 5 fathoms only a gentle undulation was experienced insufficient to endanger in the slightest degree even small boats: that the bottom throughout is good holding ground, and that on the shore, while a heavy [illegible] of Cochin bar impas[illegible] ripple was to be observed.

3 It appears moreover that, although the European community at and near Cochin were not aware of the advantages that existed so close to them, they had long been well known to

to the neighbouring fishermen and the natives navigating the coast. The extract from the old Dutch work describing a voyage to the various parts of the Indian seas in 1774 to 1778, quoted in the 15th para of Captain Castor's report, likewise shews that the same peculiarities, although since modified, existed nearly a [illegible] expected that whatever change does take place B2 will be very gradual, and that for present purposes the bank may be considered stationary.

4 These points being admitted it remains to be considered what steps should be taken to render the place as useful as poſsible.

B3

5 During the fine season on the Malabar Coast, or from September to April inclusive, the sea is generally very smooth, and little difficulty exists in conducting shipping trans[illegible] [illegible]chin. All the mercantile firms [illegible] care to have their shipping operations removed to a distance of five or six miles from B4 their immediate supervision, and moreover there is no objection to any attempt at present, at any rate, to transfer the port of Cochin to Narrakal, that it is situated in the terri-

tory of the Rajah of Cochin. But it frequently occurs that vessels, either through ignorance, or from having made longer or shorter passages than expected, come on the coast during the SW monsoon which prevails during the remainder of the sea... and

ways a heavy sea is running. Other vessels are also often backward in loading or unloading in Cochin roads, and similarly find themselves on a dangerous coast. To these some few facilities to enable them to take advantage of the safety afforded by the Narrakal mud bank would be most serviceable, and for the present I think we may confine ourselves to this.

6 I would propose therefore that a white obelisk about 40 feet high should be built on a spot to be selected by Captain Castor, somewhere abreast of the best anchorage; [illegible] as the water is very sh[illegible] the beach that a small wooden jetty or piles be constructed to enable boats drawing 2 or 3 feet to load and unload alongside.

I have the honor to be
Sir
Your most obedient servant
J J Franklin
Superintendent of Marine

No 2188

From
J. J. Franklin Esqre
Superintendent of Marine

To
~~Captain~~
Master Attendant
Cochin

Sir,

In forwarding you a copy of the Proceedings of Government of the 26th ultimo, No 242, on the subject of your report on the anchorage off Narrakal, I beg to request that you will make a point of visiting that place during the remainder of the present monsoon on any occasion of a strong breeze or gale. Any expenses while so employed will be allowed.

2 In the event, however, of any ship being in distress at Cochin and requiring your services, you will of course postpone your visit to Narrakal until the necessity for the delay has passed.

3 The principal points which you

of

you will be required to report upon will be, 1st the condition of the sea in 4 to 5 fathoms during heavy monsoon weather, and the state of the [illegible] ges, [illegible] whether [illegible] water [illegible] [illegible] range of wind or current.

I notice in Lieutenant Selby's chart, copy of which is in your office, that 2 fathoms and in one place as little as 1 fathom is marked on the bank at a distance of 1½ mile from the newly formed sea beach. To render the anchorage secure it will not be sufficient that the sea should subside here its force must be broken further out.

4. From the nature of the formation and the fact of its not having been generally known although so near to Cochin, I conclude that it [illegible] origin, [illegible] recent than stated by the fishermen, who in common with other natives are vague on the subject of dates. And being recent it is probably still

still extending. You will endeavour to obtain the best information on this point from the natives on the spot, and with Lieutenant Selby's survey, which was executed in 1851/53, might [illegible] whether [illegible] increased much during the intervening time. D2

5. With these observations I leave it to you to carry out the orders of Government, feeling confident that you will not fail in affording the fullest information in your power.

D3

Madras
Marine Supdt. Office
1st August 1861

I have &c.
(signed) John J. Franklin
Superintendent of Marin

(True Copy)
Superintendent of Marine

D4

open Coast.

7. The beach, on every occasion I visited the spot, was perfectly still, and beyond what the wind would create on a lake or tank, there was nothing remarkable; but there was no surf or sea arising from the Ocean swell thrown on the beach, as in other parts of sea shores.

8. Whether the limits of smooth water alter with any shift of wind or current, I regret the mild State of the Monsoon, and the absence of violent Shifts of wind, afforded me no opportunity of observing. The water appears smoother during the ebb than the flood tides. When the sea rages high on the adjacent shores, the formation and extent of the bank are clearly defined by the rising swell without the limits, contrasting greatly with the smooth surface of the water within.

9. There appears to be a singular feature in connection with this locality, which is worthy of note, though it would be desirable to keep it under observation with a view to further elucidation. The more turbulent the sea became in the contiguous parts, the Greater stillness seemed to prevail on this bank. This peculiarity not only presented itself to me but to others who visited the spot; and attracted the attention

of the Commander of the "John Cobbold" to which Ship allusion was made in my former report. The only way this phenomenon could be accounted for, is by the turbulence of the surrounding Sea disturbing the mud in suspension, and increasing the density of the water on the bank.

10. The soundings I obtained, differ somewhat from those marked in Lieut. Selby's Chart. I have been very carefully over a large extent within the space of the dotted line, embracing the Anchorage of Narrakel, but my efforts to discover the spot marked 1 and 2 fathoms, 1½ mile from the shore, have proved unsuccessful.

11. From further enquiries, I find that the existence of the bank is more generally known than at first I was led to believe. The Syrang and Tindals of Coasting Craft, with whom I have conversed on the subject, state that its still anchorage has been known among them for years, and is commonly resorted to during gales of wind. Without exception they all bear testimony to the total absence of surf on the beach;

and

and the safety and security which the place affords.

12. The statements of the natives and fishermen, residents of the place, confirm those of the Coasting Seamen; but on questioning them as to the limits of smooth water in very heavy weather, their replies are vague and unsatisfactory. This probably is owing to their not venturing out in very bad weather, and the usual indefiniteness of this class of men on subjects requiring close observation. But to the still condition of the beach in all weathers, the evidence is unanimous and conclusive.

13. The question as to whether the bank is of recent formation, or of long existence being one of vital importance to the subject in its future bearings, I have gathered the fullest information I could obtain. Living witnesses not only confirm its duration to 30 Years back, but shew its advantages as a place of refuge. The depositions* which accompany this letter will bear out these facts. I must be permitted at the same time

* Six in Number.

to embody two references one of recent, and another of older date, tending to prove the existence of this bank at a remote period.

