

ARBITRATION UNDER ANNEX VII OF THE UNITED NATIONS
CONVENTION ON THE LAW OF THE SEA

REPUBLIC OF THE PHILIPPINES

v.

PEOPLE'S REPUBLIC OF CHINA

SUPPLEMENTAL WRITTEN SUBMISSION OF THE PHILIPPINES

VOLUME IV
ANNEXES

16 MARCH 2015

VOLUME IV

EXHIBITS

HISTORIC PUBLICATIONS

- Annex 386 John Purdy, *The Oriental Navigator: Directions for Sailing to, from, and upon the coasts of the East-Indies, China, Australia, &c.* (3rd ed., 1816)
- Annex 387 James Horsburgh, *India Directory, or Directions for Sailing to and From the East Indies*, Vol. 2 (1827)
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Annex 386

John Purdy, *The Oriental Navigator: Directions for Sailing to, from, and upon the coasts of, the East-Indies, China, Australia, &c.* (3rd ed., 1816)

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THE
ORIENTAL NAVIGATOR:

OR,

DIRECTIONS FOR SAILING

TO, FROM, AND UPON THE COASTS OF, THE

East-Indies,

CHINA, AND AUSTRALIA.

WITH ILLUSTRATED TABLES OF POINTS DETERMINED, &c.



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TO, FROM, AND UPON THE COASTS OF, THE

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COMPOSED, FOR THE USE OF

SHIPS TRADING IN THE INDIAN, MALAYAN, AND CHINESE, SEAS; AND FOR
THOSE ENGAGED IN THE FISHERIES OF THE PACIFIC OCEAN, &c.;

FROM MANUSCRIPTS, JOURNALS, MEMOIRS, and OBSERVATIONS, of the most experienced Officers in
the Hon. EAST-INDIA COMPANY'S SERVICE; of Commanders of Ships in the COUNTRY TRADE; from
those of other Navigators, British and Foreign, acquainted with the Indian and Eastern
Seas; and from the Last Edition of the FRENCH NEPTUNE ORIENTAL,

By Mons. D'APRÈS DE MANNEVILLETTE.

Being a requisite Companion to the Charts and Plans which constitute

The Complete East-India Pilot.

THIRD EDITION; WITH CONSIDERABLE ADDITIONS:

NEWLY REVISED AND CORRECTED BY JOHN STEVENS,

OF THE HONOURABLE COMPANY'S SERVICE.

To the Work are prefixed

A SERIES OF ORIGINAL AND COPIOUS TABLES

OF THE DETERMINED POSITIONS OF ALL THE PRINCIPAL POINTS AND PLACES, FROM THE BRITISH
SEAS TO CAPE HORN, THE CAPE OF GOOD HOPE, AND THENCE
TO THE ISLANDS OF JAPAN, &c.

INCLUDING

All the Navigation above described; with the Authorities and descriptive Notes:

BY JOHN PURDY.

LONDON:

**PRINTED FOR JAMES WHITTLE AND RICHARD HOLMES LAURIE,
CHART-SELLERS TO THE ADMIRALTY, &c. &c.**

No. 53, FLEET STREET.

1816.

TABLES OF OBSERVED POSITIONS.

NOTES CONTINUED.

22. **ANGELICA'S SHOAL.** It is uncertain whether the land seen when this shoal was discovered, was the island called the Post-horse or Kalatoa. If the first, the longitude given is nearly, if not exactly, correct; but, if the latter, the longitude is about 20 minutes less.

The shoal was discovered by the Angelica, on her passage from Amboyna; when it was seen, bearing from S. by W. to W. N.W. the ship bore up to the northward of it; on approaching, three prows, which were at anchor on it, weighed and made sail. The shoal is about 4 miles in extent, of circular form, the north and south parts nearly dry.

23. **JAGGER'S REEF or LYNCH'S SHOAL.** This shoal has been represented at about 6 leagues to the S.W. from the West end of Madoo or Panjang. The ship Bangalore, bound from Amboyna to the westward, unfortunately struck upon it, and was wrecked, in the night of the 12th of April, 1802. At day-light, the shoal was found to extend, North and South, about 3 miles, and in breadth 2 miles; the western part dry at low water, with rocks resembling prows under sail. From the shoal the S.E. Schiedam Island bore N.W. 8 or 10 leagues; an island near Floris, formed like a dome; (*perhaps Sugar-loaf Island*;) S. S.W. 7 or 8 leagues; and the Island Floris or Mangeray, from S.W. to E.S.E., 10 or 12 leagues.

24. **SELONDA.** The given longitude of this island has been inferred from the peaks of Goonong-Apy and Lombock. The island, though small, is moderately high, flat on the summit, and may be discerned when the land of Sumbava is obscured by haze.

25. **FLAT ISLAND, &c.** Captain Horsburgh gives the longitude of Flat Island as about $117^{\circ} 25'$ E., and he observes that great care is requisite when passing hereabout in the night, for several ships have nearly grounded upon Flat Island before it was perceived: and it must not be rounded at a great distance, because two dangerous sand-banks, with rocks and coral shoals, are situated in latitude $7^{\circ} 42'$ to $7^{\circ} 45'$, long. $117^{\circ} 25'$ to $117^{\circ} 29'$ (by chronometers from Bally town). On one of these the Alexander struck, and was nearly lost, in 1806, when steering to the eastward. We presume that the banks may be a few minutes to the westward of the above statement.

26. THE STRAIT OF MACASSAR AND JAVAN SEA, THENCE TO THE STRAIT OF SUNDA.

	LATITUDE.			LONGITUDE.			AUTHORITIES.
	°	'	"	°	'	"	
WESTERN COASTS OF CELEBES.							
Cape Rivers [1.]	1	15	0 N.	120	40	0 E.	} Latitude, Captain Horsburgh; Longitude, Captain Heywood.
Cape Donda (<i>Very high</i>)..	0	40	0 N.	119	58	0 —	
Cape Temoal	0	1	0 N.	119	32	0 —	} Latitude inferred from Cape Rivers; Longitude, Captain Heywood.
Cape William [2.]	2	20	0 S.	118	42	0 —	
Cape Mandhar	3	35	0 S.	119	3	0 —	} Inferred, after a comparison of different observations, from Cape Rivers and Tanakeeka. See Note 2.
MACASSAR [3.] (Fort Rotterdam)..	5	9	0 S.	119	34	0 —	
Tanakeeka or Tunnick Is. <i>Middle</i> ..	5	32	0 —	119	20	0 —	} Latitude, Governor Loten; Longitude inferred from Tanakeeka.
The Brill Reef..... <i>North End</i> ..	6	1	0 —	118	54	0 —	
Bank of Five Fathoms	5	47	0 —	118	25	0 —	} Captain Peter Heywood, R.N., &c. For description, see <i>Directory</i> , pages 569, 576, 7, 673.
Tonyu Isles [4.] <i>Eastern Isle</i> ..	5	32	0 —	118	46	0 —	
Saffanaf or Zalinaff Island	5	30	0 —	118	25	0 —	} Captain James Horsburgh, &c.
The Hen and Chicken, <i>Southernmost</i>	5	28	0 —	117	54	0 —	
Noossa Comba	5	17	0 —	117	5	0 —	} Mean of several chronometric observations.
EASTERN COAST OF BORNEO, &c.							
Kannegoongan Point, or Gyssens Hoek	1	5	0 N.	119	4	0 —	} Inferred from varying authorities, and not determined.
Passier or Passir River... <i>Entrance</i> ..	1	51	0 —	116	21	0 —	
Tanjong Ares or Rugged Point [5.]	2	9	0 —	116	35	0 —	} Inferred, by chart, from Tanjong Ares. Latitude, Captain Peter Heywood, Longitude, per Chart.
Shoal Point	2	35	0 —	116	34	0 —	
							} Latitude observed; Long. inferred by survey, from Tanjong Ares.

NOTES CONTINUED.

ISLES and SHOALS, &c.

35. **ANDRADA ROCK and DOLPHIN BREAKERS.** These dangers have been already noticed in the preceding section. For description, see Notes 26 and 27, pages 135, 136.

36. **PENNSYLVANIA BREAKERS.** Between the meridian of the Dolphin Breakers, on the west, and that of the Pennsylvania Breakers, on the east, are dispersed the numerous shoals and islets, described by Mr. Dalrymple and others as existing to the southward of the parallel of 12 degrees. Recent discoveries have increased the number of these dangers, all of which appear to be exhibited upon the late charts, and do not therefore require a particular description. Those enumerated by Mr. Dalrymple are given in the *Directory*, page 539.

37. **PARCELS OF PARACELS.** The assemblage of isles, and rocks, and banks, under this name, which have heretofore constituted so remarkable a feature in the charts of the Chinese Sea, seem to have been wonderfully misrepresented; if any error in geography may be considered as wonderful. Several ships have passed over the space which they were supposed to occupy, and have found the sea perfectly clear. An officer of the squadron, in January 1805, says, "We were no sooner out of sight of the bleak coast of China than the skies cleared up, and the N.E. monsoon blew clear and pleasant over the scarcely ruffled surface of the ocean. We steered a direct course for the Paracels, passing to the southward of the island Hai-nan: we crossed the centre of that space in which the Paracels are laid down in the charts, but saw nothing of them; and, on the 8th, made the high land of Cochin-china, to the northward of Cape Varella." The tracks of several other ships, before and since, concur in proving this fact: and it is now concluded that the isles and shoals, described in the following notes, compose, if not the whole, at least the greater part, of the Paracels, which were formerly supposed to exist at about two degrees farther to the westward. They are given principally under the authority of a late survey made in two vessels, commanded by Lieutenants Ross and Maughan, by order of the Honourable East-India Company. We merely add 2 minutes to the longitude, in order to accord with the rectifications before explained; and commence the description from the north-westward.

38. **NORTH SHOAL.** This shoal, supposed to be the north-westernmost of the Paracels, extends E. by N. and W. by S. about 2 leagues. It is narrow and steep-to, having soundings only on the north side, and 14 fathoms at half a cable's length from the rocks. At a short distance north and south from the shoal, no bottom was found at 40 and 50 fathoms.

39. **AMPHITRITE ISLES and SHOALS.** These are described as composed of five low narrow islands, connected by a reef of rocks projecting 2 or 3 miles beyond their extremities. Upon the westernmost island is a cocoa-nut tree. The position of the western extremity of the reef is given in the Table, and the whole extent thence is about 4 leagues E.S.E., the eastern end being in $16^{\circ} 54'$ and $112^{\circ} 25'$ E. No soundings were found on the northern side, but there is anchoring ground, in 10 fathoms, under the S.E. side, at half a mile from the rocks. No fresh water here; but, on **WOODY ISLAND**, to the southward, there is a spring of good water, near some cocoa-nut trees, on its western side. The island last mentioned is about 3 miles in circumference: it is covered with small trees, and surrounded by a reef extending from it about three-quarters of a mile.

ROCKY ISLAND, to the E.N.E. of **WOODY ISLAND**, is connected thereto by the reef. It is small, and nearly of the same height. To the N.E. or eastward of it no soundings have been found; but irregular soundings extend 6 miles to the south-westward, decreasing, on some spots, to 14 fathoms. These are 25 fathoms close to the reef on the western side of **WOODY ISLAND**, and the depths on that side decrease gradually from 30 to 15 fathoms towards the **Amphitrite**, where a vessel may anchor.

40. **LINCOLN ISLAND** takes its name from the ship *Earl of Lincoln*, by which it was discovered in 1764, as shewn by Mr. Dalrymple. (See *Directory*, page 538.) It has been since represented as about 3 miles in circuit, low, and covered with small brush-wood. Near three cocoa-nut trees, in the centre, is a spring of excellent water. Close to the rocks on the south and west sides is a depth of 20 fathoms, and soundings thence extend about two miles off; but on the eastern side the water is deep.

The **PYRAMID ROCK** lies about 6 miles to the S.W. of **Lincoln Island**. Close to it no soundings were found; but these are said to be soundings in a line between **Lincoln Island** and the shoal discovered by the *Bombay-Merchant*, described in the next note.

41. **BOMBAY SHOAL.** This shoal was discovered by the ship *Bombay-Merchant*, in 1800, and has since been found to extend from latitude $16^{\circ} 0'$ to $16^{\circ} 6'$ N., and from longitude $112^{\circ} 28'$ to $112^{\circ} 40'$. It is a reef, with breakers, extending about 4 leagues E. by N. and W. by S. There appears to be an entrance in the western part, with deep water within it. Some of the rocks are even with the water, and have patches of sand on the inner part. At three-quarters of a mile from the south side, the *Bombay-Merchant* had no ground with a line of 100 fathoms; and it appears to be steep-to all around.

The **CORAL BANK** between the **Pyramid Rock** and **Bombay Shoal** was seen from the ship *Jehangire*, 25th October, 1806. By observation at the preceding noon, with good chronometer, $16^{\circ} 5' N.$ and $112^{\circ} 52' E.$ was the situation of the ship, and no danger could be discerned from the mast-head. On the following day the ship was on the bank, and had 12, 10, 9½, fathoms; next cast 30, and in less than an hour no ground; drifting to the south-eastward by the lead, the weather being calm.

42. The **VULADOR SHOAL**, so named from the Portuguese snow *Vulador* or *Victador*, 21st July, 1807; which made it in latitude $16^{\circ} 19' N.$ and $112^{\circ} 5' E.$ per chronometer, and bearing S. 15° W. 39 miles from the **Amphitrite Islands**, which she had passed to the westward on the preceding day, and had, on proceeding thence to the southward, no soundings. The shoal has been since found to extend E. by N. and W. by S. 7 miles; it has a few small spiral rocks above water, with high breakers, and no soundings at the distance of a cable's length on either side.

43. **MONEY'S ISLAND, CRESCENT CHAIN, &c.** Money's Island is the westernmost of the range now called the **CRESCENT CHAIN**, and comprehending **Robert's**, **Pattle's**, **Drummond's**, and **Governor Duncan's Islands**. The reefs on which these are situated extend from latitude $16^{\circ} 27'$ to $16^{\circ} 32' N.$, and from longitude $111^{\circ} 29'$ to $111^{\circ} 46' E.$ in the form of a

NOTES CONTINUED.

rescent. At the east end an albow is formed, as the reef there trends round to the S.W. Near the southern extremity of this are the two little isles named in honour of Governor Duncan, and which stand on the eastern side of the concavity formed between them and Money's Island. Within this concavity or bay, on the south side, there are soundings, but the bottom is chiefly of coral, with great over-falls of 25 to 5 fathoms. The best anchorage appeared to be close to the reef on the north side of Governor Duncan's Isles, there being some broad patches of sandy ground. Between these isles and Drummond's Isle, to the eastward, is a narrow passage, with the depth of 12 and 14 fathoms, but not fit to be attempted by a large ship. On the south side of the chain no soundings are to be found.

7. OBSERVATION BANK is a small spot lying on the north side of the Crescent Chain, towards the East, and to which it may be considered as connected.

44. DISCOVERY REEF. This reef extends from the situation indicated in the Table about E. by N. $5\frac{1}{2}$ leagues, its eastern extremity being in $10^{\circ} 16' N.$ and $111^{\circ} 49' E.$ It forms an oval, having an opening, of a cable's length in breadth, on the south side. There is, also, a small opening on the north side. At 20 yards from the reef, no soundings have been found, although there are scarcely 2 fathoms over any part of it, and many spiral rocks a few feet above water. From January to May, the Hainan fishing-boats may be seen here.

The island called PASSOO KEAR, to the southward of the Discovery Shoal, is a small sandy island, surrounded by a coral reef, without which no soundings are to be found.

45. TRITON'S BANK, discovered by Captain John Brown, of the Triton, 13th November, 1804, is represented by that gentleman as having, at the east end, a high lump of sand, about 20 feet above water, with very high breakers extending to the southward. The shoal appeared to be 3 miles in length, in a N.W. and S.E. direction. The elevated part slopes down in a low point to the south-eastward, and a reef projects from the N.W. end.

46. MACCLESFIELD BANK. Of this extensive bank, a description is given in the Directory, pages 424, 425. Captain Krusenstern has remarked that, in $15^{\circ} 14' N.$ and $114^{\circ} 5' E.$ he found 66 fathoms, bottom of sand and muscles. If this be correct, it may be considered as the position of the southernmost part of the bank, whence the shoalest part, 8 fathoms, bears N.N.E. distant nearly 90 leagues.

47. MAROONA or SCARBOROUGH SHOAL, discovered by the ship Scarborough, 1748, and seen by the Royal Captain in 1773, has been described by Mr. Dalrymple as lying between the parallels of $15^{\circ} 5'$ and $15^{\circ} 14' N.$, in longitude $117^{\circ} 41'$. See Directory, page 539. We since learn that a Spanish frigate, sent by the Admiral from Manilla, surveyed it in April, 1800, and ascertained its extent to be 8 $\frac{1}{2}$ miles from N. to S. between $15^{\circ} 4'$ and $15^{\circ} 12\frac{1}{2}' N.$, and 9 $\frac{1}{2}$ minutes of longitude East and West. The centre of the shoal was given as $3^{\circ} 11' 27''$ West from Manilla, (as shewn in the Directory, page 493,) or $117^{\circ} 42' 3''$ from Greenwich: but Captain Robertson, in the Cirencester, who passed close to the shoal on the 20th of October, same year, made it $8^{\circ} 47'$ E. of Pulo Sapata, by chronometers; and this gives $117^{\circ} 49' E.$ See Pulo Sapata, page 136. We have given Captain Robertson's longitude in the Table, but are strongly inclined to think that the shoal lies more to the west; and that $117^{\circ} 45'$ would be more correct.

48. St. ESPRIT BANK. This bank, although described by M. D'Aprés and Mr. Dalrymple, is not yet perfectly known, either as to extent or position. M. D'Aprés has given it as 18 or 20 leagues in circumference, (See the Directory, pages 495 and 538,) and assigned to the middle of it the latitude $19^{\circ} 24'$, in longitude $112^{\circ} 55'$. It appears that Lieutenant Ross, in 1813, found 8 fathoms on the northern part in $19^{\circ} 28' N.$ and $113^{\circ} 5' E.$ and the S.W. part may probably lie in the longitude assigned to the centre by M. D'Aprés, as above. Ships should be cautious in approaching, as there may be dangerous spots upon it.

49. PRATAS. For description, see Directory, page 501. The positions given by Captain G. Robertson have, with a very trifling variation, been confirmed by the chronometers of Captain C. Macintosh, and may be considered as final determinations.

50. GENERAL NOTE on the CHINESE SEA. We have already alluded, in Notes 7 and 11, page 153, to the piratical depredations committed in the Malayan Sea, more particularly on the coasts of Dorneo, &c. But every stranger ought to know that these are not limited to the southern parts; for, having, at times, increased to an alarming degree, pirates may be occasionally expected to the north and west, as well as to the eastward; and every ship ought to be prepared accordingly. Captain Krusenstern, on proceeding within the Lema Islands towards Macao, 19th November, 1805, says that "At 5 in the evening we saw a large fleet of boats, consisting of about 300 sail, lying at anchor under shelter of the Island of Lantoe. We took them for fishing-boats, and sailed quietly by them; but we learned afterwards, at Macao, that this was a fleet of Chinese pirates, who, during the last three years, have committed their depredations on the southern coast of China, attacking every vessel that is not upon its guard, and does not appear to them too strongly armed. In this manner they had lately taken an American ship and two Portuguese vessels; the one between the Lema Islands, and the other, which was proceeding from Cochin-china, off the coast of China, at a very short distance from the land. Nothing was known as to the fate of the American; but they had learnt at Macao that all the Portuguese who refused to enter their service were murdered. Some of the crew of the Portuguese vessels agreed to do so, and succeeded, after a time, in making their escape. They burnt the vessels after plundering them. These pirates have vessels of 200 tons in their fleet, manned with 150 or 200 seamen, and mounting from 10 to 20 guns; and the smallest of their boats carry 20 or 40 men. If they can succeed in boarding a vessel, they are certain of their prey, from the superiority of their numbers. They would be infinitely more dangerous if they possessed more courage, and more skill in their manœuvres, and knew how to use their artillery. In the road of Macao, and even in the Typha, vessels are not secure against their attacks; and the passage from Macao to Cnuton was particularly dangerous. The members of the English factory, whenever they had occasion to go from one of these places to the other, were accompanied by the armed boats of two English frigates, lying in the Bocca Tigris, having once narrowly escaped falling into the hands of these pirates. The English brig Harrier, of 18 guns, Captain Badger, had been cruising here for the last ten weeks, as well as two Portuguese armed vessels; one of which had lately

TABLES OF OBSERVED POSITIONS.

NOTES CONTINUED.

had an engagement with 80 of these pirates, and had been so successful as to cut her way through them. Nothing but the violence of a storm could have deterred them from attacking us; and they might have been the more certain of their prey, as we had not the slightest suspicion of them, taking their vessels for fishing-boats, which, it is well known, sail in these parts in large fleets."

Captain Horsburgh has also shown that, in 1808, the ship *Anne*, Captain Churchman, on her route from Timor towards Canton, with a cargo of sandal-wood and wax, was boarded by the Ladrões near the Lema Islands, who killed the captain, officers, and all the crew, excepting 5 or 6 lascars. Three of the latter reached Canton in 1810.

VARIATION OF THE COMPASS. The variation in these seas is so small as scarcely to require notice. It was given by Captain King as 0° 19' W. in the Typa of Macao, 1780, and Mr. Chapman, in 1797, in the same place, by mean of 12 sets of azimuths, gave it as 1° 50' W. See, however, what is said by Captain Huddart on this subject, upon his survey of the Tigris, (*Directory*, page 505,) where it will be seen that he found it alternately to the east and west of north; and, upon the whole, it may be concluded that the variation is rather easterly; probably in no part of these seas exceeding one degree East.

30. THE PHILIPPINAS, OR PHILIPPINE ISLANDS, WITH THE SOLOO ARCHIPELAGO, &c.

	LATITUDE.			LONGITUDE.			AUTHORITIES.
	°	'	"	°	'	"	
BABUYAN ISLANDS.							
Claro Babuyan [1.]	19	38	0 N.	122	9	0 E.	Inferred from a comparison of the authorities described by Messrs. Dalrymple, Robertson, and Horsburgh; with the observations of Captain Heywood, &c. &c.
Calayan [2.]	19	28	0 —	121	39	0 —	
Lapurip [3.]	19	15	0 —	121	27	0 —	
Fuga [4.]	19	2	0 —	121	32	0 —	
Camiguin [5.]	19	3	30 —	122	5	0 —	
Guinapac Rocks [6.]	19	5	0 —	122	18	0 —	
Didicas Rocks [6.]	19	12	0 —	122	24	0 —	
WESTERN COASTS OF LUZON, &c.							
Cape Boxeador or Bojador [7.]	18	42	0 —	120	52	0 —	<p style="text-align:center">NOTES.</p> <p>1. CLARO BABUYAN or Old Babuyan. With this island we terminated the description of the Bashee Islands, &c. in the preceding Section. See Note 34, page 143. Claro Babuyan is the northernmost of the group called the Babuyan or Five Isles, which are disposed, as shown in the Table, between the Bashee Islands, on the North, and Luzon, the chief isle of the Philipinas, on the South. The coasts of these isles are generally steep; the channels between them deep and safe. CLARO BABUYAN is the northernmost and highest; it is about 2 leagues in extent from E. to W. A reef projects from the west end of the island, and the south point is steep and rocky. At about a mile from the latter is a black rocky islet, in form of a sugar-loaf.</p> <p>At the west end of Claro Babuyan is a volcanic mountain, the frequent eruptions of which have induced the natives to quit the island. Between this volcano and the eastern mountains, when seen from the northward or southward, the land appears in a concavity; but, when seen from a great distance to the eastward, the whole appears as a round mountain, with a detached hummock to the northward. From the Balingtang Islets, or southernmost Bashees, this island bears about S. ½ W. 6 leagues. See <i>Directory</i>, page 601.</p>
Port Salomague	18	2	0 —	120	47	0 —	
Bigan	17	45	0 —	120	44	0 —	
Cape Bolinao or Bolina [8.]	16	27	30 —	119	54	0 —	
Adders' Island	15	55	0 —	119	52	0 —	
Point Capones [9.]	14	52	30 —	119	55	30 —	
Port of Subec	14	46	0 —	120	8	0 —	
Corregidor Island	14	22	0 —	120	27	0 —	
MANILA or MANILLA [10.]	14	36	0 —	120	53	30 —	
Cavite	14	29	0 —	120	47	0 —	
Cabras or Goats' Island	13	57	0 —	120	2	0 —	
Luban [11.]	13	45	0 —	120	7	0 —	
Calavite Point, Mindoro	13	27	0 —	120	18	0 —	
South End of Mindoro [12.]	12	13	0 —	121	16	0 —	
Southern Isle off Mindoro	12	6	0 —	121	14	0 —	
Shoals of Apo [12.]	12	25	0 —	120	32	0 —	
<i>N.W. End.</i>	12	48	0 —	120	17	0 —	
Busvagan [12.]	12	32	0 —	120	2	0 —	
PARAGUA or Palawan	11	29	0 —	119	10	0 —	
A dry Bank [13.]	11	25	0 —	121	48	0 —	
Point Naso or S.W. End of Panay							
[14.]	10	25	0 —	122	5	0 —	
Cayagan Isles [15.]	9	34	0 —	121	21	0 —	
Point Gorda, Mindanao	8	1	0 —	122	34	0 —	
Samboanga [16.]	6	44	0 —	122	14	0 —	

Annex 387

James Horsburgh, *India Directory, or Directions for Sailing to and From the East Indies*, Vol. 2 (1827)

INDIA DIRECTORY,
OR
Directions for Sailing
TO AND FROM THE
EAST INDIES,
China,
NEW HOLLAND, CAPE OF GOOD HOPE, BRAZIL,
AND THE
INTERJACENT PORTS:

COMPILED CHIEFLY FROM
ORIGINAL JOURNALS AT THE EAST INDIA HOUSE,
AND FROM
Observations and Remarks,
MADE DURING TWENTY-ONE YEARS EXPERIENCE NAVIGATING IN THOSE SEAS.

BY
JAMES HORSBURGH, F.R.S. A.S.

CORRESPONDING MEMBER OF THE IMPERIAL ACADEMY OF SCIENCES ST. PETERSBURGH,
HYDROGRAPHER TO THE HONORABLE EAST INDIA COMPANY.

They that go down to the sea in ships, that do business in great waters; these see the works of
the Lord, and his wonders in the deep. PSALM CVII. v. 23, 24.

VOLUME SECOND.

THIRD EDITION.

LONDON:
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1827.

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TO THE
HONORABLE THE COURT OF DIRECTORS
OF THE
United East India Company.

HONORABLE SIRS,

PERMIT ME to dedicate to your Honorable Court, a new and much improved edition of the India Directory, which is designed to contribute to the safety and facility of the navigation to, and from India to China, and throughout the seas eastward of the Cape of Good Hope, being highly essential to the interests of the Company, as well as to the prosperity of the British Empire. As it was originally undertaken and completed under the auspices of the Honorable Court, after several years laborious and minute investigation of their maritime records, added to the experience and knowledge acquired during a very long period of navigating in those seas, the author begs leave to submit to the Honorable Directors, this corrected edition, comprising above one hundred and thirty additional pages of new and important information, as a small but sincere testimony of the esteem and respect which he entertains for their patronage and favor, and to subscribe himself

Their very faithful

And most obliged Servant,

JAMES HORSBURGH.

*Hydrographical Office, East India House,
London, June 10th, 1827.*

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the depths increase regularly to 8 or 9 fathoms about mid-way, then gradually decrease to $4\frac{1}{2}$ or 4 fathoms off Manilla. With a turning wind between them, a ship may approach the shore to 5 or $4\frac{1}{2}$ fathoms, the bank fronting it being very flat, composed of soft mud.

Anchorage
at Manilla.

A good birth to anchor in Manilla Road, is in 5 fathoms water, about a mile off, with the North Bastion N. $37\frac{1}{2}^{\circ}$ E., the S.W. Bastion E. 20° N., the Cupola E. 37° N., and the fishing stakes at the river's mouth N. 18° E. Large ships generally anchor at Cavité Harbour.

Geo. Site.

MANILLA CITY, capital of Luzon, one of the largest of the Philippine Islands, and the seat of the Spanish government in the East, is situated in lat. $14^{\circ} 36' N.$, lon. $121^{\circ} 24' E.$ by an observation of Jupiter's satellite, corroborated by chronometers.* It is large, and convenient for trade, the country adjacent producing excellent indigo, sugar, tobacco, hemp for cordage, &c.; but the inhabitants around are indolent, and will not cultivate the ground to rear these articles, unless an agreement is previously made with them, and money paid in advance. Some trade is carried on with China, Batavia, and with several of the Philippine Islands; but the chief dependence of this place, was formerly on the trade to Acapulco, carried on in two or three ships, which usually sailed in March or April from that place, and arrived at Manilla in August or September, although not always regular.†

During the months of June, July, and August, the air of Manilla is rendered impure, by noxious exhalations arising from the swampy land around; and the weather being sultry, with much rain at times, febrile complaints are then liable to appear.

Firewood is scarce here, and at Cavité, it being brought from the interior. Ships moored in the road, may water expeditiously, by sending their boats into the river as far as the bridge, where the water is very good.

To return
from Manilla
to Pulo Aor.

DEPARTING from MANILLA, if bound to the straits of Banca or Malacca, the N.E. monsoon is the proper season; and in sailing out of the bay, conform to the directions given for entering it, and to the marks for avoiding St. Nicholas Shoal. Having cleared the bay, steer W. by S. until in lat. $12^{\circ} N.$ and $9^{\circ} W.$ from Goat Island by chronometer: if the longitude is not ascertained by chronometer or by lunar observations, do not come to the southward of lat. $12^{\circ} N.$ until 9° of West meridian distance has been made from Goat Island. From this situation, steer S.W. for Pulo Sapata, observing that a westerly current in this season, is liable to carry a ship a-head of the reckoning: if on the contrary, Pulo Sapata is not seen when in its latitude, steer S.W. by W. or W. S.W. to get into soundings, then S. S.W. $\frac{1}{2} W.$ for Pulo Aor; agreeably to the preceding directions given in the last Section, for sailing by the *Outer Passage* from Macao to Pulo Aor.

Shoals in the
S. E. part of
the China
Sea.

THE ARCHIPELAGO, of sand banks, rocks or reefs, above and under water, situated between the coast of Palawan and Pulo Sapata, is so extensive, and the dangers that form it so numerous, that there can be little utility in entering into a minute description of them, for they ought to be avoided by all navigators. No ship can enter within the limits of this dangerous Archipelago, without getting embarrassed with, or seeing several of the shoals; and

* This is the longitude of Manilla, as determined by Capt. Ross, in the Company's surveying ship Discovery, and he made it in $12^{\circ} 1' E.$ of Pulo Sapata by chronometers. The French circumnavigator, La Perouse, made the longitude of Manilla, about 3 miles farther East than Capt. Ross; but Mon. Gentil made it in lon. $120^{\circ} 51' E.$, which was long thought to be its true longitude. Don J. Vernacci, made it in lon. $120^{\circ} 55' East$ of Greenwich, so that its true longitude seems not yet determined.

