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Months of the Indies
Hydrographic Notice.

Copies
7
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I have the honor to be

Sir

Your most obedient servant.

L. S. MARR

To Director

Royal Indian Marine

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Hydrographic Notice
10
Talk about it a little
Account. Monday.

Accounted by the Examiners of the
The cost of the Chart will be
signed and returned.

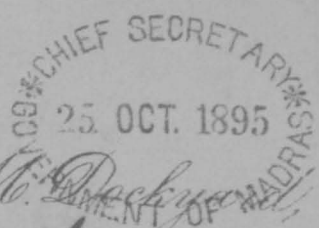
that the enclosed receipt may be
with Hydrographic Notice and paper
by to keep them, the following Chart
of the Office in charge, however, being
delivered to the Director of the Indian
Marine Department.

The Chief Secretary to Government
Hydrographic Notice

First class

Hydrographic Notice
10
Talk about it a little
Account. Monday.

No. 191
Surveys.



R. I. M. Department
Bombay, 25th October 1895

From

The Director of the Royal Indian Marine,

To

The Chief Secretary to Government,
Marine Depart^t. Madras.

Sir,

With reference to your No. 232
dated 2nd August last, to the address
of the officer in charge, Marine Survey
of India. I have the honor to forward
by today's train, the following Charts
with Hydrographic Notices and to request
that the enclosed receipt may be
signed and returned.

The Cost of the Charts will be
adjusted by the Examiners of Marine
Accounts, Bombay.

Palk Straits in 2 Sheets Copies 20
Hydrographic Notices 10

Months

H.C.

Have the "Charts and
Notices" been despatched
direct, by C.S.'s office? They
are not.

Marine

C.S.

From

have

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Hydrographic Notice.

[No. 2 of 1895.]

PALK STRAIT.

The following remarks relating to Palk Strait are derived from the
Survey in 1895 by Commander C. F. Oldham, R. N., and the officers of
the Marine Survey of India.

[All Bearings are Magnetic. Variation in 1895 1° E.]

PALK STRAIT, so named after the Dutch Governor who first navi-
gated it, separates Ceylon from the south-east part of the peninsula of
Hindustan and at its entrance, between Point Palmyra and Point Calimere,
is about 34 miles in width. The old Dutch navigators mention three
passages through the strait, the southern one of which, between the
north coast of Ceylon and the shoals to the northward, is the original
Palk Strait. To the south-west, Palk Strait opens out into a consider-
able sheet of water, stretching about 60 miles in that direction, and about
the same distance further to the south-east, known as Palk Bay, having
over it depths of from 6 to 7 fathoms, with a muddy bottom. Palk Bay
washes the north coast of Ceylon on its eastern, and the coast of Tanjore
and Madura on its western side.

The islands of Rameswaram and Manár, with their shoal connection
known as Adam's Bridge, form a broken breakwater at the head of Palk
Bay, dividing its waters from those of the Gulf of Manár; the Pamban
Pass between Rameswaram island and the Hindustan Coast, making a
narrow connecting channel.

There are two recognized entrances into Palk Bay; one between Point
Calimere and the northern end of the middle banks, has from 21 to 24
feet of water; the other (Palk Strait proper) between the south banks
and the north coast of Ceylon, has a depth of not less than 30 feet at

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low water when crossing the northern end of the Pedro eastern part of the Strait; and near the western limit of about 5 miles north-westward of Karativú, there is a clear channel of not less than 33 feet at low water. There are other places where vessels might cross the banks in depth of 20 to 24 feet, but being in sight of land there is no guide to them, and therefore they are not commended.

JAFFNA PENINSULA, the northern coast of which borders the south side of Palk Strait, is the chief of the four districts comprised in the Northern Province of Ceylon, the others being Manár, Mullaitivú, and Vavuniya. Jaffna district had, in 1891, a population of 279,636, chiefly Tamils. Jaffna, the principal town and port, is the residence of the Agent for the Northern Province. The other ports in Jaffna district are Point Pedro, Valluvedditurai, Kankasanturai, and Kaits.

Communication.—The town of Point Pedro is connected by telegraph through Kankasanturai, Jaffna, and Manár, with Colombo and the Indian system of telegraphs.