14. The late Captain Biden, who was ever watchful on matters tending to promote the interests of navigation, on his visit to this Coast in 1841, must have had his attention drawn to the subject of the bank; for among the recorded enquiries made by him on that occasion, in connection with Cochin, I find the following.

2. "There is said to be a particular "sort of mud Bank parallel with the "Coast, and near Cochin, on which Vessels "may Anchor in stress of weather, and if "they part from their Anchors, the nature "of the ground is such, that they will suffer "no material injury if they drift on shore "upon the mud; I have heard that a large "Ship was disabled and rode out some blowing "weather on this Bank and was refitted "there, where is the Bank? what distance "from Cochin and what is its extent, the "soundings indicated thereon &c."?

The subjoined reply was furnished

No. 306
1861.

Master Attendant's Office
Cochin 16th November 1861.

[illegible]

J. J. Franklin, Esquire
Superintendent of Marine
Madras

Sir,

In obedience to the order of Government dated 26th July 1861, No. 242, conveyed to me in your letter of instructions dated 1st August, No. 2188, I have the honor to submit a supplemental report on the Anchorage of Narrakel.

2. During the S.W. Monsoon just passed, the place was visited by me on every occasion the weather was in any way disturbed, so as to afford me an opportunity of observing the State of the sea, and other peculiarities on the mud bank.

3. Before I proceed to notice the facts which came under my observation, I must record the circumstance, which is not without some importance, that the Monsoon,

this year has been one of unusual mildness, so far as it has reference to the force of the wind, although the Sea has been frequently very high.

4. My particular attention was directed to the condition of the sea from 3 to 5 fathoms, the water below 3 fathoms having invariably retained its stillness. Between the two depths beforementioned, the water is comparatively smooth; there was a little swell, though neither its force nor its height would have disturbed even a small vessel at Anchor.

5. It is in a WNW. direction from the village of Narrakel, that the sea subsides in the depths I have named; but to the South the bank being narrower, the deep water, as well as the stillness are at a less distance from shore, and to the north, the water is shallower, and smooth further out to sea.

6. In the ordinary course of professional observation, I would have pronounced the Anchorage in the depths mentioned, smooth, and the little swell which has been perceptible to a close and continued scrutiny, would have passed unnoticed by a casual Mariner Anchoring on the Ground in an

Open

-nished by the late Fiscal.

A. "This Bank is situated at
"Pooryapooly about 9 miles to the north
"of Cochin within the Cochin Circar's
"territories, the extent of it is about
"six miles and the soundings from 1
"to 7 fathoms."

15. The other reference is from the translation of an old work* written by a Dutch navigator who traded with this Coast between the years of 1774-78. In a description of Cochin and its neighbourhood I find the following notice with reference to this Bank.

"The Coast is safe and clear
"every where along the Company's Estab-
"lishment, except at the mouth of the river
"of Cranganore. South of the abovementioned
"mouth of the river of Cranganore there is
"a bay formed of mud banks; the banks
"forming which extend full a league out
"to Sea, and into which vessels may run
"with safety during the bad monsoon, and
"may lie in twenty and less feet water,
"almost without Anchors or Cables, in per-
"fect security against the heavy seas
"which then roll in upon this lee

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* Voyage to the Cape of Good Hope, Batavia, Samarang, Surat, East Indies &c &c. in the year 1774-78. Book III. Chap. 12.

"shore, as they break their force upon the soft mud banks, and within them, nothing but a slight motion is perceived"

16. I find an allusion to the Allepey Bank in a work descriptive of this Coast entitled "A new History* of the East Indies" by Captain Cope, published in London in 1755. I cannot refrain from Quoting the passage, though not bearing directly on the bank under notice, as it proves the existence for at least a century of a bank similar in its general features to the one in Question, and affords strong collateral evidence of the permanent effects of these mud formations.

"Mud Bay is a place, that, I believe, few can parallel in the World. It lies on the shore of St. Andrea,* about half a league out in the Sea, and is open to the wide Ocean, and has neither Island nor Bank to break off the Force of the Billows, which come rolling with great violence on all other parts of the Coast, in the SW. monsoons, but, on this Bank of Mud, lose themselves in a moment, and Ships lie on it,

as

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* A new History of the East Indies by Captain Cope, published in London in 1755

* St. Andrea is situated about 6 mile north of Alleppey

"as secure as in the best Harbour, without Motion or Disturbance. It reaches about a mile along shore, and has shifted from the Northward, in thirty Years, about three miles."

17. By Lieut. Selby's Survey in 1851-53. and the information I obtained from the natives of the place, I find that the Bank has somewhat shifted to the Southward; and the bay alluded to in the account given in 1778, in all probability, is the Ground recovered by the recedence of the Sea, and the shifting of the bank, and which is now occupied by paddy fields and Cocoanut plantations.

18. The Allepey Bank is said, whether correctly or not, I cannot affirm, to have shifted a little to the Southward. But the much further advance of the one at Narrakel in the same direction is a matter of less likelihood, from the following circumstance. Situated as it is, in close proximity to an Estuary which discharges an immense volume of water to the northward and westward, I am inclined to the opinion — not without a strong probability in its favor — that the tidal stream so impetuous during the

Greater period of the year, will arrest any Considerable progress towards the South.

19. The long existence of the bank can now scarcely be doubted, supported as it is on reliable testimony derived from various sources, and written at different periods, extending even to the last Century. Its future permanency can safely be inferred from its past duration — and the induction is strengthened by the almost undisturbed existence, from a remote date, of a similar phenomenon within the same degree of latitude; resembling each other in their General characteristics; and exposed to the same external influences.

20. I will take the liberty of submitting, as arising out of this enquiry, a few observations regarding the Anchorage of Narrakel. As a rule, the Greatest difficulty and danger experienced in all open roadsteads, where the beach is subject to the action of the surf, is in landing and embarking; but when once over the range of the surf, the danger and difficulty are comparatively surmounted. The communication with the Shore is Generally interrupted, not so much by

the

the height or force of the swell in the roadstead as by the dangers of the surf at the point of landing and embarking. Where these dangers are entirely absent, as at Narrakel, the mere existence of a swell in the Anchoring depths, even should it prevail, cannot tend seriously to disturb Shipping operations.