† These Galloons did not sail together, nor exactly at stated periods from Manilla, but generally in July or August; they sometimes went round the North end of Luconia, at other times through the Straits of Manilla, or St. Bernardino, and arrived at Acapulco about Christmas, or generally between the early part of November and middle of January. They sometimes arrived at Manilla in July, and generally made the island Samar about Cape Spirito Santo, then came in by the Strait of St. Bernardino.

there are strong currents, or irregular tides among them, rendering a ship's place very uncertain when observations cannot be obtained; and the rise and fall of the tide is considerable amongst the shoals, during the springs. Although some ships have passed through amongst them with difficulty and risk, others have struck upon, or lost their anchors among the extensive coral flats; and the Fanny, the Betsey, and other ships, were wrecked nearly in the middle of the Archipelago. It seems, therefore, only necessary to describe briefly, the *exterior* limits of those dangers.

From the West coast of Palawan, the shoals extend N.W. and Westward, to within about 3° of the meridian of Pulo Sapata, as the West London Shoal, appears to be the westernmost danger.

Between several of them, there are channels from 6 or 8, to 15 leagues wide; and between the outer shoals off Palawan, and those which lie within 5 or 6 leagues of that island, there is a channel about 8 or 9 leagues wide. In these channels, and close to the outer reefs, there are no soundings.

EASTERNMOST *known* danger is a reef of breakers in lat. 10° 49' N., lon. 117° 10' E., Geo. Site of their Eastern limit. distant about 30 leagues from the coast of Palawan, seen in 1803, by the brig Pennsylvania. About 15 leagues farther eastward, in lat. 10° 57' N., about lon. 117° 53' E., there is a bank of coral and white sand, extending about a mile East and West, and $\frac{1}{2}$ mile broad, with soundings on it from 8 to 11 fathoms, discovered by the Sea Horse in 1776.

NORTHERNMOST DANGERS,* are two sand banks or low sandy isles, with a tree Northern limit, on the northernmost of them, situated in lat. 11° 29' N., lon. 114° 20' E., the other to the S.W. of it, about $2\frac{1}{2}$ or 3 leagues distance: they were seen by the South Sea Castle in 1762, and although she made them only 4° East meridian distance from Pulo Sapata, they are probably upward of 5° from that island, as may be inferred from the examination of this part by Capt. Ross. About mid-way, nearly in a direct line between these and the easternmost danger mentioned above, lies a low isle in lat. 11° 1' N. surrounded with breakers, and having a reef projecting to the N. Eastward, which has been seen by several ships.

N. WESTERNMOST DANGERS, are two isles, with reefs at each extremity, in N. Western limit, lat. 11° 27' N., lon. 114° 22' E., the whole extending nearly N. E. and S.W. about 7 or 8 miles.

An island, in lat. 11° 8' N., lon. 114° 18' E., about 6 leagues to the southward of the above, having a sand bank 5 miles to the West, and a reef projecting 5 miles to the eastward.

Another island in lat. 10° 44' N., lon. 114° 26' E. with a sand bank 5 miles to the N.W. and several detached shoals extending about $3\frac{1}{2}$ leagues to the East and E. N. E. of the island.

A reef in lat. 10° 15' N., lon. 113° 40' E.; and about 5 leagues S. Eastward of it, Discovery's Reef, some of the rocks above water, extending from lat. 10° 0' to 10° 8' N., lon. 113° 50' E., from which Capt. Ross had a narrow escape in the Discovery; and a third reef, lies about 4 leagues East from the latter.

WEST LONDON REEF, in lat. 8° 55' N., lon. 112° 0' E., with other smaller reefs Western or S. Western limit. stretching 3 leagues E. N. Eastward, are the Westernmost dangers.

* The South Sea Castle made them in lat. 11° 40' N., but these Northernmost dangers, from the examination of them in 1814, by Capt. Ross, extend from lat. 11° 28' 36" N., lon. 114° 24' E. to lat. 11° 21' N., lon. 114° 16' E. The Hainan fishermen, visit the islands and shoals in this part of the China Sea, in March and April, to fish, as well as those of the Paracels.

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EAST LONDON REEF, in lat. $8^{\circ} 48' N.$, lon. $112^{\circ} 24' E.$, extends above 2 leagues in an easterly direction. These two reefs were seen by the London in 1786, and afterward by several ships; and the West London Reef, is *thought* to be the nearest danger to Pulo Sapata, as Capts. Ross and Maughan, in their examination of the above-mentioned dangers, could not discover any others farther to the westward, although many traverses were made for this purpose, between these shoals and Pulo Sapata.

Geo. Site of
Crawford's
Shoals.

CRAWFORD'S SHOALS, are about 6 miles in length, formed into three patches, with a high surf beating on their S.W. part, seen by Capt. Crawford in the Investigator, and they consist of coral reefs, nearly even with the water's edge. They were found to extend from lat. $9^{\circ} 40' N.$, lon. $113^{\circ} 4' E.$, to lat. $9^{\circ} 42' N.$, lon. $113^{\circ} 8\frac{1}{4}' E.$, by good chronometers measured to the Great Natuna, and to Singapore.

Geo. Site of
Stags Shoal.

STAGS SHOAL, the North end, in lat. $8^{\circ} 24' N.$, lon. $112^{\circ} 57' E.$, was seen by the brig Amboina, Capt. Trinder, September 7th, 1802, and named by him from the resemblance of the rocks to the horns of a stag. No soundings were obtained at 80 fathoms within $\frac{1}{4}$ mile of the north end of the shoal, which extended S. E. and S. S.W. in form of a triangle, with rocks above water, and breakers on various parts, the intermediate space apparently very shoal, and the southern extremity could not be discerned from the mast-head.

The above shoal is situated nearly mid-way between the easternmost shoal seen by the London, and that seen by the Walpole and other ships, and seems to be another addition to the multitude of shoals which occupy the South-eastern part of the China Sea.

Geo. Site of
Amboina
Sand.

AMBOINA SAND, seen by the Amboina brig, is a sand bank, and rocks above water, which she made in lat. $7^{\circ} 51' N.$, lon. $113^{\circ} 6' E.$; but Capt. Ross, in 1817, made this danger in lat. $7^{\circ} 52' 20' N.$, lon. $112^{\circ} 56' E.$, or $5^{\circ} 26'$ West of Long Point on Palawan by chronometers.

Geo. Site of
the Southern
limit.

SOUTHERNMOST DANGERS, of this archipelago, are in about lat. $7^{\circ} 20' N.$, extending from lon. 113° to $115^{\circ} E.$, and about 16 leagues to the northward. Within these limits, there are several large reefs with high breakers; also extensive shoal coral flats, having only 4 or 5 fathoms, and probably less water, in some parts, with gaps of no ground between them.

Geo. Site of
Investiga-
tor's Shoal.

INVESTIGATOR'S SHOAL, examined by the Company's surveying ship of this name, in 1813, appears to be one of the N. Easternmost, and most extensive of the last-mentioned dangers; its western point being in lat. $8^{\circ} 5' N.$, lon. $114^{\circ} 35' E.$, and its eastern extremity in lat. $8^{\circ} 10' N.$, lon. $114^{\circ} 51' E.$, and it is about 4 miles in breadth north and south.

Prince of
Wales Bank.

Geo. Site.

PRINCE OF WALES BANK, was not known to have less than 10 fathoms water on it, until the fleet under convoy of H. M. S. Grampus, got upon it, October 20th, 1810; and by mean of the observations and chronometers of the fleet, it was found to extend from lat. $8^{\circ} 3' N.$ to $8^{\circ} 13' N.$, lon. $110^{\circ} 24' E.$ to $110^{\circ} 34' E.$ The soundings got in crossing over the bank, were in general from 12 to 30 or 40 fathoms coral, and the Grampus had 9 and 10 fathoms for a considerable time; but the Bombay, got suddenly from 45 fathoms no ground, into $5\frac{1}{2}$ fathoms upon the southern part of the bank, then wore. The coral rocks continued visible along-side, for about $\frac{1}{4}$ of an hour afterward, with overfalls from $5\frac{1}{2}$ to 12 fathoms, but the water soon deepened to 50 and 60 fathoms no ground, in steering to the N. Westward.

The reflection from the white coral appeared very conspicuous in several places, and as

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“Navigation in the China Sea”, *Nautical Magazine and Naval Chronicle for 1867* (21 Sept. 1867)

The Nautical Magazine
and Naval Chronicle
for 1867

VARIOUS



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(7) The light-vessel is schooner-rigged, painted yellow, and is moored in 4 fathoms water, with the following bearings,—

New point Comfort lighthouse	..	N.N.W. $\frac{1}{2}$ W.
Back river	.. .. .	S.S.W. $\frac{1}{2}$ W.
Too's point	.. .. .	W. $\frac{1}{2}$ N.

The light is intended to mark the York spit, and to guide vessels bound into Mobjack bay and York river.

NAVIGATION OF THE CHINA SEA.—Dangers between the Fiery Cross and North Danger Reefs, in the main route of the China Sea, and shoals in the Palawan route, with remarks on the Paracel, by Navigating Lieut. John W. Reed, R.N., H.M. Surveying Vessel *Rifleman*, 1867.

All the bearings are Magnetic. Variation 1° 20' Easterly, in 1867.

Discovery Great Reef.—South end in lat. 10° 0' 7" N., long. 113° 51' 5" E., bears E.N.E., 52 miles from the N.E. end of the Fiery Cross reef; it is a long narrow coral reef, most of which dries at low tides; several rocks upon it always show above water; in the centre is a shallow lagoon, with no passage to it through the reef. From the S. point the reef tends N., 5 miles, then N. by E., 5 miles; it is a mile broad at the S. end, and half a mile at the N. No bottom with 100 fathoms at a very short distance from any part of it except its N. end, where the *Rifleman* anchored in 42 fathoms, nearly half a mile from the rocks; at a third of a mile off the S.W. point 192 fathoms sand and coral was obtained.

The Hainan fishermen report a shoal 10 miles N.E. of Discovery Great reef, the locality not being examined should at present be avoided.

Discovery Small Reef.—E. $\frac{1}{3}$ N., $9\frac{3}{4}$ miles from Discovery Great reef, is in lat. 10° 1' 5" N., long. 114° 1' 5" E.; a small round coral patch, three cables across, partially dry at low tides, very deep water around, with 174 and 180 fathoms, sand and coral, found close to its eastern side, but on its western no bottom with 210 fathoms at the same distance.

Western or Flora Temple Reef has rocky patches just under water at its S.W. end, and 1 to 3 fathoms in other parts; its centre, in lat. 10° 15' N., long. 113° 37' E., is N.W. by W. $\frac{1}{2}$ W., $16\frac{1}{2}$ miles from the N.W. end of Discovery Great reef, and is the westernmost danger in this part of the China Sea. It is $1\frac{1}{4}$ miles N.E. and S.W., and above half a mile broad at the southern part, decreasing to half that breadth at the opposite end. The *Rifleman* anchored in 5 fathoms on its N.E. extreme, approaching it cautiously shoal water being seen just inside the edge; 18 and 74 fathoms were had close to, but at a short distance off, no bottom with 100 fathoms.

The reef on which the *Flora Temple* was lost in 1859 was said to be 6 miles north westward of the Western reef, but the *Rifleman* passed over that position, and certainly no danger exists there; moreover, the description of the reef given at the time of the wreck applies exactly to the Western reef, where, without doubt, the ship was lost. But possibly the invention had something to do with the insurance.

Tizard Bank, Reefs and Islands.—From Discovery Small reef the nearest part of the Tizard bank bears N.E. by E., 16 miles. It is very extensive, and, like large coral banks of the China Sea, has a lagoon bordered by shoal patches. Several patches of the Tizard bank are dry at low water, two having an island on them, and a third a sand cay. The bank takes a N.E. by E. $\frac{3}{4}$ E. direction, and the eastern limit not being yet determined, extends about 20 miles, its breadth at the N.E. part being 13 miles, and at the opposite end 7 miles.

Itu Abaer, the larger of the above islands, is at the N.W. corner of the bank, three-quarters of a mile long E. by N. and W. by S., and a quarter of a mile broad. The reef around it extends in some places to a short half mile, its limits being shown by breakers. The island covered with small trees and high bushes, is the resort of sea birds. Two or three cocoanut and a few plantain trees stand near a small well, the most conspicuous object being a single black clump tree, on the north side of the island, distinctly seen 10 miles off, the tree is in lat. $10^{\circ} 22' 25''$ N., long. $114^{\circ} 21' 45''$ E.

About 6 miles, East, from *Itu Abaer* is a small sand cay, nearly in the centre of a circular reef three quarters of a mile in diameter. The island and cay are connected by shoal patches, which form the N.E. part of the bank; and nearly midway between, but nearer the island, is a reef, covered at half tide, about the same size as that surrounding the cay. On parts of the northern edge of the bank there is not less than 4 fathoms, and vessels may safely anchor in from 7 to 11 fathoms about $1\frac{1}{2}$ miles westward of the sand cay, midway between it and the Tizard reef.

Namyit Island is due S. from *Itu Abaer*, $11\frac{1}{2}$ miles; is very small, 3 cables E. and W., and one cable broad, it is surrounded by a reef extending above a mile to the westward.

West of *Namyit* are two dangerous reefs, covered at high water; one oval-shaped, three-quarters of a mile long N.N.W. and S.S.E., bearing W. $\frac{3}{4}$ S. 6 miles; the other a mile long N. and S., is nearly three-quarters of a mile broad at its northern end, narrowing to a point at the opposite end; this is the westernmost danger of the Tizard group, and its outer edge is in lat. $10^{\circ} 13' 3''$ N., long. $114^{\circ} 13' 1''$ E.

These form all the dangers found on the bank, and, excepting a 3-fathoms patch about a mile off *Namyit*, 4 fathoms was the least water on any of the other shoal patches. In fine weather vessels safely anchor on any of them. The depths in the lagoon vary from 26 to 48 fathoms, it has four small patches, 5 fathoms being the least depth on them.

About the eastern limit of the bank, the Hainan fishermen report a breaking reef, which is probable that seen by Captain Eldad in the *Cacique*, being, however, far to the eastward of the proper track for vessels, where no Commander would be justified in venturing.

An island, named *Sin Cowe*, is said, by the fishermen, to be about 30 miles southward of *Namyit*.

Loaita Island and Dangers.—*Loaita* (South island of Horsburgh) N. $\frac{3}{4}$ E., 18 miles from *Itu Abaer*, the N.W. extreme being in lat. $10^{\circ} 40' 9''$ N., long. $114^{\circ} 24' 9''$ E.; is a low bushy sand island, and very small, being $1\frac{1}{2}$ cables across, surrounded by a reef, in some places half a mile off.

A reef, of $1\frac{1}{2}$ miles extent, dries at low water, with a small sand cay near the centre, 5 miles N.W. of *Loaita*. Another much larger is three-quarters of a mile to the S.W. of it, extending in that direction nearly $2\frac{1}{2}$ miles; the limits of this danger were ill determined, but the position of the outer, or S.W. extreme, is in lat. $10^{\circ} 42'$ N., long. $114^{\circ} 18'$ E., the sand cay bearing N.E. $\frac{3}{4}$ N., $3\frac{1}{2}$ miles, and *Loaita* island E. by S., $6\frac{3}{4}$ miles.

The dangers in the vicinity of *Loaita* island are not known, but the usual coral bank, with lagoon and surrounding shoal patches was found, and N. by W., 4 miles from it, 7 to 9 fathoms were found on a coral patch at the edge of the bank, and 31 to 34 fathoms had between this and the island.

Dangerous shoals are known to extend 10 or 11 miles to the eastward of Loaita, one of which has a sand cay.

Soubi Reef, the S.W. end of which is in lat. $10^{\circ} 53\frac{1}{2}'$ N., long. $114^{\circ} 4'$ E., is about 6 miles N.W. of the Loaita reefs, and 8 miles S.W. of Thitu reefs, being the westernmost danger hereabout; it is a sinuous coral reef, $3\frac{1}{2}$ miles long. N.E. and S.W., and 2 miles broad, dry at low water, with a lagoon, but apparently no passage into it.

Thitu Reefs and Island—(the N.W. dangers of Horsburg) consist of several patches on two coral banks, separated by a narrow deep gut. Thitu is a low round sand island, not half a mile across, near the middle of the dangers, on the southern part of the reef, which dries at low water, reaching three-quarters of a mile eastward of the island; it forms in that direction the extreme of the western bank. Near its S.W. end is a dark clump tree in lat. $11^{\circ} 3' 9''$ N., long. $114^{\circ} 16' 25''$ E.; in addition to which the island shows some low bushes and two stunted cocoa-nut trees, near which is a small well and a few plantain trees.

The western bank widens out N.W. and S.W. from the island $2\frac{1}{2}$ miles. The N. side of this part of the bank is marked by a round coral reef, three-quarters of a mile across, between which and the reef surrounding the island are $2\frac{1}{2}$ to 7 fathoms, the deep water being next the island. The S. edge of the bank is marked by a reef much smaller than the foregoing, and the depths between it and the island are more favourable for anchoring than on the opposite side of the bank, being nowhere less than $4\frac{1}{2}$ fathoms. From these two reefs the bank narrows, and terminates in a point in lat. $11^{\circ} 2' 30''$ N., long. $114^{\circ} 10' 30''$ E., the island E. $\frac{3}{4}$ N., 6 miles.

The north edge of the bank has a sand cay bearing from the island W. $\frac{1}{2}$ N., nearly $3\frac{1}{2}$ miles, on a large patch of reef, dry at low water, between it and the W. edge of the bank are reefs, shewn by breakers. There is a passage of 5 to 12 fathoms into the lagoon between the sand cay reef and $2\frac{1}{2}$ miles N.W. of the island.

The S. side of the bank is not so dangerous as the N. Vessels may anchor on it, the sand cay bearing between N.E. by N. and N.W. by N., or to the eastward of the patch S.W. $2\frac{1}{2}$ miles from the island, with the cay bearing N.W. by W. $\frac{1}{2}$ W. and the island N.E. $\frac{1}{2}$ E. The lagoon has 17 to 19 fathoms depth. The eastern bank is a mass of reefs, its W. extreme is above a mile E. of Thitu island, extending $1\frac{1}{2}$ miles E. and $3\frac{1}{2}$ miles N.E., its average breadth being 2 miles.

The Trident Shoal, E. by N. 16 miles from North Danger, is a coral bank $7\frac{1}{2}$ miles long and 6 broad, shaped like a shoulder of mutton, the broad part being to the northward; it is composed of many patches under 10 fathoms, two of which are dangerous. These patches are on the edges of the bank, forming a lagoon with depths of 26 to 37 fathoms; close outside the bank 100 fathoms finds no bottom.

The worst of these patches is at the northern extreme of the shoal, and is $1\frac{3}{4}$ miles E. and W., and half a mile N. and S.; near its centre in lat. $11^{\circ} 31' 5''$ N., long. $114^{\circ} 30' 3''$ E., is a small spot which is dry at low water springs; the depths on other parts of it vary from $1\frac{1}{4}$ to 6 fathoms: the other, at the eastern extreme of the shoal bears S.E. $\frac{1}{2}$ S., $3\frac{1}{2}$ miles from the former; it is a small spot of $2\frac{1}{2}$ fathom, with depths of 3 to 5 fathoms at half a mile around it; some casts of 4 fathoms were had about a mile W. by S. from the dry part, but no less than 5 fathoms was found on any of the other patches.

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A Breman vessel the *G. E. Lorenz Meyer*, Captain Moller, reported having struck at night on a shoal said to be in lat. $11^{\circ} 15' N.$, long $114^{\circ} 51' E.$ This site on being examined no danger was discovered, and it is concluded the *Meyer* touched the eastern patch of the Trident shoal.

Lys Shoal is 2 miles to the southward of the Trident shoal, and like the latter is formed of patches under 10 fathoms, with a central lagoon; only one small spot of 17 feet was found, the S.W. extreme of the bank, in lat. $11^{\circ} 19' 7'' N.$, long. $114^{\circ} 34' 4'' E.$; and surrounded with 5 fathoms. We found some 5 fathom patches near the N.E. end of the bank, but nothing under 6 fathoms was met with elsewhere, the general depths on patches being 7 to 10 fathoms, and a short distance outside of them no bottom was found at 100 fathoms.

CAUTION.—Vessels must not attempt the reefs in this part of the China Sea, a long line of shoals is known to exist to the eastward of all these dangers.

Macclesfield Bank.—The *Rifleman* on her way from Hong Kong to the North Danger, crossed this bank in March, 1865, and again in April of the present year. On the first occasion, soundings were struck in lat. $16^{\circ} 11' N.$, long. $114^{\circ} 26' E.$, in 115 fathoms, sand and mud; from hence on a S. by E. course over the bank the least depth of water found was 12 fathoms, the general depths being 40 to 50 fathoms; but a patch of 15 fathoms was found near its southern edge in lat. $15^{\circ} 34' N.$, long. $114^{\circ} 30' E.$; and 5 miles further southward no bottom with 307 fathoms.

On the second occasion of crossing the bank from lat. $16^{\circ} 34' N.$, long. $114^{\circ} 13' E.$, a course was steered for the 4-fathoms patch, reported by Captain Moses, of the Siamese vessel *Bangkok*, in lat. $16^{\circ} 2' 5'' N.$, long. $114^{\circ} 2' 5'' E.$; the deep sea lead constantly going found no bottom with 50 to 60 fathoms of line. At noon the ship was in lat. $15^{\circ} 59' N.$, long. $113^{\circ} 58' E.$, and she had passed about 2 miles to the westward of his position of the patch. Proceeding southward, 42 fathoms, coral bottom were found on the northern edge of the bank in lat. $15^{\circ} 51' N.$, long. $113^{\circ} 57' E.$; these regular depths of 42 and 43 fathoms to lat. $15^{\circ} 30' N.$, long. $113^{\circ} 57' E.$, where 32 fathoms were had; 3 miles S. of this position there was no bottom with 100 fathoms.

Coral Bank.—Proceeding from Loaita island, round the northern edge of the Archipelago, 47 fathoms were found on a coral bank at lat. $11^{\circ} 28' N.$, long. $116^{\circ} 46' E.$; continuing E. by S. $\frac{1}{4}$ S.; 3 miles farther 44 fathoms were had, and soon after 12 fathoms on a small coral patch in lat. $11^{\circ} 26' N.$, long. $116^{\circ} 53' E.$ Continuing the same course, the depths were 42 fathoms for 5 miles; at 8 miles 125 fathoms, and at 14 miles 175 fathoms; a few miles farther, no bottom was found with 200 fathoms.

Routh Shoal is at the N.E. angle, as Nilo reef is at the N.W. angle of the Archipelago of reefs, and forms the N.E. limit of the Palawan passage. It is a pear shaped coral bank, 8 miles in length N.E. by E., and S.W. by W.; $4\frac{1}{2}$ miles broad at its N. end and 3 miles at its S. end; it is not dangerous, the least water on it being $4\frac{1}{2}$ fathoms. A 5 fathoms patch, about three-quarters of a mile in extent is at the north extreme of the bank in lat. $10^{\circ} 50' N.$, long. $117^{\circ} 46' E.$ Nothing less than 6 fathoms was found on the other patches surrounding the lagoon; the depths in the lagoon vary from 17 or 19 fathoms at the borders to 35 fathoms in the centre.

The northern part of this shoal was crossed by the *Seahorse* many years ago, and the southern by Captain Routh, of the *Bombay*, in 1835.

Holmes Shoal.—From the Routh shoal, on a S.E. $\frac{3}{4}$ S. course no bottom was found within 200 fathoms on the supposed position of the Holmes, nor was there any sign of shoal water visible 7 miles further to the S.; from this last position the ship was steered N. 8 miles, and then S.S.W. $\frac{1}{4}$ W. 23 miles, with the same result, again crossing over, or near to the position of the shoal. Captain Curling of the P. and O. Co.'s service, passed over the same place in 1862, without seeing anything like shoal water, and many Commanders of steamers have reported to the same effect.

This danger should therefore be removed from the chart; there is no such shoal where reported, and there are reasons for believing that the *Fairie Queen* shoal, 18 miles to the westward, is the real Holmes shoal.

Luconia Shoals.—Most of them were surveyed in the *Rifleman*, and published in 1863, but the account was not, and is not completed to the northward and westward, by the following:—

The northernmost of the shoal patches reached in 1863 was in lat. $5^{\circ} 48' 5''$ N., long. $112^{\circ} 32' 3''$ E.: when the ship was anchored near a $2\frac{3}{4}$ fathoms patch, in lat. $5^{\circ} 33' 3''$ N., long. $112^{\circ} 31' 5''$ E., on the northern edge of a coral bank, traced 2 miles to the southward, but which no doubt extends to the northernmost patch surveyed in 1863, and just referred to; vessels should not pass between these positions.

Friendship Shoal is the northernmost of the Luconia group; the *Rifleman* crossed it with $4\frac{1}{2}$ fathoms least water, although less depths were suspected. The N. part of the shoal is in $5^{\circ} 59' 5''$ N., long. $112^{\circ} 31' 52''$ E., approximately. Lines of soundings were taken in a N.E., N., and N.W. direction, from the N. end of the shoal for 4 miles, but no shoal water found.

GENERAL REMARKS.—Hainan fishermen, who subsist by collecting trepang and tortoise-shell, were found upon most of these islands in April and May, some of whom remain for years amongst the reefs. Junks from Hainan annually visit the islands and reefs of the China Sea with supplies of rice and other necessaries, for which the fishermen give trepang and other articles in exchange, and remit their profits home; the junks leave Hainan in December or January, and return with the first of the S.W. monsoon. The fishermen on Itu Abaer were more comfortably established than the others, and the water found in the well on that island was better than elsewhere.

PARACEL ISLANDS.—These islands were visited in February, 1865, by H.M.S. *Rifleman* for the purpose of relieving the crew of a wrecked vessel, and the following information was obtained by Mr. Tizard, Master R.N.

Lincoln Island.—South-east point in lat. $16^{\circ} 39' 6''$ N., long. $112^{\circ} 44' 4''$ E., $1\frac{1}{2}$ miles long, N.W. and S.E., $\frac{3}{4}$ of a mile wide, is about 20 feet high; covered with brushwood, and surrounded by a coral reef, dry at low water, extending $1\frac{1}{2}$ miles from its S.E. point, $\frac{1}{2}$ a mile from its N. and E. sides, and about a cable's length from its S.W. side. A narrow coral shoal extends southward from the S.E. point of the island, said by Horsburgh to extend 11 miles; judging from the soundings that were obtained, the dangerous part of this shoal does not appear to extend further than 3 miles from the island. Good anchorage can be obtained in

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N.E. monsoon under its lee in 8 to 10 fathoms, coral, about half-a-mile from the shore.

The spring of excellent water, mentioned by Horsburgh, is merely a well dug by the Hainan fishermen close to a stunted cocconut tree, into which the salt water filters.

Pyramid Rock from the S.E. point of Lincoln island, bears S.W. $\frac{1}{4}$ W., distant $7\frac{1}{2}$ miles. The coral bank round Lincoln island probably extends to the Pyramid rock.

Amphitrite Islands.—These two groups appear to be on the edge of an extensive coral bank, as a reef $1\frac{3}{4}$ miles wide of 6 to 9 fathoms, it extends $3\frac{1}{2}$ miles to the south-eastward of Woody island, the extremity of which could not be seen from the *Rifleman* when crossing it.

The spring of clear water, asserted by Horsburgh to exist on Woody Island, is merely a small well dug by the fishermen, like that on Lincoln Island.

Duncan and Drummond Islands.—Duncan (two) Islands are joined by a sandy spit always uncovered. They extend a mile E. and W., are four cables in breadth and surrounded by a coral reef in some places four cables from the shore, dry at low water. On the westernmost of the islands is a cocconut tree.

Drummond Island is nearly round, and about three cables across; two cables south of it is a rock always dry. A coral reef commences the W. side of the island, and continues some miles to the E. and N.E. of it. Both Duncan and Drummond Islands are covered with brushwood. Between them is a safe channel, upwards of a mile wide, with 19 to 20 fathoms water; Horsburgh says it should not be taken by large vessels, the passage W. of Duncan Island being better, but the *Rifleman* when passing between Duncan and Money islands, suddenly found shoal water, which appeared to continue across that channel, and therefore the channel between Duncan and Drummond islands is certainly safer for steamers. Vessels may anchor to the northward of Duncan Island in 16 to 18 fathoms, about half-a-mile off shore.

21st September, 1867.

PHILIPPINE ISLANDS.—Account of dangers in the navigation of the Philippine Archipelago.

[All bearings are Magnetic. Variation $0^{\circ} 30'$ Easterly in 1867.]

The Perseus Rocks, off the coast of Sibuyan island, discovered in April 1867, by H.M.S. *Perseus*, Commander Charles E. Stevens, striking on them! are of coral, and supposed to be connected by shoal ground, being only distant $5\frac{1}{2}$ miles apart in a N.E. by N. and S.W. by S. direction; the southern rock is $7\frac{1}{2}$ miles E. from Cavit point, and the northern rock E. by S. $\frac{1}{2}$ S. nearly eight miles from Cambalayan point. Captain Fagg, of the Spanish Merchant Steamer *Sud Este*, in describing dangers of this Archipelago, "There is another reef to the southward of the island of Sibuyan, bearing from the Cresta del Gallo N.E. 4 to 5 miles. I have several times crossed it, being in my track from Romblon to Zebu. The least water I found on it was $5\frac{1}{2}$ fathoms." This reef is probably a part of that on which the *Purseus* struck, and also that alluded to in Horsburg's Directory as having been seen about 10 miles E. of Sibuyan island.

Annex 389

United Kingdom, Hydrographic Department, *The China Sea Directory*, Vol. II (1879)



THE
CHINA SEA DIRECTORY.

VOL. II.

CONTAINING
**DIRECTIONS FOR THE NAVIGATION OF THE
CHINA SEA,
BETWEEN SINGAPORE AND HONG KONG.**

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THE China Sea Directory, Vol. II., contains a description of the China Sea, between Singapore and Hong Kong; and also directions for its navigation in both monsoons.

The material used in the compilation has been gathered from the surveys of Captains Bethune and Sir E. Belcher; Commanders Bate, Ward, and Bullock; Lieutenant Gordon, and Navigating Lieutenants Richards, Reed, and Tizard, Royal Navy (1844-65); also of Captains Ross and Maughan, Indian Navy (1806-10); and various detached French and Spanish surveys. Horsburgh's Directory, the Nautical and Mercantile Marine magazines, recent Remark books of Her Majesty's ships, and various documents in the Hydrographic Office have further been consulted.