The Steamers of the Ceylon Steam Ship Company generally make two voyages each round the Island of Ceylon in a month, one proceeding southward and the other northward round the island. They call at Kankasanturai during the south-west monsoon, or from the middle of February to the middle of October, and at Jaffna during the north-east monsoon. Point Pedro is visited at both seasons.

The British India Steam Navigation Company's steamers call generally at Kankasanturai during the south-west monsoon on Saturdays, on their return from Negapatam to Colombo. During the north-east monsoon they call sometimes at Jaffna and occasionally at Kaits.

Mail Coach.—There is a mail coach service between Point Pedro, Kankasanturai, and Jaffna, and between Jaffna, and Matali, from which place there is a railway to Kandy.

Trade.—The trade of the Northern Province is carried on through the ports already mentioned, and the ports of Manár, Pesalai, and Vankalai in the district of Manár, and Mullaitivú on the east coast.

Exports.—In 1894 the exports were valued at Rs. 15,61,148, the principal being tobacco, chanks, palmyra timber, elephants, béche-de-mer, and jaggery; other exports are cocoanuts, dried fish, honey and salt.

Imports.—In 1894 the imports were valued at Rs. 33,16,602, the chief being paddy, rice, cotton goods, curry-stuff, grain, earthenware, jewellery, iron bars, castor oil, and sugar.

JAFFNA PENINSULA is low, formed of coral and sand, its north end being generally protected by a narrow fringe reef; low sandhills being occasionally visible. Trees from 70 to 90 feet high line the northern coast, and can be seen from the deck of a vessel at a distance of about 14 miles.

POINT PEDRO, in latitude $9^{\circ} 49' 40''$ N., longitude $80^{\circ} 14' 50''$ E., is the north-eastern point of the peninsula. The town and port of the same name, where there is a custom house and several bungalows on the beach, is situated about three-quarters of a mile westward of the point; the custom house with its red roof being a conspicuous mark near the landing place.

The port is open from about the middle of February to the middle of October. During 1894 it was visited by 360 vessels of 32,341 tons. Nineteen country craft of 1,412 tons belong to the port.

Supplies.—There is a native market, where fowls and vegetables can be procured; sheep and bullocks can be obtained by giving notice.

COAST.—From Point Pedro the coast trends West and W. N. W., a distance of $2\frac{1}{2}$ miles to Point Palmyra, then W. S. W. and West $4\frac{1}{2}$ miles to Tondaimanár. A fringe reef lines the coast and extends from a half to one cable from the shore; outside this the water deepens rapidly to the 5 fathom line, which is about 3 cables from the beach. The coast is lined with Palmyra and cocoanut plantations, and a good road leads from Point Pedro along the coast to the westward.

VALLUVEDDITURAI, situated $2\frac{1}{2}$ miles west of Point Palmyra, is a port where vessels of from 30 to 250 tons are built. A break in the reef affords good entrance to boats. There is a considerable village and native market where fresh provisions may be obtained.

TONDAIMANÁR, situated two miles west of Valluvedditurai, is marked by a cliff 25 feet high, half a mile to the westward of which is the entrance to a backwater which forms a gap when viewed from the northward. From Tondaimanár the coast trends W. S. W., West, and W. by N. to Kankasanturai; the reef along this coast is close to the beach, but the 5 fathom line extends half a mile from the shore; vessels should not approach within this distance.

KANKASANTURAI is the chief port of call for steamers during the S. W. monsoon; they commence calling in February or March and continue until October.

Four vessels of 233 tons are owned locally, and during 1894 the port was visited by 510 vessels of 79,518 tons, carrying paddy and rice chiefly. There is a custom house, the custom officer being Master Attendant for the port.

continues until about the middle of the month

Two stone piers in ruins will be noticed on the beach, on the *1895* of which is built the lighthouse. A small wooden pier, used by boats during the S.-W. monsoon, has been built on Cargo boats which are anchored off the beach can be obtained for cargo during fine weather.

Supplies.—Water can be obtained and fresh provisions if none given.

Anchorage may be obtained off Kankasanturai in 5 fathoms, sand, mud, with the lighthouse bearing S. S. W., distant $3\frac{1}{2}$ cables; and the rocky point about $1\frac{1}{2}$ miles west of the lighthouse just shutting in the distant point. Vessels are recommended not to anchor to the westward of the lighthouse as the bottom is foul in that direction.