21. Again, even when a high sea prevails in an Anchorage, the danger to boats is remote, unless there is broken water; but as heavy Crested waves have never been seen on this bank, in the depths alluded to; as far as my observation goes, it forms an additional security to free and safe communication.

22. In a Gale of wind, it would be difficult to assert with safety that the limits of smooth water would be strictly preserved. Experience demonstrates that a Sea may be created by the violence of a hurricane or a Gale even in Comparatively sheltered harbours, and should the same effects be produced here by a like cause, they should not of themselves form an objection to the place, considering the general security

of the Anchorage and the stillness of the beach in all weathers. In the event of serious accidents, the place will still, from the nature of the Ground, offer the same security to life and property, that a sheltered harbour would under similar circumstances.

23. I beg to conclude this report by soliciting your attention to the accompanying papers, marginally noted, consisting of Original letters from various Commanders of Ships in this Port during the SW. Monsoon; Extracts of a Journal Kept by me during my visits to Narrakel; and a tabular Statement of the depths with their respective distances from Shore.

Cover marked A. contains six original letters

C. Extracts master Attendan Journal

D. Tabular Statement of depths.

24. I beg to subjoin a Chemical & analysis of the mud which was taken from the Bank, and sent to Madras. I am indebted to Captain Mitchell, In Charge of the Madras Government Central Museum, for the information.

I have the honor to be,
Sir,
Your most obedient Servant
John Castor
Master Attendant

Shell

No. 116. Government Central Museum
Madras 17th October 1861

From
Lieutenant J. Mitchell
Officer in charge of the Govt. C. Museum
To
Captain J. Castor
Master Attendant
Cochin

Sir,

I have the honor to acknowledge, with my best thanks, the receipt this morning of the bottle of mud from the Narakel bank.

2. Between the despatch of my first letter and the receipt of your reply, a small quantity (about half a Cubic inch) of the mud was sent to me for examination; so far as I have ascertained it consists of

1st. Very minute angular fragments of Quartz, the largest hardly visible without a lens; this is the sand.

2ndly. Of Foraminiferous shells of the Genus Rotalia and a few fragments of larger shells

3rd. Of Diatomacea, of which I have species from upwards of 20 Genera

4th. A few Spicules of sponges and Corals, very minute, and

5th Some amorphous matter which was not destroyed after long boiling in strong acids.

3 The liberal supply just received will doubtless afford many more specimens of the Diatomeæ and perhaps of the Foraminifera besides those named above.

I have &c.
Signed/ J. Mitchell
Lieutenant
Officer in Charge of the Govt.
C. Museum

True Copy

John Castor
Master Attendant

Mar 10/3
No. 406

No 3490 of 186
From
the Master Attendant
Cochin

Dated 16th
and 23d } November 186

Reports on the State of the Sea at the Mud bank near Cochin called Narrakal

Captn John Castor
Master Attendant
Cochin

Narrain

A.S. [illegible]

Cochin, 13th June, 1861

Captain John Castor
Master Attendant,
Cochin.

Sir,

In compliance with your request, I have much pleasure to give you a few particulars regarding the place Narakel abreast of which I discharged nearly the whole of my Cargo during the prevalence of the SW. Monsoon.

I arrived in Cochin on the 22d May, direct from London, and found great difficulty in getting boats off owing to the heavy sea on the Bar, however I managed to discharge about 50 tons of Cargo when the sea about the 25th, increased so high, that all Communication with the Shipping was at an end. Having heard of a place situated six or eight miles to the north of this, where it was said that owing to a Mud bank no surf or sea prevailed and that no difficulty will be experienced in landing my Cargo, or remaining at Anchor, I was induced, in Company with Mr Pierce, the Agent of the Vessel, to visit the place. I was astonished at the pond-like stillness of its shore, and the smooth sea around.

I returned to Cochin, and as no boats could get off to the Ship, I signalled to the Chief Officer to get underweigh and proceed to the north about 6 miles, & and to stand off and on until I boarded him. I myself proceeded by the backwater to Narakel and went off to the Ship, which fell a little to leeward. On the 1st June, I anchored on the mud bank referred to in 5 fathoms, soft bottom, and discharged the remaining portion of my Cargo with as much ease as if I was lying in the Thames.

During my stay off Narakel, the weather was very bad at times, blowing in smart squalls with heavy rains; the sea breaking heavy on the Adjacent parts of the Coast, and no communication could have been held with the Ship, were she in Cochin roads, while here I was lying in smooth water, scarcely moving, and discharging my Cargo, and landing whenever I wished with the Ships' boat, without even going through a ripple.

I have no doubt from the interest you take in these matters, you will bring the place to the notice of Government, and insure a wide publicity being given to the circumstance that no place on this Coast, from Kurrachee to Cape Comorin, not even excepting Alleppee, affords so safe an

Xbre/ Vypeen le 5 juillet 1861.

Monsieur J. Laster Capne de port Cochin

Cher monsieur

Ayant eu le plaisir de visiter avec vous cette partie de la côte malabar nommée narakel, je crois de mon devoir en ma qualité de capne au long-cours de vous signaler les remarques que j'ai faites relativement à cette place.

Dès mon arrivée je fus surpris du contraste qui existe entre les rivages de Cochin, Vypeen, et maliporum où la mer est constamment très forte et en rend les abord impossible, et la mer unie de narakel, non seulement sur le rivage mais aussi loin que la vue peut s'étendre, je fus aussi surpris de voir un grand nombre de pirogues de pêche de médiocre grandeur à 2 et 3 voiles de la côte, et d'apprendre qu'il en était de même

Pendant toute l'anné le Banc etant tres poissoneux.

J'attribue la belle mer dans le port de Narrakal, à la nature de son fond de Vase et le recommande fortement aux capitaines comme etant le meilleur mouillage pour tenir à l'ancre par un mauvais temps, et le seul dans le voisinage de Cochin, propre à opérer un Dechargement ou Chargement dans la mousson du S.O.

Aucune remarque particuliere n'existant sur le rivage pour prevenir les marins de l'approche de ce port, il serait urgent qu'on y placeat un feu sur une colonne, ou un mat de pavillon assez élevé pour dominer les cocotiers, et qui puisse indiquer le mouillage.

Je dois vous dire avant de conclure que les quelques remarques que je viens de vous soumettre sont sinceres.