The islands and dangers between Singapore and Borneo are from the surveys of Navigating Lieutenant Reed made in 1862. South Natuna islands from Lieutenant Gordon in 1847; North Natuna and Anamba islands chiefly on the authority of Captain Laplace, French corvette *Favorite*, 1831; but as these groups are only partially surveyed, their coasts should be approached with caution.

The numerous scattered dangers between the shoals forming the western boundary of the Palawan passage and those fringing the eastern side of the Main navigable route through the China Sea, are little known, and no vessel can come within these limits without risk.

The description of the west coast of Borneo is chiefly from the survey of Lieutenant Blommendal, Netherlands Royal Navy; but as this is yet imperfectly explored, it should be navigated with caution.

The western coasts of the Philippine islands are only partially surveyed; the mariner is warned accordingly.

The coasts of Cochin China are at present but partially explored. Their description is chiefly from the surveys of Captains Ross and Maughan, I.N., 1806-10; and from French Government surveys, included between the years 1857-77.

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The information relating to the coasts of Hainan island and strait, has been derived chiefly from the remarks of officers of H.M. ships employed on the China station. The south-east coast, from Gaalong bay to False Tinhosa island, is from an examination made by Captain Ross in 1817.

The coast from Hainan to the Canton river is little known ; the account is chiefly from the examination of Captains Ross and Maughan, I.N.

This volume was originally compiled in 1868 by Staff-Commanders Reed and King, Royal Navy. The present edition has been prepared by Staff-Commander Hitchfield.

As this volume embraces so large an extent of sea and coast, and so many dangers imperfectly explored, it must necessarily be considered incomplete, and will furnish frequent occasions for revision. Seamen are therefore invited to transmit notice of any errors or omissions they may discover.

F. J. E.

Hydrographic Office, Admiralty, London,
June, 1879.

CHAPTER IV.

MAIN ROUTE TO CHINA. DESCRIPTION OF ISLANDS,
REEFS, AND SHOALS.

VARIATION, $1\frac{1}{4}^{\circ}$ to $1\frac{1}{2}^{\circ}$ East in 1879.

Directions for making the passage by the Main route to and from China are given in pages 8 and 14; we now proceed with a description of the islands and shoals in this route.*

EASTERN SIDE OF MAIN ROUTE.

Charlotte Bank, with 5 to 8 fathoms water, and 40 to 41 fathoms close around, in lat. $7^{\circ} 7' 19''$ N., long. $107^{\circ} 36' 52''$ E., is $3\frac{1}{4}$ miles long east and west, and 2 miles broad.

When near the parallel of this bank a vessel will pass westward of it by keeping in less than 30 fathoms water.

VANGUARD BANK, having 9 fathoms least water, and general depths of 20 to 60 fathoms, is crescent-shaped, about 37 miles long, with an average breadth of 6 miles. The horns of the crescent are respectively in lat. $7^{\circ} 16\frac{1}{2}'$ N., long. $109^{\circ} 26'$ E., and lat. $7^{\circ} 31'$ N., long. $109^{\circ} 57'$ E., the convex curve being on the north-west side, and reaching to the parallel of $7^{\circ} 36'$ N.

Grainger Bank, lying 33 miles north-eastward of the Vanguard, is $5\frac{1}{2}$ miles long, N.E. and S.W., and $2\frac{1}{2}$ miles broad at its widest part. There are 6 fathoms least water, with general depths of under 20 fathoms on this bank, which is composed of coral, visible over nearly the whole it. The centre is in lat. $7^{\circ} 47\frac{1}{4}'$ N., long. $110^{\circ} 29'$ E.

PRINCE CONSORT BANK (discovered by the *Rifteman*, 1865), lies between the Vanguard and Prince of Wales bank, and extends from $7^{\circ} 46'$ N. to $7^{\circ} 58'$ N., and from $109^{\circ} 55'$ to $110^{\circ} 6'$ E. No danger exists on it; the general soundings are from 30 to 50 fathoms, sand and coral, the least water found being on a small coral patch of 10 fathoms.

PRINCE OF WALES BANK, in lat. $8^{\circ} 8\frac{1}{2}'$ N., long. $110^{\circ} 32\frac{1}{2}'$ E., is 12 miles in extent N.E. and S.W., and $7\frac{1}{2}$ miles broad; this bank is of coral formation with irregular soundings of 8 to 37 fathoms, and 4 fathoms near its north-west corner.

* See Admiralty charts:—China sea, Nos. 2,660 a and b; 2,661 a and b, scales, $m = 0.05$ of an inch; and Indian ocean, northern portion, No. 7,486, scale $d = 3.5$ of an inch.

Alexandra Bank, in lat. $8^{\circ} 1\frac{1}{2}'$ N., long. $110^{\circ} 36\frac{3}{4}'$ E., is 5 miles in extent north and south, and $3\frac{1}{2}$ miles broad. A small patch with only 3 fathoms water on it, was found close to the eastern edge, but no other dangers exist; the average depth on the bank is about 15 fathoms; the bottom coral, distinctly visible.

RIFLEMAN BANK lies between the parallels of $7^{\circ} 31'$ and $7^{\circ} 57'$ N., and the meridians of $111^{\circ} 32'$ and $111^{\circ} 45\frac{1}{2}'$ E. Shoal patches were found round its edges, one of which (Bombay Castle), with 11 feet water and half a mile in extent, lies on its northern edge in lat. $7^{\circ} 55' 20''$ N., long. $111^{\circ} 42'$ E.; with this exception, 4 fathoms was the least depth obtained on the bank. In the centre of the bank the soundings are from 20 to 40 fathoms, sand and coral; and around its edge, outside, a few soundings were obtained varying from 300 to 600 fathoms.

It is probable that the 11-feet patch on the north edge of this bank is the shoal observed by Mr. Cameron, commanding the *Orleana*, who obtained a depth of 8 feet, and placed the danger in lat. $7^{\circ} 56'$ N., long. $111^{\circ} 38'$ E. The 8-feet knoll was not found by the *Rifleman's* boats, but it is quite possible to have escaped the lead; for large isolated rocks are known to exist on coral reefs, though extremely difficult to find. Heavy breakers mark the position of this patch, except in the finest weather.

The *Rifleman* sounded over the position assigned to the Bombay Castle reef, in lat. $7^{\circ} 56'$ N., long. $111^{\circ} 51'$ E. but no bottom could be obtained with upwards of 100 fathoms of line; nor could any sign of shoal water be seen from the mast head under most favourable circumstances, when on, and cruizing around its supposed position; it is therefore deemed probable that the *Bombay Castle* must have sighted the 11-feet patch on the Rifleman bank, as the latitude is nearly the same, though the longitude differs 9 miles.

Amboyna Cay, in lat. $7^{\circ} 51\frac{3}{4}'$ N., long. $112^{\circ} 55'$ E., situated at the south-west extreme of a small coral bank, is 150 yards long E.N.E. and W.S.W., 124 yards wide, and 8 feet high. It is surrounded by coral ledges, some of which dry at low water, but in no instance do they extend as far as 2 cables from high-water mark; the sea breaks heavily upon these ledges in any swell.

About two-thirds of the rock forming the cay is covered with a rich coat of guano, in some places 4 feet deep, the deposit of myriads of boobies, petrels, and other marine birds; the rest of the cay is comminuted coral. A large pile, composed of all the drift-wood to be collected on the cay, a few lumps of coral, &c., was erected in the centre, and can be seen as a sail at a distance from 5 to 7 miles in clear weather.

The bank, to the north-eastward of the cay, forms a very narrow ridge a mile long by 2 cables wide; the soundings upon it are about 4 fathoms

from a quarter of a mile from the reef until close to the end of the spit, when the water deepens rapidly from 9 to 17 fathoms, thence 67 fathoms, no bottom; while at a distance less than a third of a mile, no bottom was obtained with 220 fathoms of line. There is no danger on the ridge if vessels do not get into less than 4 fathoms, although from the clearness of the water the bottom appears close to the ship's keel; the ledges surrounding the islet are steep-to.

Anchorage on the ridge in 5 fathoms, in the south-west monsoon, was obtained by the *Riflesman*, fairly sheltered from the prevailing wind. Fish appeared to be abundant, but only a few were caught.

Tides.—By observations at Amboyna cay two days before neaps, the maximum rate of tide was 1.4 knots per hour, the flood stream setting about N. by W., the ebb West; flood commencing at 11 p.m., and the ebb at 6 a.m.; rise and fall doubtful.

Owen Shoal, in lat. $8^{\circ} 8' N.$, long. $111^{\circ} 59' E.$, was discovered in 1835, by Mr. Owen, commanding the ship *David Scott*, who had soundings of 6 to $4\frac{1}{2}$, and one cast of $3\frac{1}{4}$ fathoms in passing over it, a little past noon, steering S.S.E., and at 1 p.m. cleared the shoal, having then no bottom. The shoal appeared to be about 2 miles in extent, consisting of black and white speckled coral, in a state of rapid accretion, apparently by the vitality and energy of the madrepores, observed in recent formations of large pieces of coral brought up by the lead. The patches of speckled coral were bright and alarming while on the shoal, and although no breakers were perceived, as the sea was then very smooth, yet with a heavy swell, the sea probably rises in rollers over the shoal patches, when a large vessel would be liable to strike on some of them.

Stags Shoal, the north end of which is said to be in lat. $8^{\circ} 24' N.$, long. $112^{\circ} 57' E.$, was seen by Mr. Trinder, in the brig *Amboyna*, 1802, and named by him from the resemblance of the rocks to the horns of a stag. No soundings were obtained at 80 fathoms, within a quarter of a mile of the north end of the shoal, which extended S.E. and S.S.W. in form of a triangle, with rocks above water, and breakers on various parts, the intermediate space apparently very shoal, and the southern extremity could not be discerned from the mast-head.*

The *Riflesman* in 1868, obtained 1085 fathoms, oaze, in the position assigned to Stags shoal.

* H.M.S. *Renard* got upon the position ascribed to the Stags, and steered a few miles East and West, but could not discover them. Commander Ward, R.N., found Amboyna cay to be 11 miles farther west than reported by Mr. Trinder, commanding the *Amboyna*, who discovered both dangers; and it is possible, therefore, that the position of the Stags given in the text may be 11 or 12 miles to the eastward of the truth.

Ladd Reef (Rob Roy reef), the eastern extreme of which is in lat. $8^{\circ} 40\frac{1}{4}'$ N. long. $111^{\circ} 41\frac{1}{4}'$ E., is a coral bank 3 miles long E.N.E. an W.S.W., and a mile across its broadest part, which is at its eastern end. In the centre of the reef is a lagoon with a bottom of clear white sand, which shows with remarkable distinctness. The surrounding reef uncovers at half tide in many places, and at low water it is almost impossible for boats to cross over into the lagoon.

Spratly Island, bearing E. $\frac{1}{2}$ S. distant 14 miles from Ladd reef, is evidently identical with the Storm island of Horsburgh, as no other island exists in this vicinity. It is a flat islet, about 8 feet high, 500 yards long and 300 yards broad, with a margin of bright white sand and broken coral, which, when the sun is shining on it, is conspicuous from the mast-head at a considerable distance. It was described by Mr. Spratly, commanding the *Cyrus*, whaler, as "a low sandy island, the top appearing to be covered with bushes."* Commander Ward says that not a bush or even a blade of grass is to be found upon it, and the appearance described by Mr. Spratly was no doubt the effect of the mirage, which exaggerates the size and distorts the appearance of the drift-wood on the beach and the sea birds which throng it. At a distance of 3 or 4 miles, the birds standing erect look very like small bushes.

Spratly island † is on the west side of a coral bank, which is $1\frac{1}{2}$ miles long N.E. and S.W., and three-quarters of a mile broad. Northward of the island at three-quarters of a mile distant, there are $3\frac{1}{2}$ fathoms close to the edge of the bank decreasing towards the shore. North-eastward there are 7 or 8 fathoms not quite half a mile from the island. Rocky ledges, dry at low water, surround this island, rendering it necessary to be cautious when landing, which during the south-west monsoon may be effected on the lee side. The bank is steep-to, the sea breaking heavily upon it in the south-west monsoon, except in very fine weather.

The *Rifteman* anchored in about 6 fathoms on the north-east point of the bank, fairly sheltered from the S.W.; with the extremes of the island bearing S.W. $\frac{1}{2}$ S., and S.W. by W. $\frac{1}{2}$ W., and the extreme of the breakers on the western edge W. $\frac{3}{4}$ S.

In the months of June and July the islet swarmed with turtle of a very fine description, and they may possibly frequent it at other seasons. Large numbers were taken, being easily turned over by two or three men on the beach, in the evening or night, and occasionally in

* Nautical Magazine, 1843, p. 697.

† A square beacon was erected by Commander Ward on this islet. It is formed with four uprights of rough drift-wood spars, 27 feet high and 15 feet apart. The uprights are shored up, and the centre space solidly filled in and built up to a height of 15 feet with drift-wood, rubble, &c.

the daytime: they are apparently identical with the green turtle of Ascension. Immense quantities of their eggs were found on the south-west side of the islet. Fish were numerous, but few were caught. Sea birds' eggs literally covered the ground.

Tides.—Observations at Spratly island in the south-west monsoon showed but one tide during the 24 hours, and in the early part of July it was found to be high water at 9 h. a.m., the rise and fall being $5\frac{1}{4}$ feet. No observations up to the present time have been obtained during the north-east monsoon, which probably creates a great change. The direction of the stream at the north-east corner of the bank was S.W. during the rising tide, and S.E. to E.N.E. during the falling tide.

WEST LONDON REEF, bearing E. by N. $\frac{3}{4}$ N. distant 31 miles from Ladd reef, is $4\frac{1}{2}$ miles long, N.E. by E. and S.W. by W., $3\frac{1}{4}$ miles broad; several of the coral heads surrounding this reef dry at low water. On the centre of the reef there are 6 to 10 fathoms water, with several shoal spots. The only approach to the centre is from the south-east side, but so many coral patches exist that the navigation is extremely hazardous. On the east side of the bank, in lat. $8^{\circ} 52' 51''$ N., long. $112^{\circ} 15' 28''$ E., is a sandy cay, a quarter of a mile in extent N.E. and S.W., 26 yards broad, and 2 feet above high water.

CENTRAL LONDON REEF, the centre of which is in lat. $8^{\circ} 55\frac{1}{2}'$ N., long. $112^{\circ} 20'$ E., was discovered by the *Rifleman* whilst sounding between the East and West London reefs. It is a coral patch, awash, half a mile in extent, with a shallow lagoon inside the belt of coral. On the south-west extreme of the reef is a sandy cay, 60 or 70 yards in circumference, which is probably covered at high-water springs.

This is a dangerous reef, and lies directly in the track of vessels working up or down the China sea. Being small, it is not marked by breakers, like those which so readily point out the positions of East and West London reefs.

Caution.—Like most dangers in the China sea, the Central London reef is surrounded by deep water, thus rendering the lead useless; great caution is therefore necessary when navigating in their vicinity, and not to stand towards them with the sun shining ahead, as under these circumstances it becomes almost impossible to distinguish shoal water or breakers.

EAST LONDON REEF is 7 miles long, east and west, from one to 2 miles broad, and its east end is in lat. $8^{\circ} 49' 38''$ N., long. $112^{\circ} 38' 16''$ E. The coral round it edges encloses a lagoon, having 4 to 8 fathoms water. No entrance into the lagoon could be discovered, but there are apparently numerous shoal patches inside. The sea breaks heavily on the reef, and

CHAP. IV.] WEST LONDON REEF.—DISCOVERY GREAT REEF. 63

on its western extreme are one or two rocks which seldom cover. No soundings could be obtained with 100 fathoms of line at one mile from where the coral dries, nor with 500 fathoms at 2 miles north of it.

Quarteron Reef, named after the Spaniard who discovered it, is awash, crescent shaped, curved to the southward, the distance between the horns being 3 miles E. by S. and W. by N. Its eastern extreme is in lat. $8^{\circ} 50' 54''$ N., long. $112^{\circ} 50' 8''$ E.

The reef was found steeper to than any yet visited, for although deep water is found close to all of them, there was generally some slope from the rocks awash, on which the *Rifleman* could anchor with safety for a short period, to enable the position to be fixed; here, however, although she anchored in 5 fathoms, with the jib-boom over the rocks awash, the reef was so steep as to cause the anchor to roll down the incline, and run the cable out to the clinch. Captain Ward is opinion that no vessel should ever venture to sight this reef.

The Fiery Cross or N.W. Investigator Reef is an extensive coral reef having several dry patches, upon most of which the sea breaks even in light winds, or with a slight swell. It is 14 miles in length N.E. by E. and S.W. by W., and 4 miles in breadth. Its south-west end is in lat. $9^{\circ} 32'$ N., long. $112^{\circ} 50'$ E., and its north-east end in lat. $9^{\circ} 41'$ N., long. $113^{\circ} 2'$ E. The largest dry patch is at its south-west end, and here were found the wrecks of two vessels, supposed to have been those of the *Fiery Cross* and *Meerschaum*, both of which are known to have been lost upon this reef.*

Discovery Great Reef, the south end of which is in lat. $10^{\circ} 0' 42''$ N., long. $113^{\circ} 51\frac{1}{2}'$ E., is a long narrow coral shoal, the greater part of which dries at low tides, with several large rocks upon it which always show above water; in the centre is a lagoon, which appeared to be shallow, and to have no passage leading into it. From the south

* The schooner *Dhaulte*, 1826, anchored at night on a shoal of 3 fathoms, which, on the following morning, appeared to be about one or 2 miles in circumference. At noon of the preceding day, the *Dhaulte* had passed a mile to the westward of what was supposed to be West London reef, and thence had steered N. by E. $\frac{1}{4}$ E., 42 miles, until she anchored in 3 fathoms on the shoal; this run would place it in $9^{\circ} 32'$ N., and $112^{\circ} 24'$ E.

The *Rifleman* was employed a whole day in searching over and about that locality, with a heavy swell and light breeze, circumstances favourable for the discovery of shoals in deep water, but no shoal could be found; on the presumed locality bottom of dark ooze was brought up from a depth of 1,060 fathoms.

The London reefs, were, until the *Rifleman's* survey, 1868, placed upon the charts very much out of their correct positions, and it seems probable that the reef passed to the westward by the *Dhaulte* was either the East London or the Quarteron, and that the shoal anchored on was one of the shoal patches of the Fiery Cross reef, in the same latitude as that ascribed to the Dhaulte shoal.

point the reef trends North, 5 miles, then N. by E., 5 miles, it is a mile broad at the south end and half a mile at the north. No bottom was found with 100 fathoms line within a short distance of any part of the reef except off its north end, where the *Rifleman* anchored in 42 fathoms, nearly half a mile from the rocks; a third of a mile off its south-west point a sounding of 192 fathoms, sand and coral, was obtained.

The Hainan fishermen report a reef or shoal lying 10 miles north-eastward of Discovery Great reef, but that locality, not having been examined, should be avoided.

Discovery Small Reef, in lat. $10^{\circ} 1\frac{1}{2}'$ N., long. $114^{\circ} 1\frac{1}{2}'$ E., is a small round coral patch, a third of a mile in diameter, dry in places at low tides, with very deep water all round. Soundings of 174 and 180 fathoms, sand and coral, were obtained very close to its eastern side, and no bottom at 210 fathoms the same distance off the opposite side.

Western or Flora Temple Reef, the centre of which is in lat. $10^{\circ} 15'$ N., long. $113^{\circ} 37'$ E., is the westernmost reef in this part of the China sea, and very dangerous, having patches of rock just under water at the south-west part, and but one to 3 fathoms in other places. It is $1\frac{1}{2}$ miles long N.E. and S.W., and rather more than half a mile broad at the southern part, decreasing to half that breadth at the opposite end. The *Rifleman*, for the purposes of the survey, anchored in 5 fathoms on its north-eastern extreme, which had to be approached with great caution, as shoal water was seen at a very short distance inside the edge; soundings of 18 to 74 fathoms were obtained close to, but at a short distance off, no bottom at 100 fathoms.

TIZARD BANK, with REEFS and ISLANDS.—From Discovery Small reef the nearest part of this bank bears N.E. by E., 16 miles. It, like the generality of the large coral banks in the China sea, consists of a lagoon bordered by shoal patches, several of which are dangerous reefs, dry at low water, two with islands on them, and a third a sand cay. The bank lies in an E.N.E. and W.S.W. direction, and extends nearly 31 miles, its breadth at the north-east part being 11 miles, and at the opposite end $3\frac{1}{2}$ miles.

Itu-Aba, the larger of the two islands, lies at the north-west corner of the bank, and is three-quarters of a mile long, E. by N. and W. by S., and a quarter of a mile broad. The reef surrounding it extends in some places nearly half a mile, and in others not so far; its limits, however, are generally defined by a line of breakers. The island is covered with small trees and high bushes, with numerous nests of sea birds. There are two or three cocoa-nut and a few plantain trees near a small well, but the most conspicuous object is a single black clump tree, on the north side of

the island, which may be distinctly seen 10 miles off; this tree is in lat. $10^{\circ} 22' 42''$ N., long. $114^{\circ} 21' 11''$ E.

A little more than 6 miles, East, from Itu-Aba island is a small sand cay, nearly in the centre of a round-shaped reef three-quarters of a mile in diameter. The island and cay are connected by a line of shoal patches, which form the north-east part of the bank; and nearly midway between, but nearer the island, is a dangerous reef, entirely covered at half-tide, about the same size as that surrounding the cay. Elsewhere on the northern edge of the bank there are not less than 4 fathoms, and vessels may safely anchor in 7 to 11 fathoms about $1\frac{1}{2}$ miles westward of the sand cay, midway between it and the reef last described.

Petley Reef, an oval-shaped patch a little over a mile in extent, lies E. by N. $\frac{3}{4}$ N. $5\frac{1}{4}$ miles from Sand cay; it forms the extremity of a remarkable strip of coral, $1\frac{1}{4}$ miles wide, projecting in a N.N.E. direction from the main body of the bank, the edge of which trends E.S.E. from the cay; not less than 6 fathoms was found upon the strip, except within a mile of the southern part of the reef above mentioned, where it shoals to 4 and 3 fathoms, and no bottom could be obtained with 100 fathoms at a short distance on either side of it.

Eldad Reef, the north-east end of which is in latitude $10^{\circ} 23'$ N., longitude $114^{\circ} 42'$ E., forms the eastern extreme of Tizard bank. It is $4\frac{1}{2}$ miles long, N.N.E. $\frac{1}{2}$ E. and S.S.W. $\frac{1}{2}$ W., the southern and middle parts being about $1\frac{1}{2}$ miles wide, but of irregular outline; and the northern part tapering away in the form of a long narrow tongue, on either side of which no bottom could be obtained with 100 fathoms of line. A few large rocks are visible at high water, and at low water many smaller ones uncover. Shoal patches extend nearly three-quarters of a mile to the westward of the reef.

Nam-yit Island, lying South $11\frac{1}{4}$ miles from Itu-Aba, is 600 yards long East and West, 200 yards broad, and surrounded by a reef which projects more than a mile to the westward, and about a third of a mile in other directions.

Gaven Reefs are two dangerous reefs, covered at high water, lying westward of Nam-yit; the easternmost is three-quarters of a mile long, N.N.W. and S.S.E., Nam-yit island bearing from it E. $\frac{3}{4}$ N., distant 6 miles; the westernmost is a mile long North and South, and nearly three quarters of a mile broad at its northern end, narrowing to a point at the opposite end; its outer edge is in lat. $10^{\circ} 13' 20''$ N., long. $114^{\circ} 13' 7''$ E.

Anchorage.—The above comprise the whole of the dangers found on Tizard bank, and with the exception of a 3-fathoms patch about a mile north-east of Nam-yit, nothing less than 4 fathoms was discovered on any of the shoal patches surrounding the lagoon; so that vessels of moderate draught

can, in cases of necessity, and in fine weather, find convenient anchorage, observing always due care and caution in approaching them, so as to guard against possible danger from some shoal spot having escaped detection by the lead.*

LOAI-TA BANK extends 21 miles N.E. and S.W. ; its southern part is $5\frac{1}{2}$ miles wide, and its centre 7 miles ; from thence it gradually narrows to a point at its north-east extreme.

Loai-ta Island (South island of Horsburgh) lies N. $\frac{3}{4}$ E., distant 18 miles from Itu-Aba, its north-west entrance being in latitude $10^{\circ} 40' 45''$ N., longitude $114^{\circ} 24' 54''$ E. It is a low sand island, 300 yards in diameter, covered with bushes, and surrounded by a reef extending in some places nearly half a mile.

A reef, about $1\frac{1}{2}$ miles in extent, dry at low water, and having a small sand cay near the centre, lies 5 miles north-westward of Loai-ta island. Another and larger reef lies three-quarters of a mile to the south-westward of the one just mentioned, extending in that direction $1\frac{3}{4}$ miles, its width being about a mile. The south-west extreme of this last reef, which is also the south-west extreme of Loai-ta bank, is in $10^{\circ} 42' N.$, and $114^{\circ} 19' E.$; the sand cay bearing N.E. distant nearly 3 miles, and Loai-ta island E. by S. 6 miles.

From the sand cay above mentioned, the north-western edge of the bank trends away E.N.E. 5 miles, and then N.E. 13 miles ; no less than 4 fathoms was found anywhere upon this part of the bank.

Lan-keeam Cay and adjacent Reefs.—A coral patch, half a mile in extent, which partly dries at low water, lies E. by N. 2 miles from Loai-ta island ; and E.N.E. $6\frac{1}{4}$ miles from the same island is a larger reef, three quarters of a mile in diameter, having a sand cay near its centre : this cay, known to the Hainan fishermen as Lan-keeam, is in lat. $10^{\circ} 43' 20'' N.$, long. $114^{\circ} 31' E.$

At 3 miles N.E. by E. $\frac{1}{2}$ E. from Lan-keeam, is a small dry patch which forms the south-east angle of the great Loai-ta bank, and N.E. $\frac{1}{4}$ N. $4\frac{1}{4}$ miles from that cay is another small reef ; this is the northernmost patch which dries.

From the reef just mentioned, the south-eastern edge of the bank

* Hainan fishermen, who subsist by collecting trepang and tortoise-shell, were found upon most of these islands, some of whom remain for years amongst the reefs. Junks from Hainan annually visit the islands and reefs of the China sea with supplies of rice and other necessaries, for which the fishermen give trepang and other articles in exchange, and remit their profits home ; the junks leave Hainan in December or January, and return with the first of the south-west monsoon. The fishermen upon Itu-Aba island were more comfortably established than the others, and the water found in the well on that island was better than elsewhere.

trends N. by E. about 9 miles, when it meets the north-western edge: nothing less than 4 fathoms was obtained on this part of the bank.

Soubie reef, the south-west end of which is in lat. $10^{\circ} 53\frac{1}{2}'$ N., long. $114^{\circ} 3' 40''$ E., is the westernmost danger in this locality. It is an irregular-shaped coral reef, nearly $3\frac{1}{2}$ miles long, N.E. and S.W., and 2 miles broad, is dry at low water, and has a lagoon, into which there appears to be no passage.

THI-TU REEFS and ISLAND (the N.W. Dangers of Horsburgh), consist of the several very dangerous patches grouped upon two coral banks, separated by a narrow deep channel. Thi-tu is a low sand island, not quite half a mile in diameter, situated near the centre of the dangers on the southern part of a reef, which dries at low water, and which extends three quarters of a mile eastward of the island, forming in that direction the extreme of the western bank. Near its south-west end is a dark clump tree in lat. $11^{\circ} 3' 9''$ N., long. $114^{\circ} 16' 25''$ E.; in addition to this clump tree the island has upon it some low bushes and two stunted cocoa-nut trees, near to which is a small well and a few plantain trees. (1867).

From the island the western bank widens out in directions N.W. and S.W. for a distance each way of $2\frac{1}{2}$ miles; the north side of this part of the bank is marked by a round coral reef, three-quarters of a mile in diameter, between which and the reef surrounding the island are soundings of $2\frac{1}{2}$ to 7 fathoms, the deep water being nearer the island. The south edge of the bank is also marked by a reef, but this is much smaller than the one just described, and the depths between it and the island are more favourable for anchoring upon than the opposite side of the bank, being in no place less than $4\frac{1}{2}$ fathoms. From these two reefs the bank gradually narrows, and terminates in a point in lat. $11^{\circ} 2' 30''$ N., long. $114^{\circ} 10' 30''$ E. the island bearing E. $\frac{3}{4}$ N., distant 6 miles.

On the north edge of the bank is a sand cay which bears from the island W. $\frac{1}{3}$ N., nearly $3\frac{1}{2}$ miles. This is also on a large patch of reef, dry at low water, and between it and the western extreme of the bank are dangerous reefs, nearly always marked by breakers. There is a passage into the lagoon between the sand cay reef and the one $2\frac{1}{2}$ miles N.W. of the island, with depths of 5 to 12 fathoms.

The south side of the bank is not nearly so dangerous as the north side, and vessels may anchor upon it with the sand cay bearing between N.E. by N. and N.W. by N., or to the eastward of the patch which lies S.W. $2\frac{1}{2}$ miles from the island, with the cay bearing N.W. by W. $\frac{1}{2}$ W., and the island N.E. $\frac{1}{2}$ E. In the lagoon the depths are 17 to 19 fathoms.

The eastern bank is a mass of dangerous reefs and patches; its western extreme is more than a mile eastward of Thi-tu island, extending

from thence $1\frac{1}{2}$ miles East and $3\frac{1}{2}$ miles N.E., with an average breadth of 2 miles.

Trident Shoal, lying E. by N. 16 miles from North Danger, is composed of coral $7\frac{1}{2}$ miles long and 6 miles broad; there are many patches on this shoal with less than 10 fathoms water over them, two of which are dangerous. These patches lie round the edges of the shoal, forming a lagoon, the depths in which are 26 to 37 fathoms; close outside of them, there is no bottom at 100 fathoms.

The most dangerous patch, situated at the northern extreme of the shoal, extends $1\frac{1}{2}$ miles East and West, and half a mile North and South, having near its centre, in lat. $11^{\circ} 31' 30''$ N., long. $114^{\circ} 39' 15''$ E., a small spot which dries at low water springs; the depths on other parts of the patch vary from $1\frac{1}{4}$ to 6 fathoms. The other patch is at the eastern extreme of the shoal, and is distant $3\frac{1}{2}$ miles S.E. $\frac{1}{2}$ S. from that just described; it is a small spot of $2\frac{1}{4}$ fathoms, with depths of 3 to 5 fathoms at half a mile around it; depths of 4 fathoms were obtained about a mile W. by S. from the dry spot, but not less than 5 fathoms on any of the other patches.

Lys Shoal lies 2 miles southward of Trident shoal, and like the latter is formed of a number of patches under 10 fathoms, with a lagoon in the centre; only one danger, a small spot of 17 feet, was found, and this lies near the south-west extreme of the bank, in lat. $11^{\circ} 19' 40''$ N., long. $114^{\circ} 34' 24''$ E.; around it the depths are 5 fathoms. Some 5-fathom patches were also discovered near the north-east end of the bank, but nothing under 6 fathoms was met with elsewhere, the general depths on the patches being 7 to 10 fathoms, and a short distance outside of them bottom was not reached with 100 fathoms of line.