LIGHT.—On the western ruined pier is a column 73 feet in height, coloured white, from which is exhibited, at an elevation of 75 feet above the sea, a fixed green light, visible in clear weather a distance of 14 miles. The light is obscured by trees on bearings north of east.

Tides.—It is high water, full and change at Kankasanturai at 7 hours 35 minutes; springs rise 3 feet, neaps rise 2 feet, neaps range $1\frac{1}{4}$ feet.

The Coast from Kankasanturai curves to the southward as far as Karativú; it is fringed by a coral reef and bordered with Palmyra and cocoanut trees. One and a half mile west of Kankasanturai is a conspicuous cliff 26 feet high, and nearly a mile further is a Roman Catholic church in course of construction.

Soundings.—Westward of the church the three-fathom line recedes from the shore, and off Matakai (marked by a conspicuous sand hill) is two miles from the coast.

Rock.—A patch of coral, with 11 feet of water over it, lies off Matakai with the conspicuous sand hill bearing S. 42° E., distant $1\frac{1}{2}$ miles, and the cliffy point near Kankasanturai N. 88° E.; inside the patch the bottom is uneven and foul.

The Islands, off the N. W. side of Jaffna Peninsula, extending for 12 miles to the S. W., are a cluster of low coral islands separated by narrow shallow channels only navigable by boats. Farther to the S. W. is Delft Island or Neduntivú separated from the other islands by a good channel 4 miles broad.

KARATIVU, the northern island of the group, is separated from Jaffna Peninsula by a shallow passage a third of a mile broad; it is a low coral island covered with trees, the highest being on the N. W. extreme. A sand hill 20 feet high with some palms on it, situated on the N. E. point, is conspicuous when viewed from the north-westward. At the

to the channel between Karativú and the mainland there are shoals and rocks, closing the channel to anything but boats.

KAITIVU, 2 miles in length S. by W. and N. by E. and about 3 miles broad, lies south-westward of Karativú; it is low and covered with trees about 70 feet high; between it and Karativú is the entrance to the port of Kaits.

Shoals.—A shoal with a depth of $3\frac{1}{2}$ to $3\frac{3}{4}$ fathoms over it lies $5\frac{1}{4}$ miles 21° W. from the north extreme of Eluvaitivú, in Latitude $9^\circ 47' 45''$ N., Longitude $79^\circ 47' 5''$ E.; another, with a depth of $3\frac{1}{4}$ fathoms over it, lies N. 1° E., distant $4\frac{1}{2}$ miles from the same island in Latitude $9^\circ 47' 30''$ N., Longitude $79^\circ 49'$ E. Between these shoals and Eluvaitivú are numerous patches composed of hard sand, having depths of 2 to $3\frac{1}{2}$ fathoms over, and with 4 to 5 fathoms between them. These shoals are probably composed of coral covered with sand.

Caution.—Vessels proceeding to Palk Bay or Jaffna should steer to pass about one mile to the northward of the northern shoal.

KAITS, situated on the northern side of the island of Velani and south of Karativú, is an open port throughout the year, but the S.-W. monsoon is the busiest season, there being then sometimes as many as 30 to 40 vessels in the anchorage at the same time. The entrance lies across the flats between Karativú and Eluvaitivú. Fort Hammonheil is the quarantine station for the port. The port was visited, in 1894, by 460 vessels of 17,475 tons. Country craft are hauled up and repaired here.

Supplies.—There is a small town, and a limited quantity of fresh provisions can be obtained.

Anchorage.—The small country vessels lie in the outer anchorage in $2\frac{1}{2}$ to 3 fathoms, and discharge part of their cargo before proceeding to the inner anchorage. Steamers should anchor in 4 fathoms, sand, with the north point of Eluvaitivú bearing S. E. distant about one mile.

Directions.—Small vessels when making for Kaits harbour from the eastward, should, after passing the north end of Karativú, keep about 2 miles from the coast, until Fort Hammonheil, on the S. W. point of Karativú bears S. E. by S., when steer for it until about a mile distant; a vessel will then be in 9 feet, smooth water, and should steer round the fort at a distance of from one to three cables, care being taken, when the fort has been rounded, to keep on the north side of the harbour until past a bungalow there situated. The best anchorage is off the custom house in about 2 fathoms, mud.

ANALATIVU, lying to the S. W. of Eluvaitivú, is $2\frac{1}{4}$ miles long by one mile broad; part of the island is covered with trees 70 to 80 feet high.