J'ai l'honneur d'être Cher Monsieur
Votre tout devoué
Maudy

---

anchorage during the S.W. monsoon, as the locality I have here described.

As you have visited the place yourself, I will not lengthen this Communication by suggesting any thing; but leave the whole matter now in your hands, as I am sure it will receive every attention.

I remain
Sir
Your obedient Servant
John T. [illegible]
Master
of the "John Cobbold"

Monsieur Castor
Capne de port à Cochin
Côte Malabar

Vypeen 5th July 1841

Captain J. Castor
Master attendant
Cochin.

Dear Sir,

Having had the pleasure to o visit in your company that part of the alabar coast called Narakel, I consider my duty as a mariner, to convey you remarks I have made regarding that Place.

Firstly at my arrival there, I was struck by the contrast, existing between the Cochin, Vypeen & Malipuram shores where the sea breaks heavily, to the smoothness of the ea at Narakel not only on the beach but as far as the eye could see in the offing, though the breeze was pretty fresh blowing from the sea. I was also surprised to see a great number of fishermen' boat in rather small size canoes at no less a distance than two or three miles off shore. Also on being told that it was a thing of daily occurrence all round the year, the bank being full of fish.

I attribute the quietness of Narakal Roads to the nature of the muddy ground, and therefore strongly recommend it as the best place for vessels to ride at Anchor in bad weather, and the only Place in the vicinity of our Port convenient to land and ship Cargo during the S.W. Monsoon.

No peculiar remark existing in land to warn mariners of their approach of the place it would therefore be advisable to exhibit a light on a Column, or flag staff as a guidance

I must before concluding tell you that the few remarks contained herein are sincere and not the least exaggerated

I Remain, Dear Sir

Yrs Truly

The writer of this letter
is a french gentleman,
~~and~~ formerly commander of a ship
and now a resident of
Cochin, and engaged
in mercantile pursuits.

Castor
Master Attendant
Cochin

Translation

Cochin 12th July 1861.

To
J. Castor Esqre.
Master Attendant
Cochin

Dear Sir

Having had the pleasure of visiting with you that portion of the Malabar coast called Narakel I think it my duty as passed Captn. to bring to your notice the observations [illegible] made at this place.

Immediately upon my arrival there I was astonished at seeing the contrast which exists between the coasts of Cochin Tippeen and Chaliapooram where the sea is constantly very high rendering the approach impossible with the smooth sea at Narakel not only upon the immediate coast but as far as the eye can reach. I was also surprised to see the large number of fishing boats of ordinary size two or three miles from the shore, and to know that this occurs all the year round, the banks being very abundant of fish.

I attribute the smooth sea in the Port of Narakel to the mud of which the bottom is composed, and would strongly recommend it to ship Captains as excellent holding ground for anchorage and the only one in the neighbourhood of Cochin in which it is possible to load and discharge vessels during the S W Monsoon.

No particular mark exists upon the coast to indicate the approach to the spot to seamen.

It would therefore be most urgent that a light should be exhibited or that a flagstaff sufficiently high to overtop the cocoanut trees be erected in order to indicate the anchorage.

In conclusion I beg to state that the following remarks are offered in all sincerity.

Signed.

J Blunden

Commander of the
French Bark
Angelina

Cochin July 27th 1861

Capt. John Caston
Master Attendant
Cochin

Sir

In compliance with your request for me to give you my opinion of the [illegible], & the causes, of the Bituminous appearance of its waters, I leave that to more able and Scientific men than myself, to investigate and report upon. and

I have the Honor to be
Sir
Your Obedt. Servant

and South of it, that the place itself to the exte of about 3 miles of beach, was perfectly smooth and scarce a ripple to be seen to seaward,

I consider it to be a most valuable auxiliary. to the port of Cochin during the prevalence of the S.W. Monsoon, as it is we known that a Ship of any considerable draft of water arriving in that Season, would not be able to enter the port without lightening, which could not be effected, in the usual way by boats from Cochin, owing to the impracticability of Crossing the bar at that season but might be done very easily at Narakal, particularly so, if there was a small jetty ran out, from 20 to 30 yards, so that 3 boats might lay alongside and discharge at the same time,

The Steam communication, between Bombay and Cochin, might also

by that means, be continued during
the whole year, without any interrup
from local causes, which I think
would in itself be a great benefit
Cochin;

It being out of place here to
to give any opinion, on the natural
[illegible]
a harbour of refuge during the S.W. monsoon
I have the honour to Inform you.

That in consequence of the reports
had heard circulated, and the many par
in the Cochin ~~Cochin~~ courier, pro & con, the usefuln
of the place, I was induced to make a trip the
myself in company with a principal of one
the first mercantile houses in Cochin, and fou
to my great surprise, that although the sea w
[illegible]

[illegible]

Master Mariner

Barque "Emu"

To
[illegible] Capt.
Master Attendant
Cochin.

Sir,

Having since my
arrival been [illegible] a great deal in favour
of Narakal as a safe anchorage during
the S.W. Monsoon and having at your request
made my [illegible] [illegible] of the
[illegible]
[illegible]
[illegible]. On the occasion
of my visit on the morning of the 8th inst.
[illegible] the [illegible]
[illegible] along the coast [illegible] the
[illegible], thus affording a [illegible]
good opportunity of forming a just [illegible]
as to the capabilities of Narakal as
[illegible]
[illegible] Narakal I
found the sea perfectly [illegible]
scarcely a ripple on its surface
[illegible] against the beach, the activity of the
[illegible] being completely deadened by a soft

mud bank extending a great distance from
the shore; — At a distance of a mile [illegible]

[illegible] of the village at about
2h flood, I found 25 ft water [illegible]
bottom of good holding mud the surface
of the water of a very peculiar oily appear-
-ance, and a gentle swell from the
westward, but nothing to endanger even
the fishing canoes, although the surf
was breaking heavily along the beach to the
Southward. [illegible] Sounding [illegible] I pulled
[illegible]
[illegible] many miles [illegible]
it gets gradually [illegible] as
I proceeded seaward. [illegible] The apparent
large extent up the beach to the northward
[illegible] no surf in that
direction. I could see no
mark of any sort that might [illegible]
[illegible]
So much for the [illegible]
[illegible]
[illegible] knowledge of the
[illegible] anchorage during bad weather
must be of great value to any [illegible]

I am of opinion that with
good ground tackling a vessel might here
ride out any storm [illegible]
good cable through force of wind,
supposing such a thing possible — might
from the absence of any sea, drive on to
the sand with little danger of receiving
material injury, and, what is of more
importance at such a time, without the
dread of losing life.