North Danger Reef, of coral formation, is about $8\frac{1}{2}$ miles long, N.E. and S.W., and $4\frac{1}{2}$ miles broad. On its north-west side are two sandy cays, the north-eastern of which is half a mile long, one quarter of a mile broad, and 10 feet high; the south-western cay is nearly half a mile long, 300 yards broad, and 15 feet high. Between the cays is a passage one mile wide, with 4 to 9 fathoms water, leading into the lagoon of the reef, where the depth is 20 to 25 fathoms.

Shoal water exists all round the edge of North Danger reef, and there are heavy breakers over the coral, awash at its north-east and south-west extremes. No soundings could be obtained close to the edge of the reef with upwards of 100 fathoms of line, but there is a depth of 380 fathoms at $1\frac{1}{2}$ miles north-east of the breakers on its north-east extreme. On the eastern side of the reef no bottom could be obtained with 450 fathoms of line.

Both cays are covered with coarse grass, and on the north-eastern

of the two is a stunted tree in lat. $11^{\circ} 28' N.$, long. $114^{\circ} 20\frac{3}{4}' E.$ The cays are frequented by Chinese fishermen from Hainan, who collect beche-de-mer, turtle-shell, &c., and supply themselves with water from a well in the centre of the north-eastern cay.

Caution.—Vessels should not attempt to pass through the reefs in this part of the China sea, as a line of dangerous shoals, extending many miles, is known to exist eastward of the dangers just described.

Currents and Tides.—Whilst the *Rifleman* was at anchor on the reefs, during both monsoons, careful observations were taken of the set of the current, which, for 16 hours out of the 24, invariably set to windward, generally with the greatest force when the monsoon was strongest.

The rise of tide at springs was about 5 feet, and at neaps one to 2 feet one tidal steam in 24 hours.

WESTERN SIDE OF MAIN ROUTE.

Scawfell Shoal.—Mr. Thompson, commanding the ship *Scawfell*, reports as follows:—"On the 13th of May 1865, on my passage up the China sea, just before noon I observed an unusual quantity of fish around the ship, and while taking noon observations, rocks were reported under the bottom. I immediately got a cast of the lead, and had 9 fathoms, the lead tumbling off the coral gave half a fathom more. The water was very smooth at the time, the vessel having just steerage way, with a very light air from the north-east. Other casts of the lead gave $7\frac{1}{2}$ fathoms until about the middle of the shoal, when the lead got fast between the coral rocks and was lost; this part appeared as shoal as any that was visible round the ship. Got another lead ready as soon as possible, when we had 17 fathoms, then losing sight of the bottom the ship drifting to the N.N.W. with a slight northerly current about a knot an hour. On sounding an hour later, the ship going in the same direction at the same rate, had 22 fathoms; one hour afterwards 29 fathoms, this last being 5 or 6 miles north-westward of the shoal.

"The noon observations taken on the shoal gave lat. $7^{\circ} 19' N.$, and by mean of forenoon and afternoon sights for chronometer, made the longitude of the shoal to be $106^{\circ} 51' E.$ Made Pulo Condore next day, and by that island, together with observations taken in Sunda and Gaspar straits, the chronometers appeared to be quite correct."

It will be seen that the position of this shoal is about as far to the westward of the usual track of shipping proceeding up or down the China sea before a fair monsoon as the Charlotte bank is to the eastward of it. Lying so near the fairway, it appears extraordinary that it has not been before observed.

westward of the shoal, but within 20 yards of the south-west rock there are 10 fathoms.

The Tidal Stream at the Louisa shoal at noon, on the full and change days in the month of October 1850, was setting to the W.N.W., and the maximum rise appeared to be about 4 feet.

ROYAL CHARLOTTE REEF, of a nearly rectangular shape, is $1\frac{1}{2}$ miles in length, N.W. by W., and S.E. by E., and nearly a mile in breadth. On its south-eastern side are stones 2 to 4 feet above high water; the highest of them is in $6^{\circ} 57' 18''$ N., and $113^{\circ} 35' 30''$ E.; there are also one or two stones on its north-east edge which just show at high water.

SWALLOW REEF, formed of a belt of coral surrounding a shallow basin of water, is $3\frac{1}{2}$ miles long, E. $\frac{2}{3}$ N., and W. $\frac{2}{3}$ S., and $1\frac{1}{4}$ miles wide. At its eastern part are some rocks from 5 to 10 feet above high water, the highest of which is in $7^{\circ} 23'$ N., $113^{\circ} 50' 23''$ E.; there are also one or two stones on the south-eastern side which show at high water; the west end terminates in a sharp point.

ARDASIER BANK, which is very extensive, has only received a partial examination; it is probable that the South Ardasier, Gloucester, and North Ardasier breakers, as also the breakers seen by Mr. Dallas in 1860, are shoal patches on different parts of one large bank. The south-eastern side, which forms one of the northern limits of the approach to the Palawan passage, has been surveyed in the *Rifleman*; the general direction of this part is N.E. by E. $\frac{1}{2}$ E. and S.W. by W. $\frac{1}{2}$ W. for a distance of 20 miles, but the outline of the edge is very irregular. Several shoal patches of 3 to 5 fathoms were found near the edge; the shoalest spot discovered had only $2\frac{1}{4}$ fathoms water, and is in $7^{\circ} 36' 37''$ N., $114^{\circ} 10' 10''$ E., near the position ascribed to South Ardasier breakers.

Viper Shoal, the existence of which is doubtful, is said to lie in lat. $7^{\circ} 30'$ N., long. 115° E. The *Royalist* passed over its assigned position, and when on the spot could get no bottom with 500 fathoms, though the day was clear, and conditions good for detecting a danger. The *Saracen* subsequently passed over the same ground with a view to its discovery, and with the same result.

NORTH VIPER SHOAL, or Seahorse, is shown on the chart as a shoal with rocks above water, 5 miles in extent, lying between the parallels of $7^{\circ} 59'$ and $8^{\circ} 4'$ N., and in long. $115^{\circ} 23'$ E. The position of this reputed shoal was not examined by the *Rifleman*. The *Saracen* passed near it without seeing any appearance of shoal water, but from the following account of a reef seen by Mr. Baird, this danger would appear to lie 17 miles N. $\frac{1}{2}$ E. of its ascribed position on the chart.

COMMODORE REEF.—Mr. Hugh Baird, commanding the ship *Commodore*, reports as follows:—Monday, 22nd December 1862, at 8 a.m., saw what I took to be the North Viper shoal, or Seahorse, the north-east end bearing by compass N.N.W. 3 miles; it seemed to extend over 3 miles N.E. and S.W. Partly dry sand, and several rocks from 20 to 30 feet above water, and heavy breakers all around it. At noon it bore W. by S., distant about six miles; lat. by observation $8^{\circ} 22' N.$, long. $115^{\circ} 31' E.$ *

CAUTION.—A glance at the chart will show that the whole of that part of the China sea extending from the Vernon bank north-westward of Labuan, in a line passing over the Saracen bank and Mangalum island to the Furious shoals, pages 131, 139, and 278, should, until closely surveyed, be navigated with the greatest possible caution. Vessels proceeding to China by the Palawan passage should not venture amongst the shoals near Labuan and Mangalum island, but keep to the northward of them, and closer to the track recommended on the chart.

DANGERS ON THE WESTERN SIDE.

HALF-MOON SHOAL,† having the Inclined rock on its eastern side in lat. $8^{\circ} 51\frac{3}{4}' N.$, long. $116^{\circ} 16' 45'' E.$, by H.M.S. *Royalist* in July 1853, is formed by a belt of coral even with the water's edge, of the average width of one cable, except at its south-west extremity, where it is broader. It is of oblong shape, nearly 3 miles long, in a north-east and south-west direction, with an average width of one mile. On the eastern side, southward of the Inclined rock, there are two breaks in the belt forming channels into the basin, the southernmost of which has 4 to 9 fathoms in it, and is marked by a cluster of rocks, which generally show above water. Half-tide rocks are interspersed over the belt, the largest of which is at the north-west extremity of the shoal. The average depth in the basin is 14 and 16 fathoms, with numerous patches of coral scattered about it. From the shoal Bálabac peak (page 159) bears S.E. $\frac{1}{2} S.$, distant 71 miles; Bulanhow mountain (page 181) E. by S. $\frac{1}{4} S.$; and the Elbow or nearest part of the bank of soundings fronting Palawan island (page 282), S.E. $\frac{1}{2} E.$, 39 miles.

Tides.—It is high water, five days after full and change, at the Half-Moon shoal at 10h. 45m. a.m., and the rise is about 4 feet.

ROYAL CAPTAIN SHOAL lies E.N.E. $23\frac{1}{2}$ miles from the Half-Moon shoal, and N.W. $\frac{1}{2} W.$ from the edge or nearest part of the

* Mer. Mag., 1863, p. 125.

† See Admiralty chart:—Palawan island, No. 967; scale, $m=0.1$ of an inch.

CHAPTER XIV.

SHOALS LYING OUT OF THE TRACKS FOR VESSELS.

VARIATION $1\frac{1}{2}^{\circ}$ East in 1879.

THE shoals lying in and bordering the ordinary routes to China have been given with the descriptions of those routes.* The shoals about to be described lie out of the tracks for shipping, and the following valuable observations of Horsburgh should be carefully attended to:—

“The archipelago of sand-banks, rocks, or reefs above and under water lying between the coast of Palawan and Pulo Sapatu, is so extensive, and the dangers that form it so numerous, that there can be little utility in entering into a minute description of them, *for indeed they ought to be avoided by all navigators*. No ship can enter within the limits of this dangerous archipelago without getting embarrassed amidst the shoals; there are strong currents or irregular tides among them, which render a ship's place very uncertain when observations cannot be obtained; and the rise and fall of the tide is considerable amongst the shoals during the springs. Although some ships have with difficulty and risk passed through them, others have struck or lost their anchors amongst the extensive coral flats; and many have been wrecked nearly in the middle of the archipelago.”

Most of the disasters which have happened to shipping in the China sea have been consequent upon a disregard of the above advice. In the following descriptions we shall first refer to those shoals which lie near the Main route, and afterwards those which lie nearer the Palawan passage.

SHOALS NEAR THE MAIN ROUTE.

Lizzie Webber Shoal.—Mr. Dallas reported that while returning in a small vessel, the *Lizzie Webber*, to the wreck of the *Fiery Cross* (in 1860) they struck upon a reef in lat. $8^{\circ} 4' N.$, long. $113^{\circ} 12' E.$ The reef, which was very little under water, is a narrow strip of sand and coral lying in a north-east and south-west direction.

* See Admiralty charts:—China sea, southern portion, Nos. 2,660 and 2,660a.

This shoal is supposed to extend about 25 miles to the north-eastward of the above position, for Mr. P. Orr, commanding the barque *Canada*, reported as follows :—*

“On the 24th December 1864, at 12 30 a.m., the British barque *Canada* was wrecked on a reef in the China sea—not marked in the Chart I was navigating on, and corrected to 1863. The ship’s lat. brought on from the previous noon was 8° 20’ N., and long. 113° 29’ E. After leaving the ship we skirted the weather side of the reef until noon : when we cleared the south end, I got a meridian observation which put us in 8° 3’ N.,—we were then about one mile south of the reef which is awash. I estimate the distance made in the boats from the time we left the ship till we cleared the south end of the reef to be 25 miles.” This latitude of the southern end of the shoal agrees within a mile with that of the *Lizzie Webber*.

Pearson Reef in lat 8° 56’ N., long. 113° 44’ E., was seen in 1843 by Mr. Pearson, commanding the *Bahamian*, who reported that he passed about 3 miles to windward of an extensive shoal in the above position, about 2 miles long in a north and south direction, with some rocks above water on the southern edge.

Doubtful Shoals.—Cornwallis south reef is placed on the Admiralty chart in lat. 8° 50’ N., long. 114° 11½’ E., and shown as being 3 or 4 miles in extent.

Ganges reef, 32 miles to the northward of Cornwallis south reef, in lat. 9° 22’ N., long. 114° 11’ E.

Fancy wreck shoal, 35 miles north-eastward of the Ganges reef, in lat. 9° 43’ N., long. 114° 41’ E.

Cornwallis reef is shown on the chart as an extensive reef with rocks, 20 miles to the north-westward of the last-named shoal, in lat. 10° 0’ N., long. 114° 23’ E.

Pennsylvania is placed in lat. 10° 0’ N., long. 115° 10’ E. ; and about 20 miles N.N. W. of it, in lat. 10° 18’ N., long. 115° 4’ E., is another doubtful Ganges reef. About 14 miles N.N.E. of this latter, in lat. 10° 32’ N., long. 115° 8’ E., is Ganges north reef.

Third Thomas Shoal (1839) is placed on the chart in lat. 10° 52’ N., long. 115° 55’ E., and shown as being 3 or 4 miles in extent.

Flat Island, in lat 11° 1’ N., long. 115° 40’ E., is said to be low and flat, surrounded with breakers, and having a reef projecting from its north-east side. It lies nearly midway between the North Danger reef and the north-easternmost of the dangers bounding the Palawan channel, and is marked doubtful in the charts, but Horsburgh states that it has been seen by several ships.

* Straits Times, 8th February 1865.

SHOALS NEAR THE PALAWAN ROUTE.

Breakers, in lat. $7^{\circ} 38' N.$, long. $113^{\circ} 54' E.$, were reported to have been seen in 1860 by Mr. Dallas, while proceeding from the wreck of the *Fiery Cross* to Labuan in the boats (page 288).

Mariveles reef.—The Spanish steam-vessel *Mariveles*, 1879, struck on a coral reef, reported to lie in lat. $7^{\circ} 58' N.$, long. $113^{\circ} 50' E.$ This reef is said to be about 4 miles long, 2 miles broad, and to be nearly awash, with 54 fathoms close to.

Gloucester, and Ardasier Breakers are two doubtful shoals; the former is placed upon the chart in lat. $7^{\circ} 50' N.$, long. $114^{\circ} 15' E.$; and the latter in lat. $7^{\circ} 56' N.$, long. $114^{\circ} 2' E.$ Horsburgh remarks that the position of Ardasier breakers is very doubtful.

Investigator Shoal, examined by Captain Crawford of the Indian Navy surveying ship *Investigator*, in 1813, is very extensive; its western point being in lat. $8^{\circ} 5' N.$, long. $114^{\circ} 31' E.$, and its eastern extremity in lat. $8^{\circ} 10' N.$, long. $114^{\circ} 50' E.$, and it is about 4 miles in breadth, north and south.

Cay Marino is a doubtful shoal, placed upon the chart in lat. $8^{\circ} 30' N.$, long. $114^{\circ} 21' E.$

S.W. and N.E. Shea Shoals were seen by Mr. Shea, commanding the *Buckinghamshire*, in 1833. The first shoal appeared to consist of two reefs of rocks, with high breakers, extending $1\frac{1}{2}$ miles E. by S. and W. by N., and half a mile north and south, the centre of which was found to be in lat. $8^{\circ} N.$, long. $114^{\circ} 55' E.$ by observations of sun, moon, and stars.

The other shoal, seen on the following morning, appeared to consist of two dry white banks, with a ridge of rocks extending from them to the westward about 2 miles, which was considered to be in lat. $8^{\circ} 30' N.$, long. $115^{\circ} 19' E.$ *

Glasgow Bank.—Mr. Baird, commanding the ship *Glasgow*, is said† to have discovered a bank in lat. $8^{\circ} 39' N.$, long. $115^{\circ} 31' E.$ It apparently extended 3 miles to its north-east edge, and was composed of sand and rocky peaks, in some places 21 to 32 feet above the sea.

Alicia Anne Shoal.—Captain R. Kirby reports‡ having seen a reef in lat. $9^{\circ} 25' N.$, long. $115^{\circ} 19\frac{1}{2}' E.$, of lagoon form, 3 miles in length, N.W. by N. and S.E. by S. There is a slight rise of sand hill at its north-west end, and a reef of rocks at its south-east extreme, with several detached rocks around. There was a portion of wreck on the south-east end, and a junk with four boats close by; inside the lagoon there was a boat apparently fishing. Soundings were tried for at a quarter of a mile

* These shoals are placed upon the Admiralty chart 4 miles West of the above positions.

† Nautical Magazine, 1865, p. 52.

‡ Mercantile Marine Magazine, 1865, p. 29.

from the south-east end, but no bottom with 100 fathoms of line. First Thomas shoal was made the next day, and the chronometer showed it to be 2 miles west of its position on the chart.

First, and Second Thomas Shoals appear by the chart to have been seen in 1839. The first is placed in lat. $9^{\circ} 18' N.$, long. $115^{\circ} 53' E.$; the second is shown as an extensive shoal, 9 or 10 miles long north and south, and 4 miles broad; its southern part is in lat. $9^{\circ} 41' N.$, long. $115^{\circ} 47' E.$

Investigator N.E. Shoal, in lat. $9^{\circ} 15' N.$, long. $116^{\circ} 24' E.$, is shown on the chart as having some rocks awash upon it.

Pennsylvania and Sabina Shoals.—One of the doubtful Pennsylvania shoals is placed upon the chart about 17 or 18 miles northward of the N.E. Investigator, in lat. $9^{\circ} 31' N.$, long. $116^{\circ} 23' E.$; and there are three other patches of that name, the first in lat. $9^{\circ} 47' N.$, long. $116^{\circ} 44' E.$, the second about 4 miles and the third about 10 miles to the north-westward from it.

The Sabina shoal, placed upon the chart in lat. $9^{\circ} 43' N.$, long. $116^{\circ} 34\frac{1}{2}' E.$, was discovered by Mr. French, commanding the *Sabina*, of New York, in 1836, who saw "rocks with the sea breaking tremendously over them."* Mr. French thought it was one of the doubtful Pennsylvania shoals, which in all probability it is.

Mr. E. Routh, commanding the *Bombay*, with the *Henry Clay* in company, sighted breakers which his observations placed nearly in the position of the Sabina shoal.†

Lord Auckland Shoal appears on the chart as a bank with 8 to 30 fathoms water over it. The 8-fathoms part is in lat. $10^{\circ} 21' N.$, long. $117^{\circ} 17' E.$; close to the eastward of the bank there is no bottom at 100 fathoms.

Other Pennsylvania Shoals.—Brown Shoals.—Another Pennsylvania shoal is placed on the chart in lat. $10^{\circ} 24' N.$, long. $116^{\circ} 33' E.$; and another, the Pennsylvania north reef in lat. $10^{\circ} 49' N.$, long. $116^{\circ} 54' E.$ ‡ The positions of these are very doubtful, and it is probable that the shoals seen by Mr. Brown, commanding the *Arabian* in 1838, were the same; the following is Mr. Brown's account of them:—§

"On the 8th January 1838, on our passage to China by the Palawan, standing to the northward, wind N.E., at 10.30 a.m. passed close to windward of a coral patch, with apparently 5 or 6 fathoms water over it

* Nautical Magazine, 1836, p. 601.

† Nautical Magazine, 1837, p. 224.

‡ Horsburgh places this shoal in long. $117^{\circ} 10' E.$

§ Nautical Magazine, 1838, p. 721.

blowing fresh and a good deal of sea; could not lower a boat to determine. It lies in lat. $10^{\circ} 30' N.$, long. $116^{\circ} 41' E.$

"Same day, lying up east on the port tack, at 3.30 p.m., came suddenly into shoal water. Saw the coral rocks very distinctly under the ship's bottom. Hove the lead over, first cast had 5 fathoms, and mark above water for a few casts. Put the helm up and run to the southward for a few minutes, until we gradually deepened to 30 fathoms, no bottom. We appeared to be on the southern edge of an extensive coral flat, extending N.E. and N.W. of us some miles. By sights taken immediately we came off the shoal, this part of it lies in long. $117^{\circ} 0' E.$, or $4'$ east of the Bombay reef, which we left yesterday; latitude $10^{\circ} 35' N.$, which we observed at noon.

"The following day at 9 a.m., standing to the northward, with a fresh wind from N.E., and a heavy head sea, came again into shoal water; coral rocks seen very close to our keel, but before we could get the lead forward we had passed over the ridge into 28 fathoms. From 9h. to 11h. 30m. a.m. ran 8 miles on a N.N.W. course in irregular coral soundings, least water, by the lead, 11 fathoms, but at times we apparently had much less from the proximity of the coral rocks. We entered upon this flat in lat. $10^{\circ} 39' N.$, long. $117^{\circ} 24' E.$; came off in lat. $10^{\circ} 46' N.$, long. $117^{\circ} 19' E.$ The longitude computed from a series of sights before and after noon; the latitude by a good meridian altitude, four observers, and clear weather. In passing over this bank the water appeared very shoal east and west of us, lying in ridges in that direction.*

Amy Douglas Shoal.—The *Amy Douglas*, commanded by Mr. Pensberry—under the Siamese flag—on her passage up the Palawan, passed over a shoal in lat. $10^{\circ} 52' N.$, long. $116^{\circ} 25' E.$ † On February 12th, 1860, at noon, had good observations, and noticed about that time the water discoloured for about a mile on each side of the ship. Dropped the lead over the side and found 14 fathoms. Mr. Pensberry is of opinion that the water was much more shallow to the westward of the ship.

Fairy Queen Shoal, having 9 fathoms water over it, is placed on the chart in lat. $10^{\circ} 39' N.$, long. $117^{\circ} 38' E.$

Coral Bank.—H.M.S. *Rifleman*, when proceeding from Loai-ta island (p. 66), round the northern edge of the Archipelago, obtained soundings of 47 fathoms on a coral bank in lat. $11^{\circ} 28' N.$, long. $116^{\circ} 46' E.$; steering E. by S. $\frac{1}{4}$ S. 3 miles farther, had 44 fathoms, and shortly afterwards 12 fathoms on a small coral patch in lat. $11^{\circ} 26' N.$, long. $116^{\circ} 53' E.$ Continuing the same course, the depths were 42 fathoms for a distance of

* The longitudes given in this account of the Brown shoals are corrected for the former position of the Bombay shoal, from which Captain Brown corrected his chronometer.

† Nautical Magazine, 1860.

5 miles ; at 8 miles 125 fathoms, and at 14 miles 175 fathoms ; a few miles farther on no bottom was reached with 200 fathoms of line.

Seahorse, or Routh Shoal was examined by the *Rifleman*. It lies at the north-east angle of the Archipelago of reefs, and forms the north-east limit of the Palawan passage. It is a pear-shaped coral bank 8 miles in length, N.N.E. $\frac{3}{4}$ E. and S.S.W. $\frac{3}{4}$ W., $4\frac{1}{2}$ miles in breadth at the north end and 3 miles at the south end ; it is not dangerous, the least water upon it being $4\frac{1}{2}$ fathoms, which was found on a 5-fathoms patch, about three-quarters of a mile in extent, at the north extreme of the bank in lat. $10^{\circ} 50' N.$, long. $117^{\circ} 46' E.$ Nothing less than 6 fathoms were obtained on any of the other patches surrounding the lagoon ; the depths in the lagoon vary from 17 or 19 fathoms at the shoal edges to 35 fathoms in the centre.

The northern part of this shoal was passed over by the *Seahorse* in 1786 and the southern part by Mr. Routh, commanding the *Bombay*, in 1835.

A Sandy Shoal is placed upon the chart in lat. $11^{\circ} 2' N.$, long. $117^{\circ} 37' E.$

Templer Bank.—The *Minerva*, commanded by Mr. Templer, passed over a bank, to the north-westward of the Seahorse bank, in November 1835, having from 10 to 17 fathoms water on it. The bank appeared to extend about 4 miles north and south, and as no discoloured water was seen to the eastward, but several apparently shoal patches were perceived to the westward, it is supposed that the ship passed over the eastern part of the bank. The centre of the bank is in lat. $11^{\circ} 7' N.$, long. $117^{\circ} 13' E.$

Annex 390

Alexander George Findlay, *A Directory for the Navigation of the Indian Archipelago, and the Coast of China*
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A DIRECTORY

FOR THE NAVIGATION OF THE

INDIAN ARCHIPELAGO,

AND THE

COAST OF CHINA,

FROM

THE STRAITS OF MALACCA AND SUNDA, AND
THE PASSAGES EAST OF JAVA,

TO

CANTON, SHANGHAI, THE YELLOW SEA,
AND KOREA.

With Descriptions of the Winds, Monsoons, and Currents,

AND

GENERAL INSTRUCTIONS FOR THE VARIOUS CHANNELS, HARBOURS, ETC.



THIRD EDITION.

BY ALEXANDER GEORGE FINDLAY, F.R.G.S.,
Honorary Member of the Società Geografica Italiana.

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CHAPTER XIII.

THE CHINA SEA, WITH ITS ISLANDS AND DANGERS.

THE coasts of the great channel between the continent of Asia on the N.W., and the line of the islands of the Indian Archipelago between Borneo and the Philippines on the opposite side, have been described in previous pages.

The Coasts of Malaya and the Gulf of Siam are described in Chapter VIII, pages 313—349. The Coasts of Cochin China and Tonquin, with the Island of Hainan, are given in Chapter IX, pages 350—422. The North-West Coast of Borneo, in Chapter X, pages 423—462. Palawan Island and the North-West Coasts of the Philippine Islands are included in Chapters XI and XII, pages 463—568. The South-West part of the China Sea, or that between the North Coast of Java and the Coasts of Sumatra and Borneo, with its detached islands and shoals, is described in Chapter VI, pages 205—267.

The CHINA SEA, although the main ship route towards the long frequented parts of China, was but imperfectly understood previous to the examination commenced by Lieut. J. W. Reed, R.N., in H.M.S. *Rifleman*, in 1862. Before this, the charts were disfigured by numerous shoals, which closer examination showed to be either non-existent, or placed so far out of their true positions, as to have been announced at different times as distinct dangers, widely separated.

The important results of Lieut. Reed's survey have been to show that there are two clear channels, nearly free from dangers. The one to the N.W., the Main Channel, is upwards of 200 miles in breadth between the coasts of Cochin China and a line of reefs and dangers lying along the centre of the China Sea, generally parallel with its limiting coast. The other channel, termed the Palawan Passage, lies between the reefs on the edge of the bank of soundings on the N.W. side of that island and the S.E. limit of that apparent Archipelago of Reefs which limits the northern channel.

The labours of the officers in command of the *Rifleman* were wisely confined in the outset to determining the outer limits of this line of dangers, and the result has been not merely the determining of the exact character of many previously-announced reefs and banks, but proving the non-existence or wrong

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identity of others, and the discovery of several new groups of banks, which are not dangerous, but will serve as excellent points of verification and departure in this troublesome navigation.

The currents of this region, also, do not appear to be well understood, and some remarks by Capt. Polack, in the Chapter on the Passages, will be read with interest, as giving the result of much experience in these waters, and the best means of utilizing every slant of wind or current in making a direct passage against the adverse monsoon, instead of the very circuitous routes formerly advocated.

From the fact of its dangers having thus disappeared, and those which are determined having shown that there are safe routes under the lee of either shore, a great portion of the commerce now passes through this main ship channel, instead of being carried through the distant and imperfectly known passages to the eastward of Borneo.

The S.W. portion of the China Sea, which has been previously described, is separated from the main area by three groups of islands, the Anamba Islands and the two clusters of the Natuna Islands, which have broad and safe channels between them. In describing these, use has been made, as heretofore, of the compilation published by the British Admiralty.

 ANAMBA ISLANDS.

The westernmost group, termed by Europeans the Anambas, is not known by that name to the natives. They consist of steep granite hills, 300 to 800 ft. high, covered with a thin layer of earth overgrown with luxuriant vegetation. The cocoa-nut palm flourishes here. The scanty products of the land and sea are disposed of by the few Malay inhabitants at Singapore. Formerly they had an evil name for piracy, but are now peaceful traders and fishermen, nominally subject to the Dutch, a flag of that nation being shown at Terempa, where a magistrate is appointed. They were surveyed by Capt. Laplace and Lieut. Fabré, of the French Navy, in 1828 and 1831, but not completely, so that caution must be used in passing among them.

Climate.—In June, 1873, the German corvette *Nymphe* visited the islands, and the commander remarks that, from the vegetation and the stout build of the people, the climate must be considered very favourable. While the average temperature in Bangkok and in the Gulf of Siam had been, in daytime in the shade, 93° to 95°, and at night 88° to 90½°, it was at the Anamba Islands only respectively 84° and 77°. The cause of this low temperature appears to be the frequent heavy rains, preceded by fresh breezes.

densely wooded, and rising gradually to a height of 545 ft. It is surrounded by a coral reef, and off the S.W. point shoal water extends for a distance of 2 miles, W. by S. $\frac{1}{2}$ S., terminating in a coral patch of 4 fathoms. Time was wanting to examine the many extensive reefs lying off the North side of the island; vessels should not attempt to pass the island on this side. There were a few inhabitants.

Jackson or Hutton Reef, to the East of Low Island, was also examined by Lieut. Hoskyn, and was found to lie nearer the island than previously reported. It is of coral, irregular in form, and within the line of 5 fathoms resembles the shape of a horse-shoe, open to the eastward, with a least known depth of 3 fathoms on it. It lies between the bearings of E. by N. $\frac{1}{2}$ N. and S.E. by E. $\frac{1}{2}$ E. from the East point of Low Island, its inner edge being about 2 miles, and the outer edge about $3\frac{1}{2}$ miles distant from that point. Vessels should not pass between the island and the reef, though the water is deep, and are recommended to give a wide berth to the locality.

Diana Reefs.—This dangerous coral reef, lying to the N.N.W. of Low Island, is thus described by Lieut. Kempthorne, who grounded upon it in H.M. brig *Diana*:—"Saw the bottom, and sounded in $4\frac{3}{4}$ fathoms, but lost the lead, by its getting fixed in the coral. Wore to the eastward, and had $5\frac{1}{2}$, 6, 7, 8, 10, 11, 17 fathoms, then no bottom at 20 fathoms. The boat sent to sound had $3\frac{1}{2}$ fathoms, and several casts of $5\frac{1}{2}$ fathoms on the points of coral, with deep water between them; two spots of discoloured water, one bearing South, and the other S.W. by W. about 2 miles, appeared much shoaler than where the boat sounded. The shoal seemed to extend N.E. by E. and S.W. by W., $1\frac{3}{4}$ mile; no broken water was visible upon it, but when the swell rolled over the points of coral, it resembled a shoal of fish.

"When the bottom was first seen, in $4\frac{3}{4}$ fathoms, the N.E. point of Low Island bore S.E., distant 9 or 10 miles; the N.W. point, with the S.W. point just open of it, S.E. by S. $\frac{1}{2}$ S.; and North Haycock Island, N. 43° W. Where the boat sounded, she had nearly the same bearings, but was half a mile more to the N.W., with North Haycock Island just in sight from her."