On its north-east and south sides are small islets 15 feet high, appear to be joined to it when the island is viewed from the west.

Shoal ground, with $3\frac{1}{2}$ to 4 fathoms water over it, lies $1\frac{1}{2}$ miles of the north point of Eluvaitivú, and extends southward off west side of Analativú from half to one mile.

NAINATIVÚ lies $1\frac{1}{4}$ miles south of Analativú; it is $2\frac{1}{4}$ miles half a mile broad, and has trees about 70 feet high on it; it is bordered on its western side by a narrow fringe reef. *Marine*

Shoal water, with depths of $2\frac{1}{4}$ to 4 fathoms, extends three-quarters of a mile from its western shore, but to the south-west the five fathom line approaches to within 4 cables.

DELFT OR NEDUNTIVÚ—South-west of Nainativú and separated from it by a channel 4 miles broad, is the large island of Delft or Neduntivú. It is 6 miles long north-west and south-east with an average width of 3 miles. High trees are situated on its north-east and western sides, in the centre is grass land and low trees about 20 feet high. From a distance to the northward, it looks like two islands. It is steep-to, except on the north side where shoal water under five fathoms extends in a point 6 miles to the northward.

A beacon 40 feet high is situated on the south-east side of the island; it marks the site of the station used by the Great Trigonometrical Survey of India, when triangulating between India and Ceylon.

Channel.—Between the Neduntivú shoal and the shoal water off Nainativú is a clear channel, one and three quarters of a mile broad, having in its narrowest part a depth of not less than five fathoms.

Directions.—When clear of West Channel, and intending to proceed to Jaffna using Delft channel steer S. 5° E., fixing the position by using the tangents of the trees on the islands; when at the northern entrance to the channel, the tall trees on the north-east of Delft should be visible bearing south, when steer for them, until the south point of Nainativú bears E. $\frac{1}{2}$ N., then a S. E. course will take a vessel clear into Palk Bay.

Middle Banks.—From a position about $5\frac{1}{2}$ miles S. E. $\frac{1}{4}$ S. from the beacon on Point Calimere, the middle banks which are formed of hard sand, extend in patches in a southerly direction for $7\frac{1}{2}$ miles, with uneven soundings of from $1\frac{1}{4}$ to 3 fathoms and deeper water between. The shoalest water found was 8 feet on the northern patch, and 10 feet on the second, $6\frac{3}{4}$ and 9 miles distant respectively, S. 18° E. from the beacon on Point Calimere. On the western part of the third patch there is also a depth of 11 feet.

North Banks consist of four shoals with less than 3 fathoms on the northern and shoalest with $2\frac{1}{2}$ fathoms on it, lies 13 miles from Kankasanturai lighthouse. The others extend $4\frac{1}{4}$ miles southward, and have depths of from $2\frac{3}{4}$ to 3 fathoms water. From the south banks depths of $3\frac{1}{4}$ to 5 fathoms extend 12 miles S. W. $\frac{1}{2}$ W.; to the channel leading into Palk Bay, and to the eastward joining the northern part of the Pedro Shoals.

Middle Channel.—Between the middle and south banks is a channel $1\frac{1}{2}$ miles broad with a least depth of $3\frac{1}{4}$ fathoms, and in the centre of this channel in Lat. $10^{\circ} 3' 30''$ N. is a deeper passage, one mile broad, carrying not less than $3\frac{3}{4}$ fathoms; this channel is out of sight of land, therefore latitude is the only guide.

Directions—East Channel is a 5 fathom passage across the shoal water connecting the south banks and Pedro Shoals. Vessels making Palk Strait from the north-eastward should steer for a position in Lat. $10^{\circ} 3' N.$, Long. $80^{\circ} 8' E.$, the tops of the trees between Point Pedro and Tondaimanár will then be visible, and a south course may be steered for Tondaimanár gap, not less than 5 fathoms should be met with in this channel; when the depth increases a course may be shaped for Kankasanturai, or Point Pedro as necessary.

West Channel.—After passing Kankasanturai, the lighthouse must not be brought to bear east of E. by S. until Eluvaitivú is well open of Karativú, and the conspicuous sand hill at Matakai, bearing S. $36^{\circ} E.$; the shoal off the latter place will then be passed and a course can be steered to enter the West Channel.