Boats also, containing crews
of vessels lost through fire, foundering
at sea, or any of the various casualties
by which [illegible] the crews
saved, might land here safely when
from surf other parts of the coast are
unapproachable.

Vessels bound to and unable
to get into Cochin may land cargo
here and send it to its destination
by backwater, as I believe was lately
done in the case of the "John Cobbold".

Narrakal may, I am firmly of
opinion [illegible]
to the port of Cochin, and I can only
conclude by saying that I am well
pleased at having learnt its existence

I am Sir
Your very obedient Servt
Thomas Harrison

Cochin
23rd Augt 1861

John Carter Esqr
Master Attendant
Cochin

Sir

I have in receipt of your letter No 225/1861 [illegible] me to furnish you with any information it may be in my power to afford respecting the neighbouring port of Narakal and the [illegible] much pleasure in complying with yo[illegible] Having it in my power to [illegible] discharge "John [illegible]" at the place in May [illegible] Master & myself had [illegible] to an agreement [illegible] far as Alleppey, having heard however from you that it was frequently quite smooth during [illegible] from heavy weather at a point a little to the Northward of Mallapuram before the ship left for Alleppey but a few [illegible] to inspect the state of the coast in the neighbourhood of that place, [illegible] on her return [illegible] account the [illegible] gain [illegible] favorable that the Captain at once agreed to accompany me to the place & see if he could turn it to account, we accordingly went there on the morning of the 28th of May & found the sea so perfectly smooth & resembling the [illegible] of things at Alleppey that the Capt consented to move up & anchor off the place, he accordingly [illegible] on returning to the signalling to the ship to stand up coast 6 miles & anchor for orders, he then went up himself got a fishing boat and stood off for his ship in consequence however of a strong current to the [illegible] [illegible] for [illegible] from reaching her, she was on the [illegible] some hours [illegible] [illegible] 29th he did not anchor till the morning of the 1st June he informed me that on coming in to [illegible] he anchored he passed through 6 fath [illegible] a shoal belt of very thick [illegible] here he first found the sea smooth [illegible] that he gradually drew into smooth water [illegible] but with mud bottom, he has assured me [illegible] [illegible] as in our harbour during the whole time he was there although outside him & along the adjacent coast there was a heavy surf, [illegible] experienced no difficulty whatever from the [illegible] in landing the cargo, which of course had given trouble with the boatmen who had to take [illegible] from the ship as well as boat. We landed a great many large tanks on rafts made by lashing 2 canoes together with a few bamboos in a [illegible]

[illegible] not a single accident happened. The sea on the beach was always as smooth as glass & the Captain was out continually in the [illegible] boat [illegible] during the time he was in [illegible] off the place, the ship long boat too was left riding at anchor some little distance from the ship all the time she was there. I have had a good deal of experience shipping at Alleppey during the S W Monsoon & I consider Narrakul quite equal if not superior to Alleppey indeed had I had any idea some years since that the bank at Narrakul was so extensive & affording such good anchorage & facilities for shipping & landing goods I should never have used Alleppey. When we paid our first visit to the place we approached from Mallipuram the surf on the beach kept getting still duller & the water more intensely muddy as we drew near the beach the water seemed to be heavy & dense with mud that it could not rise & break & this fact coupled with the observation of Capt Rendle that he passed through a belt of thick muddy water before coming to the anchorage led me to conclude that in the density of the sea from the presence of a large body of mud in it which mud is stirred up on the edge of the bank by the action of the sea itself, we have the real cause of the smooth anchorage the belt of [illegible] mud forming [illegible] tural & [illegible] that [illegible]

the [illegible] [illegible] & become [illegible] down, the

Daughter [illegible]

[illegible]

[illegible] [illegible] that [illegible]

Robt H [illegible]

This gentleman represents
the firm of [illegible] Walton
Rebekah & Co and was
the agent to the [illegible]
father to whom were
mortgaged her cargo
at Nantucket on June
last —

[illegible]

---

(18)

(43)

B.

21 to 27

Enc

See Original
Depositions
and a paper
Containing Ques-
tions and re-
plies.

Mar/Cr. D
No 406

20 Dist.
No 430

BSc

I am a Syrang and I have commande
two or three Coasting Vessels. I knew the existen
of the Mud flat off Narrakel when I was an
Apprentice lad to my father, who also was a Syra
out of this Port, and I have often been to the
place. For the last five years I have been in
charge of small vessels myself. During the
heavy gale which blew in Cochin in April 1859,
I happened to be in the Roads, in Command of
the Schooner "Ariel," belonging to Messrs &
A. C. Brice & Co of this Port, and parted my
best bower Chain, I let go a Second Anchor, &
[illegible] slipped &
proceeded to Narrakel and brought up with
a Kedge and hawser in three fathoms. The
water was perfectly smooth in the roads, I landed
in a Canoe between Nairambolom & Narrakel,
in total absence of surf on the beach. The sea
was very high on the adjoining Coast.-

BSc

Cochin 6th
August 1861. Bava Meeran
Syrang.

During the gale alluded to in this statement, there was a tremendous sea running at the time. I witnessed the schooner leaving the roads but was not aware, at the time, where she ran to find shelter. John Castor
Master Attendant

Questions put to Mr. D'Araujo, late Fiscal of Cochin by the Master Attendant, with reference to the Mud Bank of Narrakel

Q. How long back do you remember the Mud bank north of the Port, off Narrakel?	A. About twenty five years.
Q. Did you ever visit that part of the coast where it is situated?	A. Yes.
Q. Did you observe any surf breaking on the beach on the bank?	A. No.
Q. Do you remember if any Vessels, Coast: [illegible] off the	A. Yes Pattamars &c.

said Bank. Mr Lemes subsequently told me that Captain Biden was much pleased on seeing it and told him that

2. When you first knew the ban abreast of what village was it?	A. This bank I believe is situated between* Coorpally and Iyenpally. You will find a canal from the River to the beach. The southern part of the canal is called Coorpally, and the northern, Iyenpally.
2. Was the bank ever examined or surveyed by any one, officially or otherwise?	A. I believe in the year 1841, Captain Biden, the late Master Attendant of Madras, visited Cochin, when, having mentioned to that Gentleman the existence of this bank, Captain Biden together with Mr. Joaquim de Lemes (the then Pilot of the Port) visited the

any or otherwise, which sought shelter on the bank during Gales of wind or bad weather?