Caution.—The channel between the Natuna and Anamba Islands is wide and safe in daylight; but, as several spots with but little water on them have been discovered in the vicinity of the Natunas, a good look-out is necessary, as other shoal patches, yet unknown, may probably exist.

Yong Sabal Bank is placed on the Dutch chart at 19 miles W. $\frac{1}{2}$ S. from the S.W. point of Low Island.

North Haycock Island, in about lat. $3^\circ 16\frac{1}{2}'$ N., long. $107^\circ 34'$ E., is high, of conical shape, having a reef around it, projecting 3 or 4 miles from it to the S.W. and South, with 30 and 33 fathoms near its edge. A 2-fathoms patch is reported to lie $4\frac{1}{2}$ miles S.S.W. from it.

Elphinstone Rock, named after the ship which discovered it, in 1844, is thus described by her commander, Mr. Crawford:—"It stands about 69 ft. out

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of the water. From the southward a reef projects about a mile, at the extreme of which is a rock which is partially covered at high water. From this a dangerous reef projects a long distance to leeward, and is probably a continuation of the Hutton or Diana Reefs. To the northward of the main rock there appears to be a safe passage. This rock is in lat. $3^{\circ} 22\frac{1}{2}'$ N., long. $107^{\circ} 50\frac{1}{2}'$ E., and in a dark night, or thick weather, a ship would be on it before it could be seen, as the soundings are no guide, being from 40 to 23 fathoms in a cast.

GREAT NATUNA GROUP.—*Great Natuna Island*, called *Pulo Boong-Ouran* by the Malays, extends from $3^{\circ} 38\frac{1}{2}'$ to $4^{\circ} 16\frac{1}{2}'$ N., and two small islands off the North point, joined to it by a reef, extend about 3 miles farther, with 17 fathoms water within a mile of them. Cape Datto, the North extreme of the island, is in long. $108^{\circ} 11'$ E., and Cape Senubing, the East extreme, in long. $108^{\circ} 21\frac{1}{2}'$ E., its breadth being about 25 miles.

The interior of the island is mostly high; and on the northern part are two mountains of considerable elevation, *Mount Bedong* or *Quoin Hill*, in latitude $4^{\circ} 3'$ N., and *Mount Ranay*, near Cape Senubing, in lat. 4° N.; the latter is 1,890 ft. high, and may be seen 44 or 45 miles. Some of the projecting parts of the coast are rather low, particularly from lat. 4° N. to the North end of the island, where the coast is formed of red cliffs.

East Coast.—Reefs and islets front the eastern coast of this island, rendering it dangerous to approach under 6 or 7 miles in some places, at which distance the depths are usually from 34 to 46 fathoms. Mr. Whiteside, commanding the ship *Sarah*, describes an extensive coral bank in patches, in passing over which the ship received a slight shock, at which time a small island off the Natuna bore S.W. by W., distant about 6 miles. A 1-fathom patch, in lat. $4^{\circ} 4'$ N., long. $108^{\circ} 26'$ E., called in the chart *Miulle Reef*, agrees with this bearing, but it is only half the distance from the island which is called *Senoang*, and lies close to Cape Senubing.

Devonport Rock, 9 or 10 miles distant from the East coast of Great Natuna Island, has about 17 feet water on the part where the *Devonport* struck, with 34 fathoms near it. From the ship the following bearings were taken: *Senoang* Island N.W., and *Kamodi* Island S.W. by W., which places it in about lat. $3^{\circ} 54'$ N., long. $108^{\circ} 31\frac{1}{2}'$ E.

A reef is placed upon the chart at $3\frac{1}{2}$ miles S. by E. $\frac{1}{2}$ E. from *Kamodi*, the outermost of two islets lying off this coast; and another reef is said to lie 3 or 4 miles farther in the same direction from that islet.

The Dutch vessel *Lamiena Elizabeth* struck on a reef lying off the S.E. coast of Great Natuna, with *Kamodi* and *Jantay* Islets nearly in one, bearing N. by E. $\frac{3}{4}$ E.; *Mount Ranay*, N. by W. $\frac{7}{8}$ W.; the nearest high land on Natuna, W. by N. $\frac{1}{4}$ N.; the South point of the same, W. $\frac{1}{2}$ N.; and the point of *Lagong* Island, about W. by S. It appears necessary to be cautious in approaching the eastern and south-eastern coasts of Great Natuna.

The *Western Coast* of Great Natuna is also fronted by reefs and high islands,

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the chief of which are the *Duperré* group, lying near its S.W. extreme. *Sédédap*, in lat. $3^{\circ} 34' N.$, is the southernmost. *Salaor*, or *Peaked Island*, in lat. $3^{\circ} 53' N.$, lies $6\frac{1}{2}$ miles off shore. *Seluan*, or *North-west Island*, in lat. $4^{\circ} 9' N.$, long. $107^{\circ} 49' E.$, has a reef projecting 1 mile or more from its South point, with depths of 30 to 20 fathoms on its S.W. side; a reef is marked on the chart at $2\frac{1}{2}$ or 3 miles from the western side of this island, and one 3 miles S.S.E. of *Sédédap*.

Reefs.—A reef, upon which the sea breaks heavily, lies $11\frac{1}{2}$ miles S. by E. $\frac{1}{4} E.$ from the summit of *Salaor*, and about 6 miles westward of *Bourong Islet*, the northernmost of the *Duperré* group.

A reef of coral rock, with only 2 fathoms on it, and from 20 to 30 fathoms near it on the West and S.W. sides, lies in lat. $4^{\circ} 3' N.$, about 5 miles S.S.W. from *Seluan* Island. About 5 miles S.W. $\frac{3}{4} S.$ from this reef, and 10 miles N.W. by W. from *Peaked Island*, and about the same distance from *Seluan* Island, is another coral shoal, in lat. $3^{\circ} 59' N.$, having 3 fathoms, rocks, on it, and from 20 to 30 fathoms, mud, close around. These shoals were explored by Capt. Ross, in 1814. There is also a reef, named *Semapi*, midway between *Seluan* and the North point of *Great Natuna*, 9 or 10 miles off shore; it appears to be of considerable extent.

PYRAMIDAL ROCKS, in lat. $4^{\circ} 3' N.$, long. $107^{\circ} 21\frac{3}{4}' E.$, are in the track of ships returning from China late in the season, when they pass between the *Anamba* and *Natuna* Islands, proceeding towards *Gaspar Strait*. The *Windham* and *Coldstream*, in 1817, passed on the East side of these rocks at 4 miles distance; they described them as a clump, of rugged aspect, elevated about 20 or 25 ft. above the sea. The *General Kyd*, commanded by Mr. Nairne, in 1818, passed 4 or 5 miles to the westward of them; when *Seluan* Island bore N. $85^{\circ} E.$, the rocks were on a transit line with *Salaor* Island bearing S. $72^{\circ} E.$

In 1863, H.M.S. *Rifleman* carried a line of soundings from *Victory Island* to the position of a doubtful rock, said to lie 11 miles S.W. of *Pyramidal Rocks*. The *Rifleman* passed close to the spot without discovering any danger, and had soundings in 33 fathoms. *Pyramidal Rocks* were also passed within 4 miles, but it was getting too dark to examine them closely.*

A *Doubtful Rock* is placed upon the chart in lat. $4^{\circ} 11' N.$, long. $107^{\circ} 33\frac{3}{4}' E.$,

* From *Pyramidal Rocks*, H.M.S. *Rifleman* carried a line of soundings to the position of *French Rocks*, shown on former charts as three rocks above water, lying N.W. by N. $\frac{1}{2} N.$ from *Pulo Laut*, in lat. $5^{\circ} 27' N.$, long. $107^{\circ} 38' E.$ Their position was approached on a W. by N. $\frac{1}{2} N.$ bearing, and at noon the *Rifleman* was 2 miles North of it. She then steered South $7\frac{3}{4}$ miles, N.W. 9 miles, and N.E. $6\frac{3}{4}$ miles, without discovering any signs of the rocks. The soundings about the spot were from 35 to 40 fathoms.

In 1883, Capt. Foster, of the American ship *Wachusett*, reported that he saw two small rocks, one reaching 3 ft. above the surface, in lat. $5^{\circ} 11' N.$, long. $107^{\circ} 29' E.$, the weather being fine, and the sea calm.

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about 15 miles N.E. by E. from Pyramidal Rocks, and the same distance to the westward of the North point of Seluan Island. The Dutch notice states that it was 25 ft. high, and similar in appearance to those in the neighbourhood of Pulo Semione.

Success Reef is about 2 miles in extent, in lat. $4^{\circ} 22' N.$, long. $107^{\circ} 55' E.$, nearly midway between Semione Island and the North point of Great Natuna. When the breakers on the reef were seen from the ship's deck bearing E. by S., about 2 miles, Semione bore N.W. $\frac{3}{4}$ W., about 12 miles; the eastern extreme of North Natuna, N. by E.; and the western extreme of Great Natuna, S. by W. $\frac{1}{4}$ W., about 20 miles. The ship afterwards tacked in 35 fathoms, within a mile of the breakers. The *Favorite*, Capt. Laplace, in March, 1831, passing close to the eastern extremities of these dangers, marked as two patches on his chart, found soundings of 30 to 20 fathoms, sandy bottom.

Semione or Saddle Island, in lat. $4^{\circ} 31' N.$, long. $107^{\circ} 42' E.$, is 360 feet high, and well wooded. A reef projects from its South end, and another from the N.W. end, with less than 3 fathoms water on it, and 40 fathoms close-to. There is a rock above water about 4 miles S. by W. $\frac{1}{2}$ W. from this island, and between them are depths of 28 fathoms.

The **NORTH NATUNAS** are of moderate height, producing cocoa-nuts and some other fruits, and are inhabited by Malays. They comprise a long island, named *Pulo Laut*, or *Sea Island*, stretching N.E. by N. and S.W. by S., 8 miles, with *Pulo Stokong*, a smaller island, near its northern extreme, and several islets and rocks close to its southern end, upon the reef which fronts the shore. There is also a rocky islet, in lat. $4^{\circ} 39' N.$, about $2\frac{1}{2}$ miles S. by E. $\frac{1}{4}$ E. from the S.E. point of Laut; and S. $\frac{1}{3}$ E., $2\frac{1}{2}$ miles from this islet, a rock touched on by the *Louise and Marguerite*, drawing $14\frac{1}{2}$ ft. water, in 1873. From it the S.W. end of Pulo Laut bore N.W. by N. $\frac{2}{3}$ N.

Gloria Reef, on which the Spanish steamer of that name was wrecked, in May, 1877, lies 2 miles N.W. of the *Louise and Marguerite*; from the wreck, lying in 15 ft. water, the West extreme of Pulo Laut bore N.N.W., and the South extreme of Semione Island W.S.W. Between the two reefs a depth of 12 ft. was found, so that the locality must be most carefully avoided until examined properly. About 9 or 10 miles south-westward of the rocky islet is *Cockeran Bank*, with 8 fathoms on it, from which Semione Island bears W. by S. $\frac{1}{4}$ S., distant 10 miles.

The North extreme of these islands is in lat. $4^{\circ} 51' N.$, long. $108^{\circ} 2\frac{1}{2}' E.$ There is 35 fathoms water about $1\frac{1}{2}$ mile N.N.W. of Stokong, but the whole of the western coast of Laut is fronted by a dangerous reef, which extends nearly 5 miles W. by S. and W.S.W. from the S.W. point of that island, having no bottom at 40 fathoms within 1 mile of its West extreme; but both North and South of this extreme there are soundings of 32 to 36 fathoms, mostly coral bottom.

Glamis Castle Rock, on which the British steamer of that name is said to

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have struck, in 1878, lies about 4 miles East of the North end of Pulo Laut. The least depth found was 10 feet, with the North point of Stokong bearing N.N.W., and the S.E. point of Pulo Laut S.W.

SHOALS ON THE EASTERN SIDE OF THE MAIN ROUTE.

Scawfell Shoal and Charlotte Bank are described hereafter.

VANGUARD BANK is crescent-shaped, about 37 miles long, with an average width of 6 miles. It has no danger whatever on it, the least water being 9 fathoms, and the general depths varying from 20 to 60 fathoms. The horns of the crescent are respectively in lat. $7^{\circ} 16\frac{1}{2}'$ N., long. $109^{\circ} 28'$ E., and lat. $7^{\circ} 31'$ N., long. $109^{\circ} 57\frac{1}{2}'$ E., the convex curve being on the N.W. side, and reaching to the parallel of $7^{\circ} 36'$ N.

GRAINGER BANK, lying 33 miles north-eastward of the Vanguard, is pear-shaped, $5\frac{1}{2}$ miles long, N.E. and S.W., and $2\frac{1}{2}$ miles across at its widest part. It has only 6 fathoms least water on it, but no danger; the general depths are under 20 fathoms, the bottom, coral, being quite visible over nearly the whole of it. The centre is in lat. $7^{\circ} 47\frac{3}{4}'$ N., long. $110^{\circ} 29'$ E.

PRINCE CONSORT BANK, discovered by the *Rifleman*, lies between the Vanguard and Prince of Wales Banks, and extends from $7^{\circ} 46'$ N. to $7^{\circ} 59'$ N., and from $109^{\circ} 55'$ to $110^{\circ} 7'$ E. No danger exists on it; the general soundings are from 30 to 50 fathoms, sand and coral, the least water found being on a small coral patch of 10 fathoms, on its N.W. side.

PRINCE OF WALES BANK, the centre of which is in lat. $8^{\circ} 8\frac{1}{2}'$ N., long. $110^{\circ} 32\frac{1}{2}'$ E., is in shape an irregular oblong, 12 miles in extent, N.E. and S.W., by $7\frac{1}{2}$ miles wide; near its N.W. corner is a patch having 4 fathoms on it, but nothing less was found. It is in character just the same as the other banks in the neighbourhood, coral, having three or four excrescences on it, but no danger, unless the 4 fathoms may be considered so; the general depths upon it are under 20 fathoms.

ALEXANDRA BANK, in lat. $8^{\circ} 1\frac{1}{2}'$ N., long. $110^{\circ} 36\frac{3}{4}'$ E., is in shape a full oval, 5 miles in extent, North and South, by $3\frac{1}{2}$ miles wide. A small patch with only 3 fathoms water on it was found close to the eastern edge, but no other dangers exist. The average depth on the bank is about 15 fathoms; the bottom, coral, being distinctly visible.

RIFLEMAN BANK lies between the parallels of $7^{\circ} 31'$ and $7^{\circ} 57'$ N., and the meridians of $111^{\circ} 31'$ and $111^{\circ} 45'$ E. Shoal patches were found round its edges, one of which, of only 11 ft. water and half a mile in extent, lies on its northern edge in lat. $7^{\circ} 55' 20''$ N., long. $111^{\circ} 42'$ E., and is marked by heavy breakers in any but the finest weather.* With this exception, 4 fathoms

* *Bombay Castle Shoal*.—This 11-ft. patch is probably the shoal seen by Capt. Cameron, of the *Orleana*, who obtained a cast of 8 feet, and placed the danger in lat. $7^{\circ} 56'$ N., long.

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was the least depth obtained on the bank, In the centre of the bank, the soundings are from 20 to 45 fathoms, sand and coral; and around its edge, outside, a few deep casts were obtained varying from 300 to 600 fathoms.

OWEN SHOAL, in lat. $8^{\circ} 8' N.$, long. $111^{\circ} 59' E.$, was discovered, in 1835, by Mr. Owen, commanding the ship *David Scott*, who had soundings of 5 to $4\frac{1}{2}$, and one cast of $3\frac{3}{4}$ fathoms in passing over it, a little past noon, steering S.S.E., and at 1^h p.m. cleared the shoal, having then no bottom. The shoal appeared to be about 2 miles in extent, consisting of black and white speckled coral, in a state of rapid accretion, apparently by the vitality and energy of the madrepores, observed in recent formations of large pieces of coral brought up by the lead. The patches of speckled coral were bright and alarming while on the shoal, and although no breakers were perceived, as the sea was then very smooth, yet, with a heavy swell, the sea probably rises in rollers over the shoal patches, when a large ship would be liable to strike on some of them. It was not examined by the *Rifleman*.

LADD REEF, the *Rob Roy Reef* of former charts, the eastern extreme of which is in lat. $8^{\circ} 40\frac{1}{4}' N.$, long. $111^{\circ} 39\frac{3}{4}' E.$, is a coral bank 3 miles long, E.N.E. and W.S.W., and 1 mile wide at its broadest part, which is at its eastern end. In the centre of the reef is a lagoon with a bottom of clear white sand, which shows up with remarkable distinctness. The surrounding reef uncovers at half-tide in many places, and at low water it is almost impossible for boats to cross over into the lagoon.*

SPRATLY ISLAND, in lat. $8^{\circ} 38' N.$, long. $111^{\circ} 54' 30'' E.$, 14 miles E. $\frac{1}{2}$ S. from Ladd Reef, is evidently identical with Horsburgh's *Storm Island*, as no other island exists in the vicinity. It is a flat islet, about 8 ft. high, and very small, being in extent but $2\frac{1}{2}$ cables long by $1\frac{1}{2}$ cable wide, with a margin of bright white sand and broken coral, which, when the sun is shining on it, is conspicuous from the mast-head at a considerable distance. It was described by Mr. Spratly, commanding the *Cyrus*, whaler, as "a low sandy island, the top appearing to be covered with bushes." Commander Ward says that not a bush or even a blade of grass is to be found upon it, and the appearance described by Mr. Spratly was no doubt the effect of the mirage, which ex-

$111^{\circ} 38' E.$ The 8-feet knoll was not found by the *Rifleman's* boats, but it is quite possible to have escaped the lead, for large isolated rocks are known to exist on coral reefs, though extremely difficult to find.

The *Rifleman* sounded over the position assigned to Bombay Castle Reef, in lat. $7^{\circ} 56' N.$, long. $111^{\circ} 51' E.$, but no bottom could be obtained with upwards of 100 fathoms of line; nor could any sign of shoal water be seen. It is therefore probable that the *Bombay Castle* must have sighted the 11-feet patch on Rifleman Bank.

* *Gillies Island*, doubtless identical with Ladd Reef, reported to be in lat. $8^{\circ} 38' N.$, long. $111^{\circ} 28' E.$, is now removed from the charts. H.M.S. *Rifleman* found 800 fathoms in its supposed position.

aggrerates the size and distorts the appearance of the drift-wood on the beach and the sea-birds which throng it. At a distance of 3 or 4 miles, the birds standing erect looked very like small bushes.

The islet lies on the West side of a coral bank, which is $1\frac{1}{2}$ mile long, N.E. and S.W., and three-quarters of a mile wide. Northward of the islet the bank is shallow, there being only $3\frac{1}{2}$ fathoms close to the edge of the deep water, three-quarters of a mile distant from the islet, decreasing towards the shore. North-eastward of the islet there is 7 or 8 fathoms on the bank, which extends not quite half a mile from it. Rocky ledges, dry at low water, surround the islet, rendering it necessary to be cautious when landing in boats, which, during the S.W. monsoon, may be effected on the lee side. The bank is steep-to, the sea breaking heavily upon it in the S.W. monsoon, except in very fine weather.

A square *beacon* was erected by Commander Ward on this islet, formed of four uprights of rough drift-wood spars, 27 feet high and 15 feet apart. The uprights were shored up, and the centre space solidly filled in and built up to the height of 15 feet with drift-wood, rubble, &c.

The *Rifleman* anchored in about 6 fathoms on the N.E. point of the bank, but it is so steep-to, that, riding with the wind W.S.W., and 50 fathoms of chain out, the vessel's stern was in 54 fathoms. This position was, however, fairly sheltered from the S.W.; the extremes of the islet bore S.W. $\frac{1}{2}$ S. and S.W. by W. $\frac{1}{2}$ W., and the extreme of the breakers on the western edge W. $\frac{3}{4}$ S.

In June and July the islet swarmed with turtle of a very fine description, apparently identical with the green turtle of Ascension, and they may possibly frequent it at other seasons. Immense quantities of their eggs were found on the S.W. side. Fish were numerous, but very few captures effected. Sea-birds' eggs literally covered the ground. About seventy sprouts of cocoa-nut trees were planted.

Tides.—Observations at Spratly Island in the S.W. monsoon showed but one tide during the 24 hours, and in the early part of July it was found to be high water at 9^h a.m., the rise and fall being $5\frac{1}{4}$ ft. No observations up to the present time have been obtained during the N.E. monsoon, which probably creates a great change. The direction of the stream at the N.E. corner of the bank was S.W. during the rising tide, and S.E. to E.N.E. during the falling tide.

Ruby Shoal, a small spot formerly shown upon the Admiralty chart in lat. $8^{\circ} 35' N.$, long. $112^{\circ} 4' E.$, was searched for in 1864 and in 1865 by the *Rifleman* without success; it is now expunged from the chart.

LONDON REEFS.—*West London Reef*, bearing E. by N. $\frac{3}{4}$ N., distant 31 miles, from Ladd Reef, is the westernmost of a group of shoals, the London Reefs of the charts. It is a bank $4\frac{1}{2}$ miles long, N.E. by E. and S.W. by W., $3\frac{1}{4}$ miles wide, and almost surrounded by coral reefs, some of which dry at low

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water. There is a space in the centre of the bank with from 6 to 10 fathoms water in it, but also many shoal spots. The only approach to this central space is from the S.E. side, but so many coral patches crop up that the navigation is extremely hazardous. On the East side of the bank, in lat. $8^{\circ} 52' N.$, long. $112^{\circ} 14\frac{1}{4}' E.$, is a sandy cay, one-quarter of a mile in extent, N.E. and S.W., but only 26 yards wide, and 2 ft. above high water. The *Rifleman* anchored at the middle of the North side of the bank.

Central London Reef, the centre of which is in latitude $8^{\circ} 55\frac{1}{2}' N.$, long. $112^{\circ} 21' E.$, was discovered by the *Rifleman* whilst sounding between the East and West London Reefs. It is a coral patch, awash, half a mile in extent, with a shallow lagoon inside the belt of coral. On the S.W. extreme of the reef is a sandy cay, 60 or 70 yards in circumference, which is probably covered at high water springs.

This is in every respect a most dangerous reef, and lies directly in the track of vessels working up or down the China Sea. Being small, it is not marked by great masses of breakers, like those which so readily point out the positions of East and West London Reefs.

Caution.—Like all other dangers in the China Sea visited by the *Rifleman*, the Central London Reef is surrounded by deep water, thus rendering the lead useless; it is, therefore, essentially necessary to observe the greatest precaution when in their vicinity, and never to stand towards them with the sun shining ahead, as under these circumstances it becomes almost impossible to distinguish shoal water or breakers.

East London Reef is 7 miles long, East and West, from 1 to 2 miles broad, and its East end is in lat. $8^{\circ} 49' 38'' N.$, long. $112^{\circ} 37' 26'' E.$ The coral round its edges encloses a lagoon, having 4 to 8 fathoms water, to which no entrance could be discovered, but there were apparently numerous shoal patches inside. The sea breaks heavily on the reef, and on its western extreme are one or two rocks which seldom cover. No soundings could be obtained with 100 fathoms of line at 1 mile from where the coral dries, nor with 500 fathoms at 2 miles North of it.

CUARTERON REEF, named after the Spaniard who discovered it, is awash, and in shape like a crescent, whose chord is 3 miles in length, E. by S. and W. by N., with the curve to the southward. Its eastern extreme is in latitude $8^{\circ} 50' 54'' N.$, long. $112^{\circ} 49' 34'' E.$

This reef was found steeper-to than any yet visited, for although deep water is found close to all of them, there was generally some slope from the rocks awash, on which the *Rifleman* could anchor with safety for a short period, to enable the position to be fixed; here, however, although she anchored in 5 fathoms, with the jib-boom over the rocks awash, the reef was so steep as to cause the anchor to roll down the incline, and run the cable out to the clinch. Captain Ward was of opinion that no vessel should ever venture to sight this dangerous reef.

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FIERY CROSS or **INVESTIGATOR N.W. REEF**, which was marked as two distinct dangers on former charts, was found by Lieut. J. W. Reed, in H.M.S. *Rifleman*, in 1867, to be but one extensive coral reef, having several dry patches on it, upon most of which the sea breaks even in light winds, or with a light swell. It is 14 miles in length, N.E. by E. and S.W. by W., and 4 miles in breadth. Its S.W. end is in lat. $9^{\circ} 32' N.$, long. $112^{\circ} 50' E.$, and its N.E. end in lat. $9^{\circ} 41' N.$, long. $113^{\circ} 2' E.$ The largest dry patch is at its S.W. end, and here were found the wrecks of two vessels, supposed to have been those of the *Fiery Cross* and *Meerschaum*, both of which are known to have been lost upon this reef.*

DISCOVERY GREAT REEF, the South end of which is in lat. $10^{\circ} 0' 42'' N.$, long. $113^{\circ} 51\frac{1}{2}' E.$, is a long narrow coral shoal, the greater part of which dries at low tides, with several large rocks upon it which always show above water; in the centre is a lagoon, which appeared to be shallow, and to have no passage through the reef leading into it. From the South point the reef trends first North, 5 miles, and then N. by E., 5 miles; it is 1 mile broad at the South end, and half a mile at the North. No bottom was found with 100 fathoms of line within a very short distance of any part of the reef, except off its North end, where the *Rifleman* anchored in 42 fathoms, nearly half a mile from the rocks; one-third of a mile off its S.W. point a sounding of 192 fathoms, sand and coral, was obtained.

The reef reported 10 miles north-eastward of Discovery Great Reef was not found by H.M.S. *Rifleman*.

DISCOVERY SMALL REEF, in lat. $10^{\circ} 1\frac{1}{2}' N.$, long. $114^{\circ} 1\frac{1}{2}' E.$, is a small round coral patch, one-third of a mile in diameter, dry in places at low tides, with very deep water all round. Soundings of 174 and 180 fathoms, sand and coral, were obtained very close to its eastern side, and no bottom at 210 fathoms the same distance off the opposite side.

WESTERN or **FLORA TEMPLE REEF**, the centre of which is in lat. $10^{\circ} 15' N.$, long. $113^{\circ} 37\frac{1}{2}' E.$, is the westernmost reef in this part of the China Sea, and very dangerous, having patches of rock just under water at the S.W. part, and but 1 to 3 fathoms in other places. It is $1\frac{1}{2}$ mile long, N.E. and S.W., and rather more than half a mile broad at the southern part, decreasing to half that breadth at the opposite end. The *Rifleman*, for the purposes of the survey, anchored in 5 fathoms on its north-eastern extreme, which had to be approached with great caution, as shoal water was seen at a very short dis-

* *Dhaille Shoal*, reported in the year 1826, by the vessel of that name, which anchored on it in 3 fathoms, is now erased from the charts. Its reported position was 25 miles westward of the South end of Fiery Cross Reef, in lat. $9^{\circ} 32' N.$, long. $112^{\circ} 24' E.$ Here and in the locality, in favourable weather, H.M.S. *Rifleman* was employed a whole day in searching for this reef, but with no success, a depth of 1,060 fathoms being found on the spot. The *Dhaille* doubtless anchored on the South end of Fiery Cross Reef.

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tance inside the edge; soundings of 18 to 74 fathoms were obtained close-to, but at a short distance off no bottom at 100 fathoms.

The reef upon which the *Flora Temple* was wrecked, in 1859, was said to lie 6 miles north-westward of the Western Reef, but the *Rifleman* passed over that position, and certainly no danger exists there; moreover, the description of the reef given at the time of the wreck applies exactly to the Western Reef, where, without doubt, the ship was lost.

TIZARD BANK and REEFS.—From Discovery Small Reef, the nearest part of this bank bears N.E. by E., and is distant 16 miles. It is very extensive, and, like the generality of the large coral banks in the China Sea, consists of a lagoon, bordered by shoal patches. Several of these patches are dangerous reefs, dry at low water, two with islands on them, and a third a sand cay. The bank lies in an E.N.E. and W.S.W. direction, and extends nearly 31 miles; its breadth in the middle being 11 miles, at the S.W. part 7 miles, and at the opposite end $3\frac{1}{2}$ miles.

Itu Aba, the larger of the two islands, is situated at the N.W. corner of the bank, and is three-quarters of a mile long, E. by N. and W. by S., and one-quarter of a mile broad. The reef surrounding it extends in some places to the distance of nearly half a mile, and in others not so far; its limits, however, are generally defined by a line of breakers. The island is covered with small trees and high bushes, together with numerous nests of sea-birds. Two or three cocoa-nut and a few plantain trees stood near a small well, but the most conspicuous object was a single black clump-like tree on the North side of the island, distinctly visible 10 miles off; this is in lat. $10^{\circ} 22' 42''$ N., long. $114^{\circ} 21' 45''$ E.

At a little more than 6 miles East of *Itu Aba* is a small *sand cay*, nearly in the centre of a circular reef, three-quarters of a mile in diameter. The island and cay are connected by a line of shoal patches, which form the N.E. part of the bank; and nearly midway between, but nearer the island, is a dangerous reef, entirely covered at half-tide, about the same size as that surrounding the cay. Elsewhere on the northern edge of the bank there is not less than 4 fathoms, and vessels may safely anchor in from 7 to 11 fathoms about $1\frac{1}{2}$ mile westward of the sand cay, midway between it and the reef last described.

Petley Reef, an oval-shaped patch a little over 1 mile in extent, lies $5\frac{1}{4}$ miles E. by N. $\frac{3}{4}$ N. from the sand cay; it forms the extremity of a remarkable strip of coral, $1\frac{1}{4}$ mile wide, projecting like a horn in a N.N.E. direction from the main body of the bank, the edge of which trends E.S.E. from the cay; not less than 6 fathoms was found upon the strip, except within 1 mile of the southern part of the reef above mentioned, where it shoals to 4 and 3 fathoms, and no bottom could be obtained with 100 fathoms at a short distance on either side of it.

Eldad Reef, the N.E. end of which is in lat. $10^{\circ} 23'$ N., long. $114^{\circ} 42'$ E., forms the eastern extreme of Tizard Bank. It is a peculiarly shaped reef, $4\frac{1}{2}$

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miles long, N.E. by N. $\frac{1}{2}$ N. and S.W. by S. $\frac{1}{2}$ S., the southern and middle parts being about $1\frac{1}{2}$ mile wide, but of irregular outline; and the northern part tapering away in the form of a long, narrow tongue, on either side of which no bottom could be obtained with 100 fathoms of line. A few large rocks are visible at high water, and at low water many smaller ones uncover. Shoal patches extend nearly three-quarters of a mile westward of the reef.

Namyit Island, $11\frac{1}{4}$ miles due South of Itu Aba, is very small, being only 3 cables long, East and West, and 1 cable broad, and is surrounded by a reef which projects more than a mile to the westward, and about one-third of a mile in other directions.