At the east entrance to the West Channel with the 20 feet sand hill on the north-east point of Karativú, bearing S. $54^{\circ} E.$, and Fort Hammonheil (which shows out clear of Karativú against the low land of Kaits), bearing S. $10^{\circ} E.$, a vessel should steer N. $80^{\circ} W.$ 6 miles through West Channel, when a course may be shaped for Delft Channel or Pamban.

Currents—Tides.—During the months of February, March, and April, no current was observed in Palk Strait. The tidal streams were very regular, changing every six hours, the flood setting to the eastward, and the ebb to the westward, between the shoals. From the West Channel to Delft Island the tide sets with the general direction of the coast, the flood setting northerly and north-easterly, and the ebb southerly and south-westerly; the strength at springs being nearly a knot.

Wind and Weather.—In Palk Bay, as in the Gulf of Manár, the south-west winds generally commence about the middle of April with fine clear weather. Early in May, the south-west monsoon blows fresh, and continues until about the middle of August, when it moderates, gradually

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dying away about the end of September; the sky then becomes overcast and about the 10th of October the north-east monsoon commences with hard squalls from different quarters, accompanied by heavy rain and lightning, which weather continues during the month. The weather becomes steady from the north-east, but during the months of November, December, and January, there are frequent gales and much rain. In the early part of February, the north-east winds take off, and regular sea land breezes set in, which continue until the middle of March, when the south-west winds prevail for several days, and the heat increases until the return of the south-west winds in April.

Marine
POINT CALIMERE forms the northern point of entry to Palk Bay, and the southernmost point of the Coromandel Coast. A beacon 33 feet high with two arms painted white is situated on the point, and one cable S. S. W. is a steel mast, carrying a light; $3\frac{1}{2}$ cables to the southward and surrounded by water is the ruin of a beacon. About 3 miles westward of the point are the Kodigiri bungalows, formerly much resorted to during the hot weather. At about 5 miles N. by W. $\frac{1}{2}$ W. from the point, and a mile in shore, are two dark looking pagodas, in shape like oblong haystacks, which when in line bear West. A sand bank, dry at low water, inside which trading boats find shelter in bad weather, extends about one and a half miles N. E. by E. of Calimere beacon.

The three fathom bank extends N. E. by N. and S. W. by S. at a distance of one and a half miles S. E. from Point Calimere, and 5 miles S. S. W. from the point; it then turns westward at about 4 miles from the coast.

Shoal.—In the channel between middle banks and the three-fathom line off Point Calimere, and S. 30° E., $4\frac{1}{2}$ miles from the beacon, is a shoal with a depth of $2\frac{3}{4}$ fathoms over it; it is composed of hard sand, extends 4 cables east and west, and is about 3 cables broad.

LIGHT.—A fixed pale red light, elevated about 55 feet above high water, and visible in clear weather from 6 to 9 miles, is exhibited from a steel mast (about 45 feet high) on Point Calimere. At the foot of the mast is a box painted white which contains the lantern during the day, and is a conspicuous object.

Forest Reserve.—At Point Calimere and in the vicinity is a forest reserve, apparently under the control of the Collector of the District. Here are many hundreds of antelope, spotted deer, and wild pig; they are strictly preserved, the officers employed in the survey being refused permission to either land, or shoot in the neighbourhood.

DIRECTIONS.—In rounding Point Calimere from the eastward, by the channel north of the middle bank, and immediately south of Point

re, the position of a vessel may be obtained by cross bearings of the pagodas to the northward of the point, and of the beacon or steel mast to shaping a south-westerly course clear of the three-fathom bank on the north side, and the detached two-and-three-quarter fathom patch on the south. A depth of more than 21 feet cannot however be relied upon. Careful attention must be paid to the lead.

ST. L. S. WARDEN, Lieut., R. I. M.,

Officiating in charge Marine Survey of India.

Marine Survey Office,
Bombay, 30th July 1895.

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(Form No. 5.)

No. 191

CHIEF SECRETARY

1895

Marine

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Hydrographic Notes

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Months

H.C.

Have the "Charts and
Notes" been despatched
direct, by C.S.'s office? They
are not in the file.

L.S.
5 hours

L.S.
C.A.W.

The charts and notes
have already been des-
patched by the librarian
of the Chief Secretariat - please
see notes on the draft.

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See: 65 of 3.2.96

Marine of 6 Nov 1895

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