* Coorpally is about 3 miles to the north of Narakel.

46

22A

that a ship loaded with Coal should be kept there for supplying Coals to the Steamer.

2. Do the fishermen of that part of the Coast, where the bank is situated, fish on the bank during the whole of the SW. Monsoon?	A. I was not in the habit of visiting that locality during the SW. Monsoon.
2. Can you tell into what depth of water, or how far they ventured out?	A. No. I did not take the Soundings thereof.
2. Was the beach abreast of the bank always free of surf?	A. From information obtained, I believe it was.

Cochin 27th August 1861.

W. D'Araujo

Mr. L D'Araujo is now pensioned and held the Office of Fiscal in this town formerly

John McCastor
Master Attendant.

The deposition of Warrid Antha, inhabitant of Vypeen.

I am a Ship Carpenter by profession and had been often employed by the late Mr. Poney Gueizelar, Ship Builder of this Port. I am now 66 years of age, and have a perfect recollection of having been engaged with several other workmen (23) about 28 years ago, by the late Mr. Gueizelar, to proceed to the Mud Flat off Narrakel, for the repair of a Arab Ship of about 500 Tons, which took refuge there owing to the rough state of the Sea at Cochin. It was then about the end of May or beginning of June. While we worked on board, we experienced no inconvenience from the rolling or pitching of the Vessel, as the Sea was perfectly smooth - One of the workmen who accompanied me on the occasion referred to, is now living at Cochin. I frequently visited the place since that period, and always found (23) the Sea Calm and fishermen carried on their occupation there throughout the year - I am prepared, if needed, to affirm this Statement upon Oath -

Cochin 4th September   His + mark
Warid Aulha

Signed before me
J. M. Castor
Master Attendant

The deposition of Sheramally, Syrang of the Brig "Mooydeen Bux" of 154 Tons, belonging to the Port of Cochin.

I am a native of this Coast and have been sailing out of this Port in different Capacities for twenty years; and for the last eight, I have been in Command of the "Mooydeenbux". I have known the mud bank off Narrakel for many years back, but particularly noticed it within the last 10 years. The Sea never break on the beach - and I have known vessels in stress of weather, frequently resorting to Narrakel, where they lay perfectly still. Within my experience, I have found the Sea comparatively smooth, in 7 fathoms; and from this depth, as the shore is neared, the stillness becomes greater. The advantage of the place is commonly known to Coasting Vessels.

Cochin 6th
November
1861

Sheramally
Syrang -

Signed before me

John Larkin

The deposition of Dervish Hadjee, Agent of His Highness the Imaum of Muscat, residing at Cochin.

I have been a resident of Cochin for upwards of 30 years. I have known the mud bank off 2 Narrakel resorted to by Ships in heavy weather. Thirty years ago the Ship Hamee Shaw belonging to the Imaum of Muscat arrived at Cochin during the S.W. Monsoon, disabled, but owing to the heavy sea, she could hold no communication with the Shore, and proceeded to Narrakel, to have her repairs effected, which was done under the supervision of the late Mr Loney Gueezelar, Ship Builder of Cochin. There was no sea at Narrakel at the time and the workmen employed on the repairs had no difficulty whatever in going off to, and coming from the Ship.–

Five years later, another Vessel of the Imaum arrived at Cochin with the loss of her rudder during the Moonsoon, and she also, being unable to remain in these roads, proceeded to [illegible] fitted. The safety of Narrakel as a port, is generally known among the Native Community of this Port, and Coasting Craft frequently resort to the place in bad weather.

[illegible]
November
1861

Derwish Hadjee

This deponent is personally known to me, and is a very respectable person.

The deposition of Caumutt Anday, inhabitant of Cochin.

I am a Ship Carpenter by profession and had been often employed by the late Mr Povey Guezelar, Ship Builder of this Port. I am now 63 years of age and have a perfect recollection of having been engaged* by the late Mr Guezelar, to proceed to the Mud Flat off Narrakel for the repair of a Arab vessel of about 500 Tons, which took refuge there owing to the rough state of the Sea at Cochin. It was then about the end of May or beginning of June. While we worked on board, we felt no inconvenience from the rolling of the Vessel, as the sea was perfectly smooth. I often visited the place subsequently, and always found the sea calm. The fishermen carried on their occupation there throughout the year.

* About 28 years ago.

I am prepared if required to affirm this Statement upon Oath

Cochin
6th November
1861

Taken at my
Office

The deposition of Mr Cornelius John Gueizelar, Master Ship Builder in the Port of Cochin.

About the Year 1830, I was serving my time under my late father Mr Poney Gueizelar, who was Master Ship Builder of this Port. In June or July, an Arab vessel of about 500 or 600 Tons arrived at Cochin from Muscat, but unable to remain in these roads owing to the state of the sea, she proceeded to Narrakel and underwent some repairs. My father proceeded to the Vessel and contracted for the repairs and supplied Carpenters from Cochin. The Vessel remained at Narrakel for a period of two months, and went on to Calcutta. I have frequently been at Narrakel, and always found the sea smooth and without surf.

On another occasion, about fifteen years ago, in the month of August, a Vessel arrived in these roads with the loss of her rudder, but owing to the heavy sea, proceed[ed] [illegible] there. I went on board while she was at anchor and undertook the work. The Vessel lay in smooth water at the time. She afterwards came to Cochin when the weather moderated.

Cochin 16th
November
1861

C. J. Gueizelar
Master Ship Builder.

~~②~~ (52)
28 to 31 —

C

Extracts
Master At-
tendant's
Journal

20' Decr
No. 430

Mar/61. D
No. 406

Extracts from the Master Attendants' Journal of Narrakel with reference to the condition of the Sea on the Mud Bank.

Finding the wind and Sea increase on the afternoon of the 7th I resolved to visit Narrakel on the following morning, 8th August 1861.