Gaven Reefs are two dangerous reefs, covered at high water, which lie to the westward of Namyit. The southern one is oval-shaped, three-quarters of a mile long, N.N.W. and S.S.E., the island bearing from it E. $\frac{7}{8}$ N., distant 6 miles; the other is 1 mile long, North and South, and nearly three-quarters of a mile broad at its northern end, narrowing to a point at the opposite end. This last is the westernmost danger of the Tizard group, and its outer edge is in lat. $10^{\circ} 13' 20''$ N., long. $114^{\circ} 13' 7''$ E.

Anchorage.—The above comprise all the dangers found upon this great bank, and, with the exception of a small 3-fathoms patch which lies nearly 1 mile N.E. of Namyit Island, nothing less than 4 fathoms was found upon any of the shoal patches surrounding the lagoon; so that vessels of moderate draught can, in cases of necessity and in fine weather, find convenient anchorage, observing always due care and caution in approaching them, so as to guard against possible danger from some shoal spot having escaped detection by the lead.

Hainan fishermen, who subsist by collecting trepang and tortoise-shell, were found upon most of these islands; some of them remain for years amongst the reefs. Junks from Hainan annually visit the islands and reefs of the China Sea with supplies of rice and other necessaries, for which the fishermen give trepang and other articles in exchange, and remit their profits home. The junks leave Hainan in December or January, and return with the first of the S.W. monsoon. The fishermen upon Itu Aba Island were more comfortably established than the others, and the water found in the well on that island was better than elsewhere.

LOAI-TA BANKS and REEFS extend 21 miles N.E. and S.W., its southern part being $5\frac{1}{2}$ miles wide, and its centre 7 miles; from thence it gradually narrows to a point at its N.E. extreme.

Loai-ta Island (South Island of Horsburgh) lies 18 miles N. $\frac{3}{4}$ E. from Itu Aba, its N.W. extreme being in lat. $10^{\circ} 40' 45''$ N., long. $114^{\circ} 24' 54''$ E. It is a low sand island, covered with bushes, and only $1\frac{1}{2}$ cable in diameter; a reef surrounds it, extending, in some places, nearly half a mile.

A reef, about $1\frac{1}{2}$ mile in extent, dry at low water, and having a small sand cay near the centre, lies 5 miles north-westward of Loai-ta. Another and

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larger reef lies three-quarters of a mile south-westward of this reef, extending in that direction $1\frac{3}{4}$ mile, its width being about 1 mile. The S.W. extreme of this last reef, which is also the S.W. extreme of Loai-ta Bank, is in latitude $10^{\circ} 42' N.$, long. $114^{\circ} 19' E.$; the sand cay bearing N.E., distant nearly 3 miles, and Loai-ta Island E. by S., 6 miles.

From the sand cay above mentioned the north-western edge of the bank trends away E.N.E., 5 miles, and then N.E., 13 miles; not less than 4 fathoms was found anywhere upon this part of the bank.

Lan-keeam Cay, a coral patch, half a mile in extent, which partly dries at low water, lies 2 miles E. by N. from Loai-ta Island; and $6\frac{1}{4}$ miles E.N.E. from the same island is a larger reef, three-quarters of a mile in diameter, having a sand cay near its centre; this cay, known to the Hainan fishermen as *Lan-keeam*, is in lat. $10^{\circ} 43' 20'' N.$, long. $114^{\circ} 31' E.$

At 3 miles N.E. by E. $\frac{1}{2}$ E. from *Lan-keeam* is a small dry patch, which forms the S.E. angle of the great Loai-ta Bank, and $4\frac{1}{2}$ miles N.E. $\frac{1}{4}$ N. from that cay is another small reef, the northernmost patch which dries. From the latter the south-eastern edge of the bank trends N. by E., about 9 miles, when it meets the north-western edge; nothing less than 4 fathoms was obtained on this part of the bank.

SOUBIE REEF, the S.W. end of which is in lat. $10^{\circ} 53\frac{1}{2}' N.$ long. $114^{\circ} 5' E.$, is the westernmost danger in this locality. It is an irregular-shaped coral reef, nearly $3\frac{1}{2}$ miles long, N.E. and S.W., and 2 miles broad, is dry at low water, and has a lagoon, into which there appears to be no passage.

THI-TU REEFS and ISLAND, or the *N.W. Dangers*, consist of several very dangerous patches grouped upon two coral banks, separated by a narrow deep gut. *Thi-tu* is a low sand island, not quite half a mile in diameter, situated on the East side of the western bank. Near its S.W. end is a dark clump tree, in lat. $11^{\circ} 3' 9'' N.$, long. $114^{\circ} 16' 25'' E.$; in addition to this clump tree the island had upon it, in 1878, some low bushes and two stunted cocoa-nut trees, near to which is a small well and a few plantain trees.

From the island the western bank widens out towards the N.W. and S.W. for a distance each way of $2\frac{1}{2}$ miles; the North side of this part of the bank is marked by a round coral reef, three-quarters of a mile in diameter, between which and the reef surrounding the island are soundings of $2\frac{1}{2}$ to 7 fathoms, the deep water being nearer the island. The South edge of the bank is also marked by a reef, but this is much smaller than the one just described, and the depths between it and the island are more favourable for anchoring upon than the opposite side of the bank, being in no place less than $4\frac{1}{2}$ fathoms. From these two reefs the bank gradually narrows, and terminates in a point in lat. $11^{\circ} 2' 30'' N.$, long. $114^{\circ} 10' 30'' E.$, the island bearing E. $\frac{3}{4}$ N., distant 6 miles.

On the North edge of the bank is a sand cay, which bears from the island W. $\frac{1}{4}$ N., nearly $3\frac{1}{2}$ miles. This is also on a large patch of reef, dry at low water, and between it and the western extreme of the bank are dangerous

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reefs, nearly always marked by breakers. There is a passage into the lagoon between the sand cay reef and the one $2\frac{1}{2}$ miles N.W. of the island, with depths of 5 to 12 fathoms.

The South side of the bank is not nearly so dangerous as the North side, and vessels may anchor upon it with the sand cay bearing between N.E. by N. and N.W. by N., or to the eastward of the patch which lies $2\frac{1}{2}$ miles S.W. of the island, with the cay bearing N.W. by W. $\frac{1}{2}$ W., and the island N.E. $\frac{1}{2}$ E. In the lagoon the depths are 17 to 19 fathoms.

The eastern bank is a mass of dangerous reefs and patches; its western extreme is more than 1 mile eastward of Thi-tu Island, extending from thence $1\frac{1}{2}$ mile East and $3\frac{1}{2}$ miles N.E., with an average breadth of 2 miles.

TRIDENT SHOAL, lying 24 miles N.E. $\frac{3}{4}$ N. from Thi-tu Reef, is a coral bank $7\frac{1}{2}$ miles long and 6 miles broad, of the shape of a shoulder of mutton, the broad part being to the northward; it is composed of many patches with less than 10 fathoms water over them, two of which are dangerous. These patches lie round the edges of the bank, forming a lagoon, the depths in which are 26 to 37 fathoms; close outside of them there is no bottom at 100 fathoms.

The most dangerous patch, at the northern extreme of the shoal, extends $1\frac{3}{4}$ mile East and West, and half a mile North and South, and near its centre, in lat. $11^{\circ} 31' 30''$ N., long. $114^{\circ} 39' 15''$ E., is a small spot which dries at low water springs; the depths on other parts of the patch vary from $1\frac{1}{4}$ to 6 fathoms. The other patch is at the eastern extreme of the shoal, $3\frac{1}{2}$ miles S.E. $\frac{1}{2}$ S. from that just described; it is a small spot of $2\frac{1}{4}$ fathoms, with depths of 3 to 5 fathoms at half a mile around it. Some casts of 4 fathoms were obtained about 1 mile W. by S. from the dry spot, but not less than 5 fathoms on any of the other patches.*

LYS SHOAL lies 2 miles southward of Trident Shoal, and like the latter is formed of a number of patches under 10 fathoms, with a lagoon in the centre; only one danger, a small spot of 17 ft., was found, and this lies near the S.W. extreme of the bank, in lat. $11^{\circ} 19' 40''$ N., long. $114^{\circ} 34' 24''$ E.; around it the depths are 5 fathoms. Some 5-fathoms patches were also discovered near the N.E. end of the bank, but nothing under 6 fathoms was met with elsewhere, the general depths on the patches being 7 to 10 fathoms, and a short distance outside of them there was no bottom with 100 fathoms of line.

* Mr. Lyall, commander of the *Trident*, who discovered the Trident Shoal, placed it 6 miles to the northward of this position. The *Riflesman* was employed five days in searching that locality without discovering any danger, and it is certain none exists there.

The Bremen vessel *G. E. Lorenz Meyer* was reported by her commander, Mr. Moller, to have struck at night upon a shoal in lat. $11^{\circ} 25' N.$, long. $114^{\circ} 51' E.$; this position was also examined by the *Riflesman*, but no danger discovered, and there is but little doubt that the vessel struck on the eastern patch of the Trident.

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NORTH DANGER REEF, of coral formation, 16 miles W. by S. from Trident Reef, is about $8\frac{1}{2}$ miles long, N.E. and S.W., and $4\frac{1}{2}$ miles broad. On its N.W. side are two sandy cays, the north-eastern of which is half a mile long, one-quarter of a mile broad, and 10 ft. above the level of the sea at high water; the south-western cay is only 4 cables long, and $1\frac{1}{2}$ cable broad, but its elevation is 15 ft. above the same level. Between the cays is a passage 1 mile wide, with from 4 to 9 fathoms water, leading into the lagoon of the reef, where the depth is from 20 to 25 fathoms.

Shoal water exists all round the edge of North Danger Reef, and there are heavy breakers over the coral awash at its N.E. and S.W. extremes. No soundings could be obtained close to the edge of the reef with upwards of 100 fathoms of line, but one cast of 380 fathoms was obtained $1\frac{1}{2}$ mile to the N.E. of the breakers on its N.E. extreme. On the eastern side of the reef no bottom could be obtained with 450 fathoms of line.

Both cays are covered with coarse grass, and on the north-eastern of the two is a stunted tree in lat. $11^{\circ} 28' N.$, long. $114^{\circ} 20\frac{3}{4}' E.$ The cays are frequented by Chinese fishermen from Hainan, who collect biche-de-mer, turtle-shell, &c., and supply themselves with water from a well in the centre of the north-eastern cay.

Caution.—Vessels should not attempt to pass through the reefs in this part of the China Sea, as a line of dangerous shoals, extending many miles, is known to exist eastward of the dangers just described.

Currents and Tides.—Whilst the *Rifleman* was at anchor on the reefs, during both monsoons, careful observations were taken of the set of the current, which, for 16 hours out of the 24, invariably set to windward, generally with the greatest force when the monsoon was strongest.

The rise of tide at springs was about 5 ft., and at neaps 1 to 2 ft.; one tidal stream in the 24 hours.

ISLANDS AND DANGERS IN THE FAIRWAY OF THE MAIN ROUTE.

CHARLOTTE BANK, with 5 to 8 fathoms water over it, and 40 fathoms close around, is $3\frac{3}{4}$ miles long, East and West, and 2 miles wide. H.M. surveying vessel *Rifleman* anchored upon its eastern side in 8 fathoms, in lat. $7^{\circ} 7\frac{1}{4}' N.$, long. $107^{\circ} 37\frac{1}{4}' E.$ The bank will be avoided by keeping under 30 fathoms water when passing its parallel.

Scawfell Shoal.—Mr. Thompson, commanding the ship *Scawfell*, reported as follows:—"On the 13th of May, 1865, on my passage up the China Sea, just before noon I observed an unusual quantity of fish around the ship, and while taking noon observations, rocks were reported under the bottom. I immediately

PALAWAN PASSAGE.

The following dangers lying in the fairway of vessels proceeding through the Palawan Passage on their way to China, were (with the exception of Louisa Reef, examined by Capt. Bate, H.M.S. *Royalist*, in 1850-54) surveyed in 1863 and in 1866 by Lieut. J. W. Reed, commanding H.M.S. *Rifleman*.

The adjacent coast of Borneo has been described on pages 423 to 462, and Balabac Strait and the islands to the northward, including Palawan, in Chapter XI, pages 463 to 537. What follows will be a description of the outlying shoals, and of those lying on the edge of the Borneo and Palawan bank of soundings, which are passed in sailing through this channel to or from the China coast, commencing from the south-westward.

Caution.—Lieut. Reed, R.N., remarks, that when engaged in the examination of the dangers (the weather was remarkably fine—finer, indeed, than had been experienced in any previous season), little or no current was found, and the sea was in general so smooth that hardly a breaker appeared on the edges of the dry reefs; this made it difficult to detect dangers, and it was only during the search for Dhaille Shoal that the weather was favourable for doing so. Up to the 8th of June, when the *Rifleman* arrived at Manila, the weather continued fine, with the exception of occasional light squalls of wind and rain, and on the 10th the first of the S.W. monsoon was felt, the weather still remaining very fine.

SOUTH LUCONIA SHOALS comprise a group of four coral shoals, the southernmost of which is about 1 mile in extent, and in the form of a horse-shoe, with the open part to the north-eastward; between the horns of the shoal there is 26 fathoms. The general depths on it are from 2 to 3 fathoms, but near the N.W. extreme is a rock nearly awash. The southern extreme of the middle part of the shoal is in lat. $4^{\circ} 59\frac{1}{2}'$ N., long. $112^{\circ} 39\frac{1}{4}'$ E., and bears from Barram Point W. by N. $\frac{1}{4}$ N., distant 81 miles.

The westernmost shoal of the group, lying about W. by N., distant 7 miles, from the southernmost one, is nearly 2 miles long, N.W. and S.E., and about three-quarters of a mile broad. The general depths over it are 2 and 3 fathoms, but near the S.E. extreme is a rock just below the surface of the water, and a similar one at the N.W. extreme; the latter is in lat. $5^{\circ} 2\frac{1}{4}'$ N., long. $112^{\circ} 31\frac{1}{4}'$ E.

Luconia Breakers, nearly half a mile in extent, and upon which the sea breaks, even in fine weather, lies on the eastern extreme of a shoal, over which are various depths under 5 fathoms. The shoal extends nearly 2 miles in a north-westerly, and about 1 mile in a south-westerly, direction from the centre of the breakers, which is in lat. $5^{\circ} 3' 24''$ N., long. $112^{\circ} 41' 36''$ E. At 1 mile north-eastward of the centre of the breakers is the South extreme of a narrow strip of shoal, with 2 to 3 fathoms water over it, which extends from thence

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about N. by E., for a distance of 2 miles. The North extreme of this shoal is in lat. $5^{\circ} 5\frac{3}{4}'$ N., long. $112^{\circ} 42\frac{3}{4}'$ E.

The whole of these shoals are steep-to.

There is good reason to believe that no dangers exist between the South Luconia Shoals and the coast of Borneo.* Many lines of soundings were obtained in the *Rifleman* from these shoals in directions between S.W. (round southward) and East, but no dangers could be discovered. The general depths were from 55 to 69 fathoms.

NORTH LUCONIA SHOALS.—Upon the old charts of the China Sea a number of dangers were shown between the parallels of $5^{\circ} 20'$ and $6^{\circ} 2' N.$, and the meridians of $112^{\circ} 14'$ and $112^{\circ} 40' E.$; they were named Luconia, Seahorse, George and Abercrombie, and Friendship Shoals. These dangers were examined by H.M.S. *Rifleman*, and were found to consist of a mass of coral reefs and shoals, amongst which no vessel should venture. The above general name is now adopted as applying to the entire group, but the names given by the original discoverers have been retained for particular or conspicuous localities. It has not yet been completely surveyed.

The southern extreme of the group is marked by two shoal patches, about 4 miles apart, but lying in the same latitude, $5^{\circ} 27\frac{1}{4}' N.$, and each of them is rendered conspicuous by rocks just below the surface of the water, upon which the sea breaks with the least swell.

The western patch, about 1 mile in extent, East and West, and one-quarter of a mile wide, has but 1 to 2 fathoms over it, and near its eastern end, in long. $112^{\circ} 32\frac{1}{2}' E.$, are two rocks nearly awash, upon which the sea is generally breaking, even in fine weather. About half a mile West of these rocks is a patch of 3 fathoms, on the eastern extreme of a coral bank, with 2 fathoms least water, which extends thence—curving gradually to the north-westward—for a distance of 3 miles.

The eastern patch has, like the western patch just described, two rocks nearly awash at its western extreme, in long. $112^{\circ} 38' E.$, and upon which, also, the sea is generally breaking, even in fine weather. The shoal patch upon which they lie has 2 fathoms water over it; and, about 1 mile eastward of the rocks, it forms the south-eastern extreme of a long narrow coral bank, which extends from thence $6\frac{1}{2}$ miles, in a general direction about N.N.W., its average breadth being about one-third of a mile. The general depths over this bank are 4 or 5 fathoms, but there are several patches of 2 and 3 fathoms; a rather extensive patch near its north-western extreme, in lat. $5^{\circ} 32\frac{3}{4}' N.$, long. $112^{\circ} 35\frac{1}{2}' E.$, has as little as $1\frac{1}{2}$ fathom over it.

* The *Rifleman* steamed for three days over and about the reputed positions of two very doubtful dangers, named, on the old charts of Horsburgh, *Kirton Shoal* and *Euphrates Reef*. The weather and other circumstances were extremely favourable for seeing shoal patches, but nothing was visible, nor could bottom with 600 fathoms be obtained on the position ascribed to Euphrates Reef.

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To the southward of these patches, heavy breakers are reported to have been seen on a reef in lat. $5^{\circ} 22' N.$, long. $112^{\circ} 36' E.$

Seahorse Breakers, in lat. $5^{\circ} 31' N.$, long. $112^{\circ} 34' E.$, is the most conspicuous danger of the Luçonia Shoals. It is a reef of rocks and sand just above water, about 1 mile long, N. by E. and S. by W., and one-third of a mile broad. From these breakers shoals extended as far as the *Rifleman* was able to sound in 1863, viz., 18 miles North, 5 miles South, 5 miles East, and 13 miles West.

The northernmost of the shoal patches reached, in 1863, was in latitude $5^{\circ} 48' 30'' N.$, long. $112^{\circ} 32' 15'' E.$ In 1866, the vessel was anchored near a $2\frac{3}{4}$ -fathoms patch, in lat. $5^{\circ} 55' 15'' N.$, long. $112^{\circ} 31' 30'' E.$, on the northern edge of a coral bank, traced for 2 miles to the southward, but which, no doubt, extends to the northernmost patch surveyed in 1863. Vessels should not pass between these positions.*

Friendship Shoal is the northernmost of the Luçonia group; the *Rifleman* crossed it without getting less than $4\frac{1}{2}$ fathoms, although there appeared to be less depths in some places. The North part of the shoal is in lat. $5^{\circ} 59' 30'' N.$, long. $112^{\circ} 31' 30'' E.$, and though this position must be considered approximate, it is nevertheless near the truth. Lines of soundings were obtained in directions N.E., North, and N.W., from the North end of the shoal, for a distance of 4 miles, but no shoal water was found.

Caution.—No directions can be given which will enable vessels to pass safely through these dangerous reefs and shoals. Although not less than 2 fathoms was found upon those to the northward of the Seahorse Breakers, yet they should be avoided, as it is quite possible there may be knolls with less water upon them which have escaped the lead.†

LOUISA REEF, the S.W. rock of which is in latitude $6^{\circ} 19\frac{3}{4}' N.$, long. $113^{\circ} 18\frac{1}{2}' E.$, is a dangerous coral reef of quadrangular form, two-thirds of a mile in extent, East and West. The rocks on it are generally covered at high

* Captain Bate, in H.M.S. *Royalist*, passed over the position ascribed to the George and Abercrombie Shoal without finding it. He supposed that it and the Friendship were the same shoal; but the error was in the longitude of the George and Abercrombie, which placed it too far to the westward. It exists, and forms part of the mass of shoals which extend continuously from the Seahorse Breakers to the Friendship.

† Captain Bate also passed over the position assigned in Horsburgh's chart, viz., lat. $5^{\circ} 54' N.$, long. $114^{\circ} 7' E.$, to the *Cayo Marino*, a 3-fathoms shoal, without being able to discover it; nor could soundings be obtained with from 180 to 200 fathoms of line.

Cava Shoal, placed in lat. $5^{\circ} 51' N.$, long. $114^{\circ} 30\frac{3}{4}' E.$, was searched for in vain by the *Rifleman*. On the spot mud bottom was obtained with 415 fathoms of line. She also anchored in 46 fathoms on the supposed position of a reef, on which the steamer *South-western* is said to have struck, in lat. $5^{\circ} 54' N.$, long. $115^{\circ} 4\frac{1}{2}' E.$, and sounded round it for several miles, obtaining regular soundings. Commander Ward confidently asserts that the reef does not exist.

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water, with the exception of two small clusters on its eastern and south-western extremes; the centre of the shoal is shallow. There are no soundings with 50 fathoms close to its outer edge, nor with 180 fathoms one-quarter of a mile to the south-westward of the shoal, but within 20 yards of the S.W. rock there is 10 fathoms. According to the captain of the Spanish steamer *Panay*, 1880, the S.W. rock lies 10 miles West of the above position.

The Tidal Stream at Louisa Reef at noon, on the full and change days in the month of October, 1850, was setting to the W.N.W., and the maximum rise appeared to be about 4 feet.

ROYAL CHARLOTTE REEF, of a nearly rectangular shape, is $1\frac{1}{2}$ mile in length, N.W. by W. and S.E. by E., and nearly 1 mile in breadth. On its south-eastern side are stones 2 to 4 ft. above high water, the highest of which is in lat. $6^{\circ} 57' 18''$ N., long. $113^{\circ} 35' 30''$ E.; there are also one or two stones on its N.E. edge, which just show at high water. This shoal and the Louisa, although lying off the coast of Borneo, may be said more properly to belong to the Palawan Channel, for they may be considered, both in their character and position, to form a suitable portal through which to introduce the navigator to this channel.*

SWALLOW REEF, 28 miles N.E. by N. $\frac{3}{4}$ N. from Royal Charlotte Reef, was seen by the *Swallow* in 1801. It is formed of a belt of coral surrounding a shallow basin, is $3\frac{1}{2}$ miles long, E. $\frac{3}{4}$ N. and W. $\frac{3}{4}$ S., and $1\frac{1}{2}$ mile wide. At its eastern part are some rocks from 5 to 10 feet above high water, the highest of which is in lat. $7^{\circ} 23' 00''$ N., long. $113^{\circ} 50' 23''$ E.; there are also one or two stones on the south-eastern side which show at high water. The West end terminates in a sharp point.

Ardasier Bank, and the doubtful *Viper Shoal*, are described on pages 624 and 625, with the other shoals and reefs lying within the southern and eastern boundaries of the Archipelago of Reefs, on the West side of the Palawan Passage.

VERNON BANK, discovered by H.M.S. *Vernon* in 1847, is a large coral shoal off the coast of Borneo, having a dangerous group of rocks, named after H.M.S. *Fury*, upon one part, and a patch of $2\frac{3}{4}$ fathoms on another part of it. The bank lies between the parallels of $5^{\circ} 39'$ and $5^{\circ} 50\frac{1}{4}'$ N., and the meridians of $114^{\circ} 57\frac{1}{2}'$ and $115^{\circ} 7\frac{1}{2}'$ E., and is in form of an irregular triangle, having its base, 6 miles in length, to the S.W., and its apex to the N.W., extending in those directions about 12 miles.

* SANDY ISLAND, reported in 1863 by Mr. W. Andrew, master of the barque *Thames*, to be in about lat. $7^{\circ} 20'$ N., long. $114^{\circ} 10'$ E., was looked for in the *Rifeman*. At noon, from lat. $7^{\circ} 12'$ N., long. $114^{\circ} 1'$ E., a course was shaped for the assigned position of the island; at 2^h 30^m p.m. the vessel was in the same latitude and 1 mile to the eastward of it; from thence a course was steered for the South Ardasier Shoal. No appearance of shoal water could be seen from the vessel on either of these courses, and certainly no island exists within 5 or 6 miles on either side of the lines passed over.

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The *Fury*, in 1858, crossed the western edge of this bank, and saw breakers about $1\frac{1}{2}$ mile in extent, which no doubt were on the Fury Rocks. This formidable danger is nearly 3 miles in extent, and consists of coral patches, with 2 to 3 fathoms water over them, and several detached rocks, one or two of which nearly uncover at low water. These rocks are pinnacle-shaped, with 4 to 6 fathoms around them, so that in fine weather there is seldom much break of the sea over them, and probably sometimes none at all. The centre of the rocks is in lat. $5^{\circ} 43\frac{1}{2}'$ N., long. $115^{\circ} 2\frac{1}{4}'$ E., and with the eye 18 ft. above the sea, the highest part of Labuan (303 ft.) is just visible, bearing S.E. by S. $\frac{1}{4}$ S.

The soundings on the other parts of the bank are irregular, with several patches of but 4 and 5 fathoms, and on the West and N.W. sides of the bank is a sort of curved coral wall, convex to seaward, having $4\frac{1}{2}$ to 9 fathoms on it, 14 to 19 fathoms inside of it, and 20 to 30 fathoms close outside of it. As Fury Rocks lie 2 to 3 miles inside the edge of the bank, the lead, if carefully attended to, will give sufficient warning to avoid them; but large vessels should on no account make free with this dangerous bank, and small vessels will do well to give it a wide berth, for the currents in the vicinity are very uncertain.

The $2\frac{3}{4}$ -fathoms patch, near the N.E. extreme of the bank, is in latitude $5^{\circ} 49' 20''$ N., long. $115^{\circ} 5' 20''$ E. It is a small coral knoll, surrounded to some distance by soundings of 4 and 5 fathoms. This part of the bank should also be avoided.

Samarang Bank, its centre in lat. $5^{\circ} 35\frac{1}{4}'$ N., long. $114^{\circ} 53\frac{3}{4}'$ E., is an oval-shaped coral bank $6\frac{1}{2}$ miles long, E. by N. and W. by S., and $4\frac{1}{4}$ miles wide. The general depths on it are 4 to 6 fathoms, and the least water found was $3\frac{1}{2}$ fathoms. From the centre of the bank the highest part of Labuan bears S.E. by E. $\frac{1}{4}$ E.

Saracen Bank.—H.M. surveying-vessel *Saracen*, in 1854, on her passage from Labuan to Hong Kong, discovered an extensive coral bank, having generally from 2 to 4 fathoms water over it, with dry patches and several coral knolls with but a few feet water over them. The bank is 5 or 6 miles in diameter, and its centre is in about lat. $6^{\circ} 7\frac{1}{2}'$ N., long. $115^{\circ} 20\frac{1}{2}'$ E., bearing W. by S. $\frac{1}{2}$ S., distant 14 or 15 miles, from Mangalum Island (page 453).

Caution.—Dangers had been seen in this locality before, but their positions were quite uncertain. It seems very probable that other dangers may exist hereabout besides those known. Vessels proceeding to China by the Palawan Passage should keep well to the northward of all the coral banks lying near the coast of Borneo.

DANGERS ON THE WESTERN SIDE OF THE PALAWAN
PASSAGE.

HALF-MOON SHOAL, having Inclined Rock on its eastern side in latitude $8^{\circ} 51\frac{3}{4}'$ N., long. $116^{\circ} 16' 45''$ E., by H.M.S. *Royalist*, in July, 1853, is formed by a belt of coral even with the water's surface, of the average width of 1 cable, except at its S.W. extremity, where it is broader. It is of oblong shape, being nearly 3 miles in extent, N.E. and S.W., with an average width of 1 mile. On the eastern side, to the southward of Inclined Rock, there are two breaks in the belt forming channels into the basin, the southernmost of which has 4 to 9 fathoms in it, and is marked by a cluster of rocks, which generally show above water. Half-tide rocks are interspersed over the belt, the largest of which is at the N.W. extremity of the shoal. The average depth in the basin is 14 and 16 fathoms, with numerous scattered patches of coral. From the shoal, Balabac Peak (page 473) bears S.E. $\frac{1}{2}$ S., distant 71 miles; Bulanhow Mountain (page 492), E. by S. $\frac{1}{4}$ S.; and the Elbow or nearest part of the bank of soundings fronting Palawan Island (page 616), S.E. $\frac{1}{2}$ E., 39 miles.

Tides.—It is high water at Half-Moon Shoal, 5 days after full and change, at $10^{\text{h}} 45^{\text{m}}$ a.m., and the rise is about 4 feet.

ROYAL CAPTAIN SHOAL lies $23\frac{1}{2}$ miles E.N.E. from Half-Moon Shoal, and N.W. $\frac{1}{3}$ W. from the edge or nearest part of the bank, contracting the channel, which is here the narrowest part, to $25\frac{3}{4}$ miles in width. *Observation Rock*, at its North extremity, which shows at half-tide, is in lat. $9^{\circ} 1' 45''$ N., long. $116^{\circ} 39' 36''$ E.; from it Balabac Peak bears S. by E. $\frac{3}{4}$ E., distant $68\frac{1}{2}$ miles, and Bulanhow Mountain S.E. by E. $\frac{1}{3}$ E. In clear weather the high land of Mantaleengahan (page 493) is visible. The shoal is elliptical, being $1\frac{3}{4}$ mile in length, N.W. and S.E., with a breadth of 1 mile. The belt, which is entirely covered at high water, and of irregular form in the inner rim, varies very much in width, the broadest part being at the S.E. extremity, where it is 2 cables. There are depths of 15 to 17 fathoms, sand and coral, with several coral patches, inside the basin. There is no entrance, but at high water a boat can cross the belt. The outer edge is steep-to, having no bottom with upwards of 100 fathoms, within half a cable of the reef. Only a few rocks on the belt show at low water.

Tides.—It is high water at Royal Captain Shoal, 6 days after full and change, at $11^{\text{h}} 30^{\text{m}}$ a.m.; the rise is about 4 feet.

BOMBAY SHOAL, on which the French frigate *Madagascar* was wrecked, in 1841, lies 29 miles N.E. by N. $\frac{1}{4}$ N. from Royal Captain Shoal, and $27\frac{1}{4}$ miles from the nearest part of the bank of soundings. *Madagascar Rock*, on its N.E. extremity, is in lat. $9^{\circ} 26' 7''$ N., long. $116^{\circ} 56' 4''$ E., and from it Mantaleengahan Mountain bears S.E. $\frac{1}{2}$ E., and Bulanhow S.E. by S. $\frac{1}{2}$ S.

This shoal is in the form of an ellipsis, lying in a N.E. and S.W. direction,

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1 mile in length by three-quarters of a mile in breadth. The basin, in which there is 16 and 18 fathoms, sand, is completely enclosed by a belt, on which three or four rocks show at half-tide, the most conspicuous being at the North extremity of the shoal. There is 30 fathoms outside the reef, within 20 yards of the S.W. and N.E. extremes; but beyond, there is no bottom in any direction with upwards of 150 fathoms of line.

The Bombay is the northernmost and smallest of this description of shoals in the Palawan Passage.

Tides.—It is high water at Bombay Shoal, 7 days after full and change, at noon; the rise is about 4 feet. While the tide was rising, the current was observed setting to the N.E.