8th August 1861 — Visited Narrakel at 10 A.M. Weather cloudy, with light winds, and occasional squalls. To ascertain the depths from various distances off shore, went prepared with a line of 712 Yards long. Engaged three small Canoes, and started from the margin of the water in a direction at right angles, or WSW, of the Coast. First distance, in a straight line of 640 Yards — depth 11 feet — bottom very soft, water perfectly smooth. Second distance from the termination of the first — in a straight line of 640 Yards, depth 15 feet, bottom very soft, water perfectly smooth. Third distance from the termination of the Second, in a straight line of 640 Yards— depth 20 feet, bottom very soft, a small bubble of a Sea. Fourth distance, from the termination of the third, in a straight line of 640 Yards - depth 24 feet; bottom soft, a little swell.

I must here observe, that these soundings and distances were conducted on a bearing of E.b.N.E. of a Flag planted on the beach abreast of Narrakel; on this line, and at the distance of 2560 Yards, it takes you off the smooth water, and you are met by the swell on the confines of the mud-flat. From this limit I pulled away in a NW. direction, to 5 fathoms with the village of Narrakel bearing E.b.S. to E.S.E.1/2 S; found the Sea in this locality perfectly smooth, bottom of a more consistent nature, and the Sea and swell to the North and South, appearing as they rise, like sand banks at a

distance

distance. I was in a Canoe of 25 feet long, 2 feet 6 inches wide, and 22 inches deep - and wrote my notes on my knee with little or no inconvenience: Many fishing boats were plying their daily occupation, and the beach was without a ripple. In 4 fathoms Cruz Milagres well open.

Before leaving Cochin I noticed that the Bar was impassable, and a tolerable high sea prevailing on the Coast to the North and South.

Remarks Saturday the 17th August 1861.

Visited Narrakel. Weather squally and blowing fresh from the westward, with a tolerable heavy sea on the Coast, to the North and South. Planted a Flag 1/4 of a mile to the north of the village, and ascertained the depths as follows. Pursued the same method as adopted on the 8th Instant.

First distance in a straight line of 650 Yards, flag E.N.E. depth 8 feet

6 inches, sea perfectly smooth, bottom very soft. Second distance, 650 Yards, same bearings, depth 13 feet 6 inches, bottom very soft, water very smooth. Third distance, 620 Yards, 16 feet, bottom very soft, a small bubble of a sea. Pulled out to 4 fathoms, found a little swell, which would never be felt or remarked in a small vessel. Seeing a very heavy squall rising to the westward, and the Canoes employed on this occasion being very small, pulled in shore. I find to the north of Narrakel, the shoal water extends further out. The beach perfectly smooth - without a ripple

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Monday, the 19th August 1861

The wind being strong yesterday (Sunday) with unsettled weather, and violent squalls, and a fresh breeze still prevailing, I proceeded to Narrakel, and embarked in a small Canoe at 1.30 P.M. and pulled out to 3½ fathoms and Anchored. Wind West, bottom very soft, sea smooth. Narrakel bearing E.bS.- Cruz Milagre, SE. Started from

this

this point, and pulled out to 4 fathoms and anchored, bottom soft, Narrakel bearing E.bS. ½ to E.bS. ¼ S.- Cruz Milagre, well open, SE.- Pulled out to 4½ fathoms, Narrakel E.bS.- Cruz Milagre, SE. ½ E.- Coorpally High Tree, NNE. ½ E. bottom somewhat sticky, and appears good holding ground. Paid particular attention to the state of the sea. From 3 to 4½ fathoms, there was a little swell, but in nowise to disturb a small vessel at Anchor, and as a proof of this, I may mention that the Canoe I was in remained at Anchor with eight men in her, and I wrote my notes, and took my bearings without any inconvenience. There was as much Sea in 4 to 5 fathoms as there would be in Madras Roads, with a light sea breeze in the month of March in fine weather. The sea encircling the mud bank, and to the north and south, was high; but, further on to the WNW it appeared smooth. I did not wish to venture further out, as a heavy squall was rising to the westward, and the Canoe I was in, small. Found the beach without a ripple. Narrakel E.bS. ¼ S. to ESE. appears a good bearing.

Tuesday, the 20th August 1861

The weather being very unsettled and blowing strong at intervals in squalls and a heavy sea prevailing on the Cochin Bar, I proceeded to Narrakel, but before I reached there the wind died away. I pulled off in a fishing Canoe, and went into four fathoms, found a little swell in this depth, but nothing to disturb Shipping operations, had Ships been lying there. The beach perfectly smooth, and without a ripple. This smoothness extended to some distance from the land.

Thursday the 22d August 1861.

The weather being very monsoonish, and blowing strong at intervals, during the night of the 21st, and a very high sea prevailing on the Coast for these last two days. Visited Narrakel. On arriving at the village, found the margin of the sea without a ripple. Engaged a Canoe and pulled out to ¼ less 5 fathoms and anchored. There were a great many fishing boats in this depth pursuing their occupation. I found a gentle swell, as is often noticed in a calm out in the Open Ocean, occasionally lifting the Canoe, but beyond this the boat scarcely moved. The absence of all Crested waves was very remarkable, the sea to the North and South, was clearly visible and breaking with great force; and its roar was distinctly heard. It may be only fancy, but I cannot refrain from recording that, the more turbulent the sea rages on the adjacent Coast, the greater is the stillness which appears to prevail on this bank. I shall carefully watch whether this is a prevailing feature of this locality. Pulled out to 5 fathoms, found the sea in the same state, now and then a little swell. The wind was very light at the time. Narrakel E. b S. ½ S. to E.S.E. Cruz Milagre S.E. ½ E. – Coorpally high Tree N.E. ¼ E. to N.E. ½ E. bottom

Sticky

8

sticky and soft. In 18 to 16 feet the Sea resembled a tank or pond in its stillness. Had there been any Ships in the roads of Cochin, no Communication could have been maintained with them from the tremendous Sea on the Bar.

True Copy

John Castor

Master Attendant

N.B. Cruz Milagre, or the "Marvellou Cross," takes its name from a Roman Catholic Church which once stood on the beach, about a mile and a half from Cochin. The Church was destroyed by the ravages of the Sea. The Gap formed in the belt of cocoanut trees which fringes this Coast, is still called "the opening of Cruz Milagre".

John Castor

Master Attendant

58

(57) 57 (57)

D. 82

Tabular Statement of depths with their respective distances from Shore

20 Decr
No 430

Mar Bd
No 406

Tabular Statement of Depths with their respective distances from shore

Date	Abreast of Narrakel Distance off Shore	Depth	Nature of the bottom	Date	Quarter of a mile to the north of Narrakel Distance off Shore	Depth	Nature of the bottom	Date	Half to three quarters of a mile north of Narrakel. Distance off Shore	Depth	Nature of the bottom
1861.	Yards.	Feet		1861.	Yards.	Feet		1861.	Yards.	Feet	
August 8th	640.	11.	Very soft.	August 17th	650.	8.	Very soft.	Novr. 13th	330.	2½	very soft
" "	1280.	15.	do	" "	1300.	13½.	do	" "	660.	4½	do
" "	1920.	20.	do.	" "	1920.	16.	do	" "	990.	9.	do
" "	2560.	24.	soft.					" "	1320.	12.	do
								" "	1650.	12.	do
								" "	1980.	14.	do
								" "	2310.	16¾.	do
								" "	2640.	18.	do
								" "	2970.	19.	do
								" "	3300.	21.	do
								" "	3630.	22.	do
								" "	4000.	24.	do

Independent of the results herein indicated, other soundings were carefully taken on the Bank abreast of Narrakel.

John Castor

The soundings were conducted by the aid of three boats – two for laying out the line from point to point, one of which alternately remaining at Anchor, till the other exhausted the line, and anchored. I was in the third boat, following the operation and sounding at the termination of each length. The line was previously measured, and strict allowance was made for the bight or deflection caused by the tide. This method of measuring in fast pulling boats, could not involve any great practical error.

John Castor

⑥

No 58.

Resident's Office,
Cochin, 27th November 1861.

From

Francis N. Maltby Esqre:
Resident of Travancore & Cochin

To

T. Pycroft Esqre:
Chief Secretary to Government
Fort St George.

Sir,

I have the honor to report for the information of His Excellency the Governor in Council, that I yesterday visited in Company with the Dewan of Cochin the shore of the sea at Narreckel in the neighbourhood of the mud bank which has lately attracted much attention.

2. Captain Castor the Master Attendant of Cochin met me on the spot.

3. The Government have received full reports on this subject, so that I need not recapitulate the information which has been collected by others, & submitted to them. I shall only state that at the present time the shore is so entirely free from surf that Canoes were run ashore with their sails set. Both the Dewan & Captn Castor assured me

that during the South West Monsoon the sea had not even the slight ripple which I saw yesterday.

4. Of the value of the bank as a road stead, I think there can be no doubt, but it has undergone Considerable Changes, & it will be necessary to watch the movement of the bank for some time, before it can be safe to Construct any expensive or permanent works.

5. The Course which I have suggested to the Government of His Highness the Rajah of Cochin is, that a timber scaffold be erected on the beach sufficiently Conspicuous to guide the shipping to the Bank. This should be about 60 to 80 feet in height with a flag staff on the top. It should be publicly notified that ships are allowed to land their Cargo there on giving in their manifests at the neighbouring port of Malliapooram.

6. This, I think, is all that is desirable at present. The place is already Convenient for trade, as the beach is only separated from the Backwater by a bank of a quarter of a mile, over which there is a road.

7. Should the place become the resort of shipping it would be easy to Construct a small jetty on screw piles, & to bring a Canal

from

from the Backwater to a Custom-house close to the beach, as at Alleppey.

8. As it is desirable that any arrangements made in His Highness the Rajah's territories should be made in Concert with the British Government, I have the honor to request that I may be informed, whether the above views meet with the approval of His Excellency the Governor in Council. Should they do so Captn. Castor's assistance in selecting the site for the structure & notifying the bearings of the bank will be valuable.

I have the honor to be,
Sir,
Your most Obedient Servant,

F. C. Maltby
Resident

Cr. W. T. G.

~~Political~~ Marine
from 1861. Dept.
The Resident of
Travancore & Cochin
No. 4 30
The Chief Secretary
to Government
Fort St. George
Dated 27th Novr. 1861.
Recd. 2nd Decr.

No. 58.

Wd - the
Report having [illegible]
the share of the [illegible]
recited in the original
[illegible] of the [illegible]

Wd
Re

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(62)

84

Marine Department.

Read again Mo. 26th July No. 242.

PROCEEDINGS of the MADRAS GOVERNMENT.

Read letter from the
Suptdt. of Marine — Dated 25th Novr. '61 —
No. 3300.
Do. from Resident of Travancore &
Cochin 27 Nov 1861
No. 58

Order — dated 20th Decr 1861. No. 430

Ordered accordingly that Pros: 26th July last No. 242, & the papers received with the first of the above letters be published in the Fort St. Geo. Gazette. The Suptdt. of Marine will be furnished from the Gazette Press with as many copies as he may require for distribution as he proposes.

(63) (314A)

proposes - copies will also be sent to the Agent to the P & O Company.

~~2. Narakal being the Cochin Circar territory, the Resident will be requested to suggest to H. H. the Rajah the execution of the small works referred to in the last para. of Mr. Franklin's letter.~~

~~A white obelisk, 40 feet high.~~
~~A Jetty on piles.~~

The Govt. approve the proposal in the ... of Mr Maltby's letter ... the works to ... immediately constructed at Narakal - the Supt of Marine will instruct the Marine Attendant at Cochin to afford the required assistance

3. Captain Castor will also be ~~directed to~~ ordered draw up directions for anchoring. H. E. in Council desires that the Mud bank be further watched during the next S.W. Monsoon, & its condition during heavy weather reported

JP

20 Copies

[illegible] 1862 [illegible]

The Suptdt. of Marine. 3 ✓ } Despd 21st
" Resident, Travancore & Cochin } with a copy of the entire papers
Collr. of Malabar. 3 —— do
Asst. Agt. of E. V. Co.
Suptdt. Gazette Press —— do

Despd 21st

38

64

65

Marine 1861. Department.

No. 430

PROCEEDINGS of GOVERNMENT.

No. 3/63

Dated 20th December 1861.

4300] Madras—Printed at the Government Press.

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c28-Nad:
a 5 Qus

Marine
1861 Dept

Pro 26th July 1861 Nos 39 & 40

From

The Superintendent
of Marine

To

The Chief Secretary
to Govt.
Fort Saint George

A. O. No [illegible]

Encl 5 &
No 3300 2 Packets of
encl.

Dated 25 Novr 1861
Recd 27th —— " ——

No 406

Submits a letter from the Master Attendant at Cochin reporting the result of his examination of the mud bank off Narrakal with observations & suggestions for the purpose of enabling vessels to take advantage of the safety afforded by that bank.

7

28 Nov
185[illegible]

57 - 61