CARNATIC SHOAL is said to lie about 47 miles N.E. by N. $\frac{1}{4}$ N. from Bombay Shoal, in lat. $10^{\circ} 6' N.$, long. $117^{\circ} 21' E.$, and to have as little as $3\frac{1}{2}$ fathoms over it. H.M.S. *Royalist*, in July, 1853, could not discover the shoal in the position assigned to it, no soundings being obtained at from 100 to 200 fathoms, when in the neighbourhood.

Other banks and dangers (outliers of the great prolific coral bed) are reported to exist to the north-eastward of this and Bombay Shoal, by vessels which have deviated from the proper channel course, all which appear to have no soundings near them.*

Seahorse or *Routh Shoal* is described on page 628.

DANGERS ON THE EASTERN SIDE OF THE PALAWAN
PASSAGE.

Having described the dangers and shoals which limit the western boundary of the Palawan Passage, we shall now proceed with those on the eastern side, which lie immediately within the edge of the bank of soundings fronting the island. The principal shoals only are here described, and a reference to the chart will suffice to explain the position and character of these numerous detached patches. The West coast of Palawan, with the shoals near it, has been described in pages 490 to 518. The S.W. part of the bank forms an Elbow on the parallel of nearly $8\frac{1}{2}^{\circ} N.$, from which Cape Buliluyan, the South point of

* **HOLMES SHOAL.**—The *Riflesman*, on leaving the Routh Shoal, steered a S.E. $\frac{3}{4}$ S. course to pass over the doubtful position of Holmes Shoal; no bottom at 200 fathoms was obtained on its reputed position, lat. $10^{\circ} 32' N.$, long. $117^{\circ} 59' E.$, nor was any sign of shoal water seen in the vicinity; many others have reported to the same effect. It certainly does not exist where reported, and there are reasons for believing that the Fairy Queen Shoal, 18 miles to the westward, is the Holmes Shoal.

Breakers were reported to have been seen from the *Bombay Castle* and *Mona* in latitude $9^{\circ} 42' N.$, long. $117^{\circ} 25' E.$, 32 miles N.E. by E. from Bombay Shoal.

PALAWAN PASSAGE—HEREFORDSHIRE SHOAL, ETC. 617

Palawan, bears E. by S. $\frac{1}{4}$ S.; Balabac Peak, S.S.E.; and Bulanhow Mountain, E. by N. $\frac{1}{2}$ N. The bank also extends to the northward, fronting the Calamianes group.

HEREFORDSHIRE SHOAL.—The ship *Herefordshire*, in 1815, struck upon a reef in lat. $8^{\circ} 35' N.$, long. $116^{\circ} 59' 19'' E.$, about 15 miles to the north-eastward of the above Elbow; an occurrence which might have been prevented had the lead been properly attended to, as the danger lies 4 miles within the edge of the bank. The position of this shoal was not fixed by H.M.S. *Royalist*.

NORTH REGENT SHOAL, 5 miles N.E. by E. $\frac{1}{2}$ E. from the Herefordshire, is a dangerous coral patch, 4 cables in extent, having in some places only 9 ft. water on it. It lies 6 miles within the edge of the bank, and $9\frac{1}{2}$ miles from the nearest shore, with the S.W. or Triple Hill S.E. $\frac{1}{4}$ E.; the summit of Bulanhow Mountain a little open South of Caneepahan Hill, E. $\frac{1}{4}$ S.; and the Pagoda (page 493), E. by N. $\frac{1}{4}$ N. A coral patch of $2\frac{1}{4}$ fathoms lies 2 miles E.N.E. of it.

At $4\frac{1}{2}$ miles N.W. $\frac{1}{2}$ W. from North Regent shoal, and 1 mile inside the edge of the bank, is a coral patch, with 10 fathoms water on it; at $1\frac{1}{2}$ mile to the north-eastward of which, and 2 miles inside the edge of the bank, is another patch, 3 cables in extent, with only 5 fathoms on it. Also at $1\frac{1}{2}$ mile N.E. by E. $\frac{1}{2}$ E. from the latter is a 4-fathoms patch, 3 cables in extent; and a 7-fathoms knoll lies half-way between the two. The soundings in the vicinity of the two latter shoals are 27 and 30 fathoms, sand and shells; the soundings near the former being 60 fathoms, mud, with 74 and 77 fathoms between them and the edge of the bank. Between the North Regent and the above shoals the depths are from 30 to 45 fathoms, mud, and sometimes sand and broken coral.

BREAKER REEF, 5 miles N.E. $\frac{3}{4}$ E. from the North Regent, is 3 cables in extent, and of triangular form, with a few rocks showing at low water. It lies 8 miles inside the edge of the bank, and 7 miles from Cape Seeacle, the nearest shore, and from it S.W. or Triple Hill bears S.S.E.; Caneepahan Hill, S.E. by E. $\frac{3}{4}$ E.; and the Pagoda, showing to the southward of a double hill on I-wi-ig range, E. $\frac{3}{4}$ N.

Rocky ground, with as little as $2\frac{3}{4}$ fathoms over it, extends $1\frac{3}{4}$ mile to the westward of this reef; also at $3\frac{1}{2}$ miles northward of it is a patch with $4\frac{1}{2}$ fathoms; and another $2\frac{1}{2}$ miles N.W. $\frac{1}{2}$ W. from that, with $6\frac{1}{2}$ fathoms; and at 1 mile westward of the latter is a patch of $4\frac{1}{2}$ fathoms. The soundings in the neighbourhood of these patches vary from 30 to 43 fathoms, except to the south-westward of Breaker Reef, where there is 15 to 19 fathoms between it and the $2\frac{1}{2}$ -fathoms patch E.N.E. of North Regent Shoal.

The *Antelope Shoals* and *Merlin Patches* are described on pp. 492—493.

PARAQUAS RIDGE.—At 11 miles N. $\frac{1}{2}$ W. from Breaker Reef is the South end of this ridge, which thence extends 8 miles to the N.E., parallel

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with and a mile inside the edge of the bank, when it then trends 2 miles to the eastward. It is a long irregularly-formed bank of coarse sand and shells, with a very narrow ridge of coral having gaps through it, and on which ridge the least water found was 5 fathoms; the average depth being 6, 7, and 9 fathoms, with from 20 to 30 fathoms close-to. From its S.E. extreme, in 26 fathoms, Bulanhow Mountain bore S.E. $\frac{1}{4}$ S.; Caneepahan Hill, S.E. by S.; Pagoda Cliffs, E. by S. $\frac{3}{4}$ S.; and Mantaleengahan Mountain, E. $\frac{1}{4}$ S. Off its North extreme, in 19 fathoms, Bulanhow Mountain bore S. by E. $\frac{3}{4}$ E.; Caneepahan Hill, S. $\frac{3}{4}$ E.; Pagoda Cliffs, S.E., easterly; and Mantaleengahan Mountain, E. by S. $\frac{3}{4}$ S.

The outer edge of this bank is steep-to, having in many places 60 and 70 fathoms within 2 or 3 cables of the ridge.

VANGUARD SHOAL is a coral patch 2 cables in extent, with only 1 foot water on it, lying $5\frac{1}{2}$ miles E. by S. from the shoalest part of Paraquas Ridge, and 12 miles off shore, with Caneepahan Hill bearing S. $\frac{1}{2}$ E.; Bulanhow, S. by E. $\frac{3}{4}$ E.; Pagoda, S.E. $\frac{1}{2}$ E.; and Mantaleengahan, E. by S. $\frac{1}{4}$ S.

Between this shoal and the Paraquas the soundings are irregular, varying from 30 to 50 fathoms. To the south-westward of the latter they are from 70 to 80 fathoms, mud, when on the edge; 20 and 30 fathoms, coarse sand and broken coral, 1 mile inside; and 40, 45, and 50 fathoms, mud, when fairly on the bank.

SCALESBY CASTLE SHOAL is a dangerous coral patch, 2 cables in extent, with 15 feet water on it, and 32 fathoms close to its edge, lying in lat. $9^{\circ} 5' N.$, long. $117^{\circ} 17' 11'' E.$, $7\frac{1}{4}$ miles N.E. by N. from the North extreme of the Paraquas, and only $1\frac{1}{2}$ mile within the edge of the bank. From it Bulanhow bears S. $\frac{2}{3}$ E.; Pagoda, S.E. by S. $\frac{1}{2}$ S.; Mantaleengahan, a little open South of Illaan Hill, S.E. by E., southerly; Sharp Peak, a little open South of a high peak on the Mantaleengahan Range, S.E. by E. $\frac{3}{4}$ E.; and Eran Quoin, E. $\frac{1}{2}$ S. It is distant $15\frac{1}{2}$ miles from Townsend Point, the nearest shore.

COLLINGWOOD SHOAL, lying $15\frac{1}{2}$ miles N.E. by E. from the Scalesby Castle, and 6 miles inside the edge of the bank, is half a mile in extent, and on it the least water found was 13 feet, with 26 and 28 fathoms close to its western or outer edge; the soundings in the neighbourhood being 40 and 45 fathoms, stiff mud. From this shoal Eran Quoin, the nearest land, bears S.E. $\frac{1}{2}$ S., 12 miles; Pagoda (which is very conspicuous on this bearing over the low land, and generally discernible when the elevated objects are obscured), S. $\frac{1}{2}$ W.; Mantaleengahan, S. by E. $\frac{3}{4}$ E.; and Gantung, a high notch peak (page 494), S.E. $\frac{1}{4}$ E.

To the N.N.W. of this shoal the edge of the bank projects a little beyond the general trend, and has on either side a less regular contour with bights, having soundings of 130 and 140 fathoms within a mile, and in some places only 3 cables from the coral patches.

CORAL PATCHES.—From Scalesby Castle Shoal to the parallel of $9^{\circ} 30' N.$, a distance of 35 miles, the coral patches on the edge of the bank of soundings are so numerous, that to give a description or bearings for each separately, would tend more to confuse than make clear the directions for the navigation of this part of the channel. Four fathoms is the least water which has been found on them, and they may generally be distinguished by an ordinary look-out from the mast-head. It is, however, recommended to avoid them, as it is impossible to say whether there may or may not be shoaler parts which have escaped detection. The average depth upon the patches is from 6 to 7 and 9 fathoms, with 15 and 20 fathoms close to their edges.

YORK BREAKERS.—This is a dangerous coral shoal, in lat. $9^{\circ} 53\frac{1}{2}' N.$, long. $118^{\circ} 8' 26'' E.$, on which the *Countess of London* is supposed to have been wrecked, in November, 1816. It is 4 cables in extent, with less than 2 feet on it at low water, and, except in fine weather, generally breaks. It lies $6\frac{1}{2}$ miles inside the edge of the bank, and is steep-to, having 45 fathoms close to the edge, the soundings contiguous to it being 40 and 50 fathoms, mud. When on it, Victoria Peak bears S. by E. $\frac{1}{2}$ E.; Anipahan, the northernmost of two sharp peaks, over Long Point, S.E. $\frac{3}{4}$ E.; Mount Stavely, E. by S. $\frac{3}{4}$ S.; Mount Peel, E. by N.; and, in clear weather, Cleopatra Needle will be seen over Ulugan Bay, nearly in line with Carsoglan Hill, E. by N. $\frac{1}{2}$ N. (See pp. 497—499, 503).

Coral Patches.—There is a coral patch, having only $3\frac{1}{2}$ fathoms on it, lying 4 miles S.W. $\frac{1}{2}$ S. from the centre of York Breakers; and $1\frac{1}{2}$ mile westward of it is another, with 4 fathoms, the latter lying $3\frac{1}{2}$ miles inside the edge of the bank, with a bank of coarse sand intervening, on which the average depth is 18 and 20 fathoms. The soundings in the neighbourhood of these shoals are from 40 to 50 fathoms, mud.

MIDDLE SHOAL.—From York Breakers in the direction of Ulugan Bay, viz., E. by N. $\frac{3}{4}$ N., distant $16\frac{1}{2}$ miles, and at 12 miles off shore, is Middle Shoal, 2 cables in extent, with $3\frac{1}{2}$ fathoms, coral, upon it, and 12 and 20 fathoms close to its edge. From it Mount Peel bears E. $\frac{1}{2}$ N.; Anipahan Peak, S. $\frac{3}{4}$ E.; Mount Stavely, S.E. by S. $\frac{3}{4}$ S.; and the summit of Long Point, S. $\frac{1}{2}$ W.

Duhme Shoal was reported by the master of the German ship *Minerva*, in 1882. He states that he sighted heavy breakers in about lat. $10^{\circ} 6' N.$, long. $118^{\circ} 30' E.$, extending for about 2 miles. This position would be about 15 miles W. $\frac{3}{4}$ S. from the N.W. head of Ulugan Bay. *Gode Shoal*, another doubtful danger reported in 1860, is placed 9 miles N.W. $\frac{1}{2}$ N. from Duhme Shoal.

Directions.—To the northward of the parallel of $9^{\circ} 30' N.$, the soundings on the bank are more regular, and the coral patches lying near its edge, except in the neighbourhood of York Breakers, have generally more water on them than those to the southward, seldom having less than 7 and 9 fathoms up to

the parallel of $10^{\circ} 40' N.$, where they again begin to cluster, and have as little as 4 fathoms in some places. Vessels, therefore, bound to Ulugan Bay, or wishing to close with the land for the purpose of working up inshore, cannot do better than cross the bank about this parallel, with Mount Peel on an $E. \frac{1}{2} S.$ or $E. by S.$ bearing, or where it is still clearer on a $S.E. by E. \frac{2}{3} E.$ bearing. The bank on this parallel extends 30 miles from the coast. The first soundings obtained on the edge will generally be 18 or 20 fathoms, coarse sand and broken coral, or perhaps a 9-fathoms cast on coral, when the bottom will be visible, after which the depth will be more regular, the 40 and 50 fathoms casts being chiefly on a stiff muddy bottom; while in less water sand and mud, or sand and broken coral, will predominate. The nearer to the shore the fewer are the patches, and the more regular the soundings.

CRESCENT REEF, in lat. $10^{\circ} 40' N.$, long. $118^{\circ} 42' 26'' E.$, is a very narrow strip of coral, with 4 fathoms over it, three-quarters of a mile in extent, $E.N.E.$ and $W.S.W.$, lying $1\frac{1}{2}$ mile inside the edge of the bank, and 22 miles from the nearest shore. There is 40 and 44 fathoms within half a mile of its edge. From its centre, Sangbowen, the North peak of Ulugan Bay, bears $S. by E. \frac{1}{4} E.$; Cleopatra Needle, $S.E. by S. \frac{1}{2} S.$; the summit of Caenipa or High Island (page 504), $S.E. by E. \frac{2}{3} E.$; the highest part of Boayan Island (page 504), $E. by S. \frac{1}{4} S.$, easterly; and Mount Capoas (page 506), $E. by N. \frac{1}{4} N.$

The Bank immediately West of this reef follows apparently the contour of the coast-line, and takes a sudden trend in a westerly direction for about 10 miles, with soundings of 60 and 75 fathoms. To the northward of the reef it trends nearly North for 9 miles, and then $N.E.$, $2\frac{1}{4}$ miles.

At $2\frac{1}{2}$ miles South of Crescent Shoal is a 7-fathoms patch, with soundings of 36 and 40 fathoms close-to; and $2\frac{1}{2}$ miles $E.N.E.$ from the same is another, 3 cables in extent, having only $4\frac{1}{2}$ fathoms on it, with 40 fathoms close to it. Between these shoals and the shore the soundings vary from 30 to 50 fathoms, and the ground appears to be free from danger.

CAPOAS CLUSTER.—In the vicinity of the above patches, and between them and Crescent Reef, the soundings are irregular, with several shoal spots of 5 and 6 fathoms, all lying from 1 to 6 miles within the edge of the bank. They are too closely grouped, and too far off shore, for bearings to be of any advantage to navigate between them.

At $10\frac{1}{4}$ miles $N. by E.$ from Crescent Shoal is a 5-fathoms coral patch, one of the Capoas cluster, lying only 4 cables inside the edge of the bank, with upwards of 40 fathoms water close to it; and also a 6-fathoms patch $1\frac{1}{2}$ mile $S.W.$ of it. From the former patch, Mount Capoas bears $E. \frac{1}{2} S.$, easterly, distant $32\frac{1}{2}$ miles; the northernmost of the four peaks on Cleopatra Range $S.E. by S. \frac{2}{3} S.$; and the summit of Tapiutan Island (page 514), $N.E. \frac{2}{3} E.$

At $8\frac{3}{4}$ miles $N.E. by E.$ from the 5-fathoms patch is a $4\frac{1}{2}$ -fathoms coral patch, apparently the northernmost of the Capoas cluster, 3 cables in extent,

with 52 fathoms close to its western edge. It lies $1\frac{1}{2}$ mile inside the edge of the bank, with Mount Capoas bearing E. by S. $\frac{1}{2}$ S.; Chinongab Peak (page 507), East, northerly; and the highest peak of Tapiutan Island, N.E. $\frac{2}{3}$ E.

The least water found on the Capoas cluster is $4\frac{1}{2}$ fathoms. The soundings in the immediate neighbourhood are 40 and 50 fathoms. Vessels should keep clear of this part of the bank.

The Bank of soundings, from the 5-fathoms patch above mentioned, trends to the north-eastward for 9 miles, and then nearly North parallel with the line of coast.

From the northernmost of the Capoas cluster the bank trends North, a little westerly, preserving a distance of about 30 miles from the shore, to the parallel of $11^{\circ} 12' N.$, when it gradually takes a north-easterly direction, and does not approach the North point of Palawan nearer than 23 miles. The bank is steep-to, 40 and 50 fathoms being found close to the 100-fathoms line. Here and there it has comparatively shoal ridges (15 to 20 fathoms) of coarse sand and broken coral, on which there are some $7\frac{1}{2}$ and 9-fathoms patches of coral lying close to the edge. The northernmost and shoalest of these that has been discovered, and on which there is 7 fathoms, lies $1\frac{1}{2}$ mile inside the edge of the bank, in lat. $11^{\circ} 28' 45'' N.$, long. $119^{\circ} 1' E.$ When on it, the North hill on Palawan bears E. by S., easterly; the West shoulder of the High Table Range (page 517), S.E. by E. $\frac{1}{2}$ E.; Cadlao or Table-top Island (page 516), S.E. $\frac{2}{3}$ E.; and the Horn on Matinloc Island (page 514), S.E. $\frac{1}{4}$ S. It is 26 miles distant from the nearest part of the island, and the depths in the vicinity vary from 20 to 40 fathoms.

The nature of the bottom near the patches is usually fine sand, but when fairly on the bank, especially off the North part of Palawan, stiff green mud predominates. The bank farther to the northward does not appear to be so steep as that abreast of the island, soundings with 160 fathoms having been found nearly 4 miles outside the 100-fathoms line.

THE ARCHIPELAGO OF REEFS.

SHOALS LYING NEAR THE MAIN ROUTE.

The foregoing pages relate to the shoals and dangers in the China Sea. They contain descriptions of those which lie on the south-eastern verge of the Main Route, along the continental side, and of those which form the north-western side of the Palawan Channel, which have both been found by recent examination to be free from danger. In former times, the imperfect observations of passing vessels, and the too frequent very desultory notices of presumed discovery of dangers, caused the charts to be embarrassed with a multitude of reefs which have no existence.

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But in the space between the two channels, as they may be termed, that along the Asiatic side, and that parallel with Palawan, there still remains an Archipelago of Reefs, a labyrinth of clusters, shoals, and reefs, in many cases of doubtful existence, but in more of doubtful position, for this area has up to the present period been unsurveyed, and "ought to be avoided by all navigators." This truth cannot be too strongly impressed upon all, for although it is possible that a ship might pass unharmed through this region of dangers, coralline reefs, and sand-banks, of strong currents and irregular tides, yet the risk is very great, and the greatest caution will not be an excuse for venturing into such imminent danger.

The ensuing enumeration and description of shoals lying out of the proper track of ships is therefore added, with a view to making these remarks complete, rather than with an object of utility.

AMBOYNA CAY, surveyed by Commander Ward, H.M.S. *Rifleman*, in 1864, is in lat. $7^{\circ} 51\frac{1}{2}'$ N., long. $112^{\circ} 55'$ E., and is the dry portion of a small coral bank running N.E. and S.W. The cay is at the S.W. extreme of the bank, and is 150 yards long, E.N.E. and W.S.W., 124 yards wide, and rises 8 ft. above high water. It is surrounded by coral ledges, some of which dry at low water, but in no instance do they extend as far as 2 cables from high-water mark; the sea breaks heavily upon these ledges in any swell.

About two-thirds of the rock forming the cay is covered with a rich coat of guano, in some places 4 feet deep, the deposit of myriads of boobies, petrels, and other marine birds; the rest of the cay is comminuted coral. A large pile, composed of all the drift-wood to be collected on the cay, a few lumps of coral, &c., was erected in the centre, and can be seen as a sail at a distance of from 5 to 7 miles in clear weather.

The bank, to the north-eastward of the cay, forms a very narrow ridge 1 mile long by 2 cables wide. The soundings upon it are about 4 fathoms from one-quarter of a mile from the reef until close to the end of the spit, when the water deepens rapidly from 9 to 17 fathoms, and then dips into 67 fathoms, no bottom; while at a distance of less than one-third of a mile, no bottom was obtained with 220 fathoms of line. There is no danger on the ridge if vessels do not get into less than 4 fathoms, although from the excessive clearness of the water the bottom looks alarmingly close to the ship's keel. The ledges surrounding the islet are steep-to.

The *Rifleman* anchored on the ridge in 5 fathoms, in the S.W. monsoon, fairly sheltered from the prevailing wind. Fish appeared to be abundant, but only a few were caught.

Tides.—By observations at Amboyna Cay two days before neaps, the maximum rate of tide was 1.4 knot per hour, the flood stream setting about N. by W., the ebb West; flood commencing at 11^h p.m., and the ebb at 6^h a.m. Rise and fall doubtful.

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LIZZIE WEBBER SHOAL.—Mr. Dallas reported that while returning in a small vessel, the *Lizzie Webber*, to the wreck of the *Fiery Cross*, in 1860, they struck upon a reef in lat. $8^{\circ} 4' N.$, long. $113^{\circ} 12' E.$ The reef, which was very little under water, is a narrow strip of sand and coral lying in a N.E. and S.W. direction.

This shoal is supposed to extend about 25 miles to the north-eastward of the above position, according to a report by Mr. P. Orr, commanding the barque *Canada*, which was wrecked on it on December 24th, 1864, at 12^h 30^m a.m.

STAGS SHOAL, placed in lat. $8^{\circ} 24' N.$, long. $112^{\circ} 57' E.$, was reported, in 1802, by Mr. Trinder, commanding the brig *Amboyna*, as follows:—"The shoal extended S.E. and S.S.W. in form of a triangle, with rocks above water and breakers in various parts, the intermediate space apparently very shoal, and the southern extremity could not be discerned from the mast-head."

The *Rifleman* made a thorough search in the above locality; soundings, with 40 fathoms of line, were tried for, as quickly as possible, on the different courses, and on the spot assigned to the danger, bottom (dark ooze) was brought up from a depth of 1,085 fathoms. The *Rifleman* had previously passed over the position, and H.M.S. *Reynard* also steamed about the locality, and it appears certain, from the result of these examinations, that no shoal exists within 10 miles of the position assigned. The soundings previously obtained by the *Rifleman* indicate that the shoal does not exist to the westward, and it seems probable that the danger seen from the *Amboyna* was part of the Lizzie Webber or Canada Shoal, 25 miles E.S.E. of the position ascribed to the Stags, from the fact that Amboyna Cay was afterwards found to lie 11 miles farther West than reported by Mr. Trinder.

Pearson Reef, in lat. $8^{\circ} 56' N.$, long. $113^{\circ} 44' E.$, was seen in 1843 by Mr. Pearson, commanding the *Bahamian*, who reported that he passed about 3 miles to windward of an extensive shoal in the above position, about 2 miles long in a North and South direction, with some rocks above water on the southern edge.

DOUBTFUL REEFS.—**Cornwallis South Reef** is a doubtful danger, placed on the chart in lat. $8^{\circ} 50' N.$, long. $114^{\circ} 11\frac{1}{2}' E.$, and shown as being 3 or 4 miles in extent.

Ganges Reef is another doubtful shoal, 32 miles to the northward of Cornwallis South Reef, in lat. $9^{\circ} 22' N.$, long. $114^{\circ} 11' E.$

Sin Cowe Island is reported by the fishermen to lie in lat. $9^{\circ} 41' N.$, long. $114^{\circ} 21\frac{1}{2}' E.$ (approximate).

Fancy Wreck Shoal is a doubtful danger, 35 miles north-eastward of Ganges Reef, in lat. $9^{\circ} 43' N.$, long. $114^{\circ} 41' E.$

Cornwallis Reef, also doubtful, is shown on the chart as an extensive reef with rocks, 20 miles to the north-westward of the last-named shoal, in lat. $10^{\circ} 0' N.$, long. $114^{\circ} 23' E.$

Pennsylvania, one of the many doubtful shoals, is placed in lat. $10^{\circ} 0' N.$,

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long. $115^{\circ} 10' E.$; and about 20 miles N.N.W. of it, in lat. $10^{\circ} 18' N.$, long. $115^{\circ} 4' E.$, is another doubtful Ganges Reef. About 14 miles N.N.E. of this latter, in lat. $10^{\circ} 32' N.$, long. $115^{\circ} 8' E.$, is *Ganges North Reef*, also a doubtful danger.

Third Thomas Shoal (1839) is placed on the chart in lat. $10^{\circ} 52' N.$, long. $115^{\circ} 55' E.$, and shown as being 3 or 4 miles in extent.

Flat Island, in lat. $11^{\circ} 2' N.$, long. $115^{\circ} 41' E.$, is said to be low and flat, surrounded with breakers, and having a reef projecting from its N.E. side. It is marked doubtful on the charts, but it is said to have been seen by several ships. It lies nearly midway between North Danger Reef and the north-easternmost of the dangers bounding the Palawan Channel.

SHOALS NEAR THE PALAWAN ROUTE.

ARDASIER BANK, lying N.E. of Swallow Reef, is very extensive, and has only received a partial examination. It is probable that the *South Ardasier*, $7^{\circ} 34' N.$, $114^{\circ} 9' E.$; *Gloucester*, $7^{\circ} 50' N.$, $114^{\circ} 15' E.$; and *North Ardasier Breakers*, $7^{\circ} 56' N.$, $114^{\circ} 2' E.$; as also the breakers seen by Mr. Dallas, in 1860, in lat. $7^{\circ} 38' N.$, long. $113^{\circ} 54' E.$, are shoal patches on different parts of one large bank. The south-eastern side, which forms one of the northern limits of the approach to the Palawan Passage, was surveyed in the *Rifleman*. The general direction of this part is N.E. by E. $\frac{1}{2}$ E. and S.W. by W. $\frac{1}{2}$ W., for a distance of 20 miles, but the outline of the edge is very irregular, and several shoal patches of 3 to 5 fathoms were found near it. The shoalest spot discovered had only $2\frac{1}{2}$ fathoms water, in $7^{\circ} 36' 37'' N.$, $114^{\circ} 10' 10'' E.$, very close to the position ascribed to South Ardasier Breakers.

Mariveles Reef, on which the Spanish steamer of that name struck in 1879, is said to lie in lat. $7^{\circ} 58' N.$, long. $113^{\circ} 50' E.$, and to be about 4 miles long, 2 miles wide, and nearly awash. It is composed of coral, enclosing a lagoon, with deep water close to its edge.

INVESTIGATOR SHOAL, examined by Captain Crawford, of the Indian Navy surveying-ship *Investigator*, in 1813, is very extensive, its western point being in lat. $8^{\circ} 5' N.$, long. $114^{\circ} 31' E.$, and its eastern extremity in lat. $8^{\circ} 10' N.$, long. $114^{\circ} 50' E.$ It is about 4 miles in breadth, North and South.

Cayo Marino is a doubtful shoal, placed upon the chart in lat. $8^{\circ} 30' N.$, long. $114^{\circ} 21' E.$

S.W. and N.E. Shea Shoals were seen by Mr. Shea, commanding the *Buckinghamshire*, in 1833. The first shoal appeared to consist of two reefs of rocks, with high breakers, extending $1\frac{1}{2}$ mile E. by S. and W. by N., and half a mile North and South, the centre of which was found to be in lat. $8^{\circ} N.$, long. $114^{\circ} 55' E.$, by observations of sun, moon, and stars. This shoal appears on the chart in lat. $7^{\circ} 59' N.$, long. $114^{\circ} 52' E.$

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The other shoal, seen on the following morning, appeared to consist of two dry white banks, with a ridge of rocks extending about 2 miles from them to the westward, and was considered to be in lat. $8^{\circ} 30' N.$, long. $115^{\circ} 19' E.$ It is placed on the chart in long. $115^{\circ} 15' E.$

Viper Shoal is marked doubtful on the chart, in lat. $7^{\circ} 30' N.$, long. $115^{\circ} E.$ The *Royalist* passed over its assigned position, and could get no bottom with 500 fathoms; the day was clear, and conditions good for detecting a danger. The *Saracen* subsequently searched the same ground, and with the same result.

Ottawa Shoal.—This danger was reported by Mr. Gribble, 1860, commanding the P. and O. steamer *Ottawa*, and supposed by him to be Viper Shoal. The log-book states:—"Sighted, from the mast-head, broken water on the port bow, having every appearance of being a shoal about half a cable in extent from East to West, with no indication of shoal water near it. When abeam, it was about 2 or 3 miles distant from the ship, and was then visible from the deck. Position of the shoal, lat. $7^{\circ} 16' N.$, long. $115^{\circ} 5' E.$ "

The *Rifleman* searched for this danger for three days, but could find no indication of it; no bottom was found with 1,000 fathoms of line. The area sounded over is comprised within the following limits:—8 miles East, 15 miles West, 5 miles North, and 5 miles South of the above position.

North Viper Shoal, or *Seahorse*, is shown on the chart as a shoal with rocks above water, 5 miles in extent, lying between the parallels of $7^{\circ} 59'$ and $8^{\circ} 4' N.$, and in long. $115^{\circ} 23' E.$ This position was not examined by the *Rifleman*. The *Saracen* passed near it without seeing any appearance of shoal water, but from the following account of a reef seen by Mr. Baird, this danger would appear to lie 17 miles North of the above position.

Commodore Reef.—Mr. Hugh Baird, commanding the ship *Commodore*, reports as follows:—Monday, December 22nd, 1862, at 8^h a.m., saw what I took to be the Viper North Shoal, or Seahorse, the N.E. end bearing by compass N.N.W., 3 miles. It seemed to extend over 3 miles, N.E. and S.W.; partly dry sand, and several rocks from 20 to 30 feet above water, and heavy breakers all around it. At noon it bore W. by S., distant about 6 miles; lat. by observation $8^{\circ} 22' N.$, long. $115^{\circ} 31' E.$, placing the shoal 17 miles North of its position on the Admiralty chart.*

* **ROGER BREAKERS.**—Heavy breakers were seen in about lat. $8^{\circ} 21' N.$, long. $116^{\circ} 25' E.$, from the P. and O. steamer *Formosa*, commanded by Mr. Roger, on January 4th, 1858. There was a swell from the N.E., and the broken water, about 10 yards in extent, North and South, was apparently caused by a rock a few feet under water. The vessel proceeded slowly, and soundings were occasionally tried for with 100 fathoms of line, no bottom. The weather was thick and rainy, but, on clearing up, observations and a bearing of the distant land confirmed the position of the breakers by dead reckoning.

Lieut. Reed, H.M.S. *Rifleman*, remarks:—"This is another instance in which it was most

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Glasgow Bank.—Mr. Baird, commanding the ship *Glasgow*, is said to have discovered a bank in lat. $8^{\circ} 29' N.$, long. $115^{\circ} 31' E.$ It apparently extended 3 miles to its N.E. edge, and was composed of sand and rocky peaks, in some places 21 to 32 feet above the sea.

Alicia Anne Shoal.—Captain R. Kirby reports having seen a reef in lat. $9^{\circ} 25' N.$, long. $115^{\circ} 19\frac{1}{2}' E.$, of lagoon form, 3 miles in length, N.W. by N. and S.E. by S. There is a slight rise of sand-hill at its N.W. end, and a reef of rocks at its S.E. extreme, with several detached rocks around. There was a portion of wreck on the S.E. end, and a junk with four boats close by; inside the lagoon there was a boat apparently fishing. Soundings were tried for at one-quarter of a mile from the S.E. end, but there was no bottom with 100 fathoms of line. First Thomas Shoal was made the next day, and the chronometer showed it to be 2 miles West of its position on the chart.

First and Second Thomas Shoals appear by the chart to have been seen in 1839. The first is placed in lat. $9^{\circ} 18' N.$, long. $115^{\circ} 53' E.$; the second is shown as an extensive shoal, 9 or 10 miles long, North and South, and 4 miles broad, its southern part being in lat. $9^{\circ} 41' N.$, long. $115^{\circ} 47' E.$

Investigator N.E. Shoal, in lat. $9^{\circ} 12' N.$, long. $116^{\circ} 23' E.$, is shown on the chart as having some rocks awash upon it.

Pennsylvania and Sabina Shoals.—One of the doubtful Pennsylvania Shoals is placed upon the chart about 17 or 18 miles northward of the N.E. Investigator, in lat. $9^{\circ} 31' N.$, long. $116^{\circ} 23' E.$, and there are three other patches of that name, the first in lat. $9^{\circ} 47' N.$, long. $116^{\circ} 44' E.$, the second about 4 miles and the third about 10 miles to the north-westward of it.

Sabina Shoal, placed upon the chart in lat. $9^{\circ} 42' N.$, long. $116^{\circ} 34\frac{1}{2}' E.$, was discovered by Mr. French, commanding the *Sabina*, of New York, in 1836, who saw "rocks with the sea breaking tremendously over them." Mr. French thought it was one of the doubtful Pennsylvania Shoals, which in all probability it is.

desirable that a boat should have been lowered from the *Formosa* to examine the breakers, and to find out if there was really any rock there or not. It was of the greatest importance to avoid placing a doubtful danger at the very entrance and in the centre of the fairway of the Palawan Channel. An hour or so would have decided the point beyond doubt, whereas several valuable days of the *Rifleman's* time were occupied in searching for Ottawa Shoal and Roger Breakers without enabling us after all to decide the matter positively."

Mr. Curling, commanding the P. and O. steamer *China*, who has made many voyages by this route, asserts that the appearance of breakers, where no real danger exists, is very common in the Palawan Passage. This is further corroborated by the following extract from the log-book of the ship *Veloz*, Commander Mr. John Jones:—"At noon, November 6th, 1859, lat. $8^{\circ} 24\frac{1}{2}' N.$, long. $116^{\circ} 25' E.$ At 10^h 30^m a.m., the mast-head look-out reported breakers about a mile on the port beam. Lowered a boat, and sent the chief officer to examine the spot. It proved to be an extensive patch of seaweed, driftwood, and a great number of fish. No soundings at 50 fathoms. We were passing over the spot marked 'Roger Breakers' on the chart, but could not see any indication of it."

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Mr. E. Routh, commanding the *Bombay*, with the *Henry Clay* in company, sighted breakers which his observations placed nearly in the position of Sabina Shoal.

Lord Auckland Shoal appears on the chart as a bank with 8 to 30 fathoms water over it. The 8-fathoms part is in lat. $10^{\circ} 21' N.$, long. $117^{\circ} 15' E.$; close to the eastward of the bank there is no bottom at 100 fathoms.

OTHER PENNSYLVANIA SHOALS—BROWN SHOALS.—Another Pennsylvania Shoal is placed on the chart in lat. $10^{\circ} 23' N.$, long. $116^{\circ} 32' E.$; and another, the Pennsylvania North Reef, in lat. $10^{\circ} 49' N.$, long. $116^{\circ} 51' E.$ The positions of these are very doubtful, and it is probable that the shoals seen by Mr. Brown, commanding the *Arabian*, in 1838, were the same. The following is Mr. Brown's account of them, but they now appear on the chart 8' of longitude westward of the positions given:—

“On January 8th, 1838, on our passage to China by the Palawan, standing to the northward, wind N.E., at $10^h 30^m$ a.m. passed close to windward of a coral patch, with apparently 5 or 6 fathoms water over it, blowing fresh and a good deal of sea; could not lower a boat to determine. It lies in lat. $10^{\circ} 30' N.$, long. $116^{\circ} 41' E.$

“Same day, lying up East on the port tack, at $3^h 30^m$ p.m., came suddenly into shoal water. Saw the coral rocks very distinctly under the ship's bottom. Hove the lead over, first cast had 5 fathoms, and mark above water for a few casts. Put the helm up and ran to the southward for a few minutes, until we gradually deepened to 30 fathoms, no bottom. We appeared to be on the southern edge of an extensive coral flat, extending N.E. and N.W. of us some miles. By sights taken immediately we came off the shoal, this part of it lies in long. $117^{\circ} 0' E.$, or 4' East of Bombay Reef, which we left yesterday; lat. $10^{\circ} 35' N.$, which we observed at noon.

“The following day at 9^h a.m., standing to the northward, with a fresh wind from N.E., and a heavy head sea, came again into shoal water; coral rocks seen very close to our keel, but before we could get the lead forward we had passed over the ridge into 28 fathoms. From 9^h to $11^h 30^m$ a.m. ran 8 miles on a N.N.W. course in irregular coral soundings, least water, by the lead, 11 fathoms, but at times we apparently had much less from the proximity of the coral rocks. We entered upon the flat in lat. $10^{\circ} 39' N.$, long. $117^{\circ} 24' E.$; came off in lat. $10^{\circ} 46' N.$, long. $117^{\circ} 19' E.$ The longitude computed from a series of sights before and after noon; the latitude by a good meridian altitude, four observers, and clear weather. In passing over this bank the water appeared very shoal East and West of us, lying in ridges in that direction.”

Amy Douglas Shoal.—The *Amy Douglas*, commanded by Mr. Pensberry, —under the Siamese flag—on her passage up the Palawan, passed over a shoal in lat. $10^{\circ} 52' N.$, long. $116^{\circ} 25' E.$ On February 12th, 1860, at noon, had good observations, and noticed about that time the water discoloured for about a mile on each side of the ship. Dropped the lead over the side, and found

14 fathoms. Mr. Pensberry is of opinion that the water was much more shallow to the westward of the ship.

Fairy Queen Shoal, having 9 fathoms water over it, is placed on the chart in lat. $10^{\circ} 39' N.$, long. $117^{\circ} 38' E.$

Reed Bank.—H.M.S. *Rifleman*, when proceeding from Loai-ta Island (page 590), round the northern edge of the Archipelago, obtained soundings of 47 fathoms on a coral bank in latitude $11^{\circ} 28' N.$, long. $116^{\circ} 46' E.$; steering E. by S. $\frac{1}{4}$ S., 3 miles farther, had 44 fathoms, and shortly afterwards 12 fathoms on a small coral patch in lat. $11^{\circ} 26' N.$, long. $116^{\circ} 53' E.$ Continuing the same course, the depths were 42 fathoms for a distance of 5 miles; at 8 miles, 125 fathoms; and at 14 miles, 175 fathoms. A few miles farther on no bottom was reached with 200 fathoms of line. In 1885, a patch of 15 fathoms was reported to the northward, in lat. $11^{\circ} 55' N.$, long. $116^{\circ} 51' E.$

SEAHORSE or ROUTH SHOAL was examined by the *Rifleman*. It lies at the N.E. angle of the Archipelago of Reefs, and forms the N.E. limit of the Palawan Passage. It is a pear-shaped coral bank, 8 miles in length, N.E. by N. $\frac{1}{4}$ N. and S.W. by S. $\frac{1}{4}$ S., $4\frac{1}{2}$ miles in breadth at the North end, and 3 miles at the South end. The least water upon it is $4\frac{1}{2}$ fathoms, which was found on a 5-fathoms patch, about three-quarters of a mile in extent, at the North extreme of the bank, in lat. $10^{\circ} 50' N.$, long. $117^{\circ} 46' E.$ Nothing less than 6 fathoms was obtained on any of the other patches surrounding the lagoon, the depths in which vary from 17 to 19 fathoms at the shoal edges to 35 fathoms in the centre.

The northern part of this shoal was passed over by the *Seahorse*, in 1786, and the southern part by Mr. Routh, commanding the *Bombay*, in 1835.

Sandy Shoal is placed upon the chart in lat. $11^{\circ} 2' N.$, long. $117^{\circ} 37' E.$

Templer Bank.—The *Minerva*, commanded by Mr. Templer, passed over a bank to the north-westward of Seahorse Bank, in November, 1835, having from 10 to 17 fathoms water on it. The bank appeared to extend about 4 miles, North and South, and as no discoloured water was seen to the eastward, but several apparently shoal patches were perceived to the westward, it is supposed that the ship passed over the eastern part of the bank. The centre of the bank is in lat. $11^{\circ} 7' N.$, long. $117^{\circ} 13' E.$

PART II.

THE EASTERN PASSAGES.

THE descriptions and directions given in the foregoing pages have been devoted to those coasts and channels leading towards the Coast of China, which lie to the *westward of Borneo*, and which are approached by the Straits of Malacca and Sunda, and are therefore generally known as the WESTERN PASSAGES.

The EASTERN PASSAGES, which remain to be described, are those to the *eastward* of Borneo, and may be approached either from the Strait of Sunda, and passing eastward through the Java Sea, or else by one or other of the straits between the islands East of Java.

In earlier times these various routes were known by different names, of which PITT PASSAGE, or that which passes East of Gilolo, between it and the West end of New Guinea, may be cited as the most generally known, and this for a reason happily non-existent now—that it avoided those straits and islands subject to the Dutch.

Our charts of these passages are very much more imperfect than those of the portions of the Indian Archipelago to the northward and westward, and this consideration should have much weight with the commander in the choice of a route.

Till recent years the British charts in general use, such as those drawn up by the late Capt. Horsburgh, were very unsafe guides, and it was maintained by the Dutch in Java that they caused many disasters. This obloquy is now in a great measure removed; for, however imperfect the charts of the eastern parts of the Archipelago may still be, the labours and observations of many British and Dutch officers have been combined for their improvement, although no proper and systematic survey has been made of the entire area. Prominent among these stands the "Nederlands Commissie tot het verbetering der Zeekarten in de Oost Indie," with which the name of the late Lieutenant Peter Baron Mellvill van Carnbee may be associated. These have given to the nautical world a very much more perfect representation of the navigation

Annex 391

A. Günther et al., *The Annals and Magazine of Natural History*, Vol. VI, 6th Series (1890)

THE ANNALS
 AND
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INCLUDING

ZOOLOGY, BOTANY, AND GEOLOGY.

(BEING A CONTINUATION OF THE 'ANNALS' COMBINED WITH LOUDON AND
 CHARLESWORTH'S 'MAGAZINE OF NATURAL HISTORY.')

CONDUCTED BY

ALBERT C. L. G. GÜNTHER, M.A., M.D., Ph.D., F.R.S.,

WILLIAM CARRUTHERS, F.R.S., V.P.L.S., F.G.S.,

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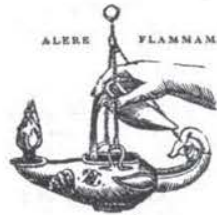
"Omnes res creatæ sunt divinæ sapientiæ et potentiæ testes, divitiæ felicitatis humanæ:—ex harum usu *bonitas* Creatoris; ex pulchritudine *sapientia* Domini; ex œconomiâ in conservatione, proportione, renovatione, *potentia* majestatis elucet. Earum itaque indagatio ab hominibus sibi relictis semper æstimata; à verè eruditis et sapientibus semper exulta; malè doctis et barbaris semper inimica fuit."—LINNÆUS.

"Quel que soit le principe de la vie animale, il ne faut qu'ouvrir les yeux pour voir qu'elle est le chef-d'œuvre de la Toute-puissance, et le but auquel se rapportent toutes ses opérations."—BRUCKNER, *Théorie du Système Animal*, Leyden, 1767.

..... The sylvan powers
Obey our summons; from their deepest dells
The Dryads come, and throw their garlands wild
And odorous branches at our feet; the Nymphs
That press with nimble step the mountain-thyme
And purple heath-flower come not empty-handed,
But scatter round ten thousand forms minute
Of velvet moss or lichen, torn from rock
Or rifted oak or cavern deep: the Naiads too
Quit their loved native stream, from whose smooth face
They crop the lily, and each sedge and rush
That drinks the rippling tide: the frozen poles,
Where peril waits the bold adventurer's tread,
The burning sands of Borneo and Cayenne,
All, all to us unlock their secret stores
And pay their cheerful tribute.

J. TAYLOR, *Norwich*, 1818.

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Pres'90

THE ANNALS
AND
MAGAZINE OF NATURAL HISTORY.

[SIXTH SERIES.]

No. 35. NOVEMBER 1890.

XLIII.—*Report on the Corals from the Tizard and Macclesfield Banks, China Sea.* By P. W. BASSETT-SMITH, Surgeon R.N.

[Plates XII.—XIV.]

IN April 1888, by order of Capt. Wharton, F.R.S., Hydrographer to the Navy, a short survey was made of these interesting coral-banks by H.M.S. 'Rambler,' in charge of Commander W. U. Moore, R.N. Sectional lines were run across the margins of the banks, both from within and without, into moderately deep water, and dredging-operations were carried on, which resulted in obtaining a large collection of corals &c., which were brought to England for further examination, and subsequently presented by the Lords Commissioners of the Admiralty to the British Museum (Natural History). The corals were for the most part dredged up under my own personal superintendence, and on the return of the vessel to England I obtained permission from the Admiralty to study and arrange the collection there through the kindness of Dr. Günther, F.R.S. In the original Report of the Survey several of the corals were incorrectly specified from want of books of reference. On my return home I was enabled to devote several months to their detailed study, but should not have ventured to publish my generic and specific

Ann. & Mag. N. Hist. Ser. 6. Vol. vi. 26

determinations, if Dr. G. J. Hinde had not, at the sacrifice of much time, most kindly gone over the whole of the collection and revised my work. Owing to various circumstances the present Report is limited to an enumeration of the different species which have been determined; amongst them are many forms which in Dr. Hinde's opinion are apparently new, but a detailed description of these is delayed until they can be reexamined with the assistance of additional material, and until an opportunity can be found to figure them suitably. I have thought it desirable to subjoin some brief notes on the character of the reefs whence the corals were obtained.

The Tizard Bank (Pl. XII.) is situated in lat. 10° N., long. 114° E., near the centre of the China Sea between the Philippines and the Malay Peninsula. Like many others in the same region it is irregularly circular in outline; and it has an extreme length of 32 miles and a breadth of 10, and it is surrounded by deep water.

But with such an extended margin the only portions of the bank which project above the surface of the sea consist of three small islets, each from half a mile to one mile in length, and two very small sand-kays of about one mile each. For the greater part of the circumference of the bank, that is for 50 out of 67 miles, the rim is within 10 fathoms of the surface. On the north-east side there are two extensions of the bank, 5 and $4\frac{1}{2}$ miles in length respectively; the first of these is nearly uncovered at low water, whilst the other is at a depth of 6 fathoms.

The area of the lagoon inclosed within this bank is very extensive; it has an average depth of 40 fathoms, with a few scattered elevations here and there, the eastern end being the most shallow portion. The bottom of the lagoon is covered by a fine foraminiferal sand, and the same material extends over the floor of the narrow channels which cut through the rim and connect the lagoon with the outer sea. At depths of 6 to 10 fathoms long channels paved with this sand can be seen bounded on either side by walls of living coral.

From the central portion of this sandy floor of the lagoon, at a depth of 45 fathoms, a living Astræan coral belonging to an apparently new species of *Favia* was dredged up, thus showing the existence of these reef-building forms at depths much greater than it has been supposed they could flourish in. I may here point out that the evidence obtainable by the lead alone regarding the presence of *living* corals is entirely misleading and almost worthless. For example, judging from the observations obtained by the lead, the greater part of the corals on the surface of the Macclesfield Bank appeared

to be dead; but the dredge with swabs attached brought up from this bank an abundance of living forms.

Of the three islets on the Tizard Bank (see Pl. XII.), that named *Sand-Kay* is the smallest and the most recent; though it has increased in size within the last twenty years, it is still only a quarter of a mile in length. The surface is somewhat depressed in the centre; it is entirely composed of sand and small coral débris. Surrounding the island is a platform of coral-rock half a mile broad, covered generally with sand, but here and there with patches of growing coral which increase in number as the water becomes deeper, and they grow very luxuriantly amongst the breakers on the outer edge of the platform both next the sea and next the lagoon. Just below high-water mark there are parallel lines of hard solid rock formed by coral débris and sand cemented together, and a reef at a depth of 5 fathoms extends uninterruptedly to the westward for a distance of 4 miles.

The islet of *Nam-Yit* is rather larger than *Sand-Kay*; its highest part is not more than 12 feet above high water, and in bad weather the waves, according to the natives, break all over it. It is well covered with small trees, and the surface-soil is therefore of a brown and earthy character; beneath this is a conglomerate of sand and small coral débris. A well, 6 feet deep, passed through loose sandy rock.

The striking parallel lines of cement-rock are well marked on both sides of this island, more particularly on the south or weather side; they have an apparent dip of about 60° from the centre, one layer superimposed on the other. This islet is likewise surrounded by an extensive shore-platform with isolated rocks at its edge, and at its northern end there are sand-banks forming horn-shaped prolongations, which partially inclose a small lagoon; on the open side of this, facing the lagoon, there are many rocks just below the surface.

Itu-Aba, the largest islet, is three quarters of a mile in length and covered with large trees of considerable age; it is similarly surrounded by a shallow-water platform. Outside this, in 6 fathoms water, the number of living corals was found by the diver to be much fewer than elsewhere; but from the reef, in 21 fathoms water, several massive specimens were obtained, and a rich variety of species was found on the lagoon side of the reef.

A comparison of the sections (Pl. XIII.) taken across different portions of the Tizard Bank shows very great similarity in the form and slope of the bank throughout. Thus in all, with the exception of section C near *Nam-Yit*, there is a broad plateau sloping very gradually to a depth of 10-12 fathoms,

on which coral-growth is most luxuriant; from the edge of this there is a more or less abrupt descent to a depth of about 30 fathoms, followed by a gradual slope to 50 fathoms; then there is an abrupt descent to 100–150 fathoms, and beyond this the average slope to deeper water is at an angle of about 30° , except in section F, near Itu-Aba, where it is somewhat less. In section C the slope of the plateau continues gradual to a depth of 30 fathoms, and in this respect is similar to the Macclesfield Bank.

The Macclesfield Bank (Pl. XIV.) is situated 300 miles to the north of the Tizard; it is 76 miles in length and 36 broad. This bank is entirely submerged; the shallowest portion of the rim is 9 fathoms beneath the surface, and inside the bank the depth is from 40 to 50 fathoms. Dredging on this bank was carried on from a small steam-cutter, but at depths of 20 to 45 fathoms there was considerable difficulty in moving the dredge with swabs attached. Living corals were found very abundantly to a depth of 30 fathoms, and some were obtained from a depth of 44 fathoms.

It will be seen from the subjoined tabular list that 129 species of Madreporal corals (Hydrocorallines and Alcyonarians are not here included) have been determined from the Tizard and Macclesfield Banks; of this number 99 species are from the Tizard and 26 from the Macclesfield Bank, whilst 4 only are common to both. Of the Madreporaria Aporosa there are 48 species, belonging to 23 genera; of the Madreporaria Fungida 23 species, included in 9 genera; and of the Madreporaria Perforata 58 species and 8 genera. The preponderance of the species of this latter division is principally due to the number of forms of the genus *Madrepora*, of which there are as many as 31 species.

An analysis of the bathymetrical distribution of these corals shows that at depths of 5 fathoms and under there are 45 species; between 5 and 10 fathoms 43 species; between 10 and 20 fathoms only 1 species; between 20 and 30 fathoms 30 species; between 30 and 40 fathoms 13 species; and between 40 and 50 fathoms 6 species. The rarity of species at depths between 10 and 20 fathoms may be accounted for by the fact that the shore-platform abruptly ceases at the upper limit of this zone, and there is a nearly vertical descent of 10 or more fathoms to a lower platform.

A very noticeable fact is the number of species which have been found living at depths of over 30 fathoms, a depth until lately supposed to be the extreme limit at which reef-building corals could exist. On these banks, however, we find 19 species occurring at depths between 31 and 45 fathoms; but

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of these there are 7 species belonging to genera which may properly be considered deep-water corals rather than reef-builders; these are *Desmophyllum*, *Flabellum*, *Cyathohelia*, *Lithophyllia*, *Tridacophyllia*, and *Balanophyllia*. The remaining 12 species of reef-corals living at these unusual depths belong to the following genera:—*Stylophora*, 1 sp.; *Favia*, 1 sp. at 45 fath.; *Pavonia*, 1 sp.; *Leptoseris*, 1 sp.; *Phyllastræa*, 1 sp.; *Psammocora*, 1 sp.; *Montipora*, 3 spp. (one of these at 44 fath.); *Rhodaræa*, 1 sp.; and *Alveopora*, 2 spp.

It is also worthy of mention that five new species of the genus *Madrepora*—a genus usually limited to depths of under 10 fathoms—were found living at depths of 20 to 27 fathoms both on the Tizard and Macclesfield Banks.

Of the 18 species found growing on the coral-head inside the lagoon 15 were not found elsewhere, and the diver reported that the bottom looked different. This is rather a remarkable fact, considering the size of the lagoon and the depth of water.

Tabular List of Genera and Species of Corals obtained from the Tizard and Macclesfield Banks.

[T. = Tizard Bank. M. = Macclesfield Bank.]

		Genera and Species.	Depth in Fathoms.							
			0-5.	5-10.	10-20.	20-30.	30-40.	40-50.	50-60.	
		MADREPORARIA APOROSA.								
		<i>Stylophora</i> , Schw.								
1.	T.	— <i>digitata</i> , Pallas, sp. ....	..	7						
2.	M., T.	— <i>prostrata</i> , Klunz. ....	..	..	..	26-27				
3.	T.	— <i>pistillata</i> , Esper, sp. ....	..	7						
4.	T.	— ? <i>Ehrenbergi</i> , E. & H.	3							
5.	M.	— <i>Guentheri</i> , sp. n. ....	..	..	..	..	32			
		<i>Seriatopora</i> , Lam.								
6.	M.	— <i>gracilis</i> , Dana .....	..	..	..	20½				
7.	T.	— <i>imbricata</i> , sp. n.	½							
8.	T.	— <i>compacta</i> , sp. n. ....	..	5½						
9.	T.	— <i>tenuis</i> , sp. n. ....	..	6						
10.	T.	— <i>armata</i> , sp. n. ....	..	7						
		<i>Pocillopora</i> , Lam.								
11.	T.	— <i>elongata</i> , Dana	2	6½						
12.	M., T.	— <i>verrucosa</i> , Ell. & Sol., sp. ..	1	10						
13.	T.	— <i>brevicornis</i> , Lam.	¾-1	6½						
14.	T.	—, sp.	2							

Tabular List of Genera &c. (continued).

		Genera and Species.	Depth in Fathoms.						
			0-5.	5-10.	10-20.	20-30.	30-40.	40-50.	50-60.
15.	T.	Flabellum, <i>Lesson.</i>							
		— Stokesi, <i>E. & H.</i> .....	..	..	..	..	40		
		Desmophyllum, <i>Ehrenberg.</i>							
16.	M.	—, sp. ....	..	..	..	..	32		
		Cyathohelia, <i>E. & H.</i>							
17.	T.	— axillaris, <i>Ell. & Sol.</i> .....	..	..	..	..	..	50	
		Lithophyllia, <i>E. & H.</i>							
18.	M.	— lacrymalis, <i>E. & H.</i> .....	..	..	..	..	..	44	
19.	T.	—, sp. ....	..	..	..	26			
		Tridacophyllia, <i>Blainv.</i>							
20.	T.	— cervicornis, <i>Moseley</i> .....	..	..	..	..	..	50	
		Galaxea, <i>Oken.</i>							
21.	T.	— æqualis, sp. n. ....	..	6					
		Symphyllia, <i>E. & H.</i>							
22.	T.	— radians	2						
28.	T.	— labyrinthica, sp. n.	5						
		Mussa, <i>Oken.</i>							
24.	T.	— multilobata, <i>Dana</i>	5						
25.	T.	— sinuosa, <i>Lam.</i> .....	..	6					
		Meandrina, <i>Lam.</i>							
26.	T.	— strigosa?, <i>Dana</i>	2						
27.	T.	— dædalea, <i>Ell. & Sol.</i> , sp.	2-4						
		Leptoria, <i>E. & H.</i>							
28.	T.	— phrygia, <i>Ell. & Sol.</i> , sp. ....	..	6					
		Scaphophyllia, <i>E. & H.</i>							
29.	T.	— cylindrica, <i>E. & H.</i> .....	..	6					
		Hydnophora, <i>Fischer.</i>							
30.	T.	— microcona, <i>Lam.</i> , sp. ....	..	6					
31.	T.	— rigida, <i>Dana</i> , sp. ....	..	6					
		Favia, <i>Oken.</i>							
32.	T.	— denticulata (?), <i>Ell. & Sol.</i> , sp. ....	..	7					
33.	T.	— Okeni, <i>E. & H.</i> .....	..	7					
34.	T.	— Ehrenbergi, var. <i>sulcata</i> , <i>Kl.</i> ..	5						
35.	T.	— pandanus, <i>Dana</i> , sp.	2						
36.	T.	— rotulosa, <i>Ell. & Sol.</i> , sp.	2						
37.	T.	—, sp. ....	..	..	..	..	..	45	
		Goniastrea, <i>E. & H.</i>							
38.	T.	— Bournoni, <i>E. & H.</i>	2						
		Prionastrea, <i>E. & H.</i>							
39.	T.	— obtusata, <i>E. & H.</i>	2						
40.	T.	— spinosa, <i>Kl.</i>	$\frac{1}{2}$						
41.	T.	— robusta, <i>Dana</i> , sp.	2						
		Plesiastrea, <i>E. & H.</i>							
42.	T.	— Urvillei, <i>E. & H.</i>	6					
		Cyphastræa, <i>E. & H.</i>							
48.	T.	— Brueggemanni, <i>Quelch</i>	5						

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Tabular List of Genera &c. (continued).

		Genera and Species.	Depth in Fathoms.							
			0-5.	5-10.	10-20.	20-30.	30-40.	40-50.	50-60.	
44.	T.	<i>Leptastræa</i> , <i>E. & H.</i>								
		— <i>Ehrenbergiana</i> (?), <i>E. & H.</i>...	..	7						
45.	T.	— <i>solida</i> , <i>E. & H.</i> , sp. ....	..	6						
		<i>Orbicella</i> , <i>Dana.</i>								
46.	T.	— <i>annuligera</i> , <i>E. & H.</i>	5	10						
47.	T.	—, sp. ....	..	7						
		<i>Echinopora</i> , <i>Lam.</i>								
48.	T.	— <i>rosularia</i> , <i>Lam.</i> .....	..	6						
MADREPORARIA FUNGIDA.										
		<i>Siderastræa</i> , <i>Blainv.</i>								
49.	T.	— (?), sp. n. ....	..	6						
		<i>Fungia</i> , <i>Lam.</i>								
50.	T.	— <i>scutaria</i> , <i>Lam.</i>	½							
		<i>Pavonia</i> , <i>Lam.</i>								
51.	M.	— <i>papyracea</i> .....	..	..	..	..	40			
52.	T.	— <i>pretiosa</i> , sp. n. ....	..	..	..	27				
53.	M.	— <i>ramosa</i> , sp. n. ....	..	..	..	26				
54.	T.	— <i>clivosa</i> , <i>Verr.</i> .....	..	8-10	..	26½				
55.	M.	—, sp. ....	..	..	..	20½				
56.	M.	—, sp. n. ....	..	..	..	20½				
		<i>Cycloseris</i> , <i>E. & H.</i>								
57.	T.	— <i>cyclolites</i> , <i>Lam.</i> , sp. ....	..	..	..	28				
58.	T.	— <i>tenuis</i> , <i>Dana</i> , sp. ....	..	..	..	27-28				
59.	M.	— <i>siuensis</i> , <i>E. & H.</i> .....	..	..	..	26				
60.	T.	— <i>Freycineti</i> , <i>E. & H.</i> , sp. ....	..	..	..	27				
61.	T.	— <i>distorta</i> , <i>Mich.</i> , sp. ....	..	..	..	28				
		<i>Leptoseris</i> , <i>E. & H.</i>								
62.	T.	— <i>striatus</i> , <i>M.S.</i> (?) .....	..	..	..	28	35			
63.	T.	—, sp. ....	..	..	..	28				
		<i>Phyllastræa</i> , <i>Dana.</i>								
64.	T.	— <i>Okeni</i> (?), <i>E. & H.</i> , sp. ....	..	..	..	26½	32			
65.	M.	— <i>tubifex</i> , <i>Dana</i> .....	..	..	..	26½				
		<i>Pachyseris</i> , <i>E. & H.</i>								
66.	M.	— <i>levicollis</i> , <i>Dana</i> , sp. ....	..	..	..	26½				
		<i>Oxypora</i> , <i>Sav. Kent.</i>								
67.	M.	— <i>contorta</i> , <i>Quelch</i> .....	..	..	..	26				
		<i>Psammocora</i> , <i>Dana.</i>								
68.	M.	— <i>planipora</i> (?), <i>E. & H.</i> .....	..	..	..	26-32				
69.	M.	—, sp. ....	..	..	..	27				
70.	T.	— <i>Haimeana</i> .....	..	6						
71.	T.	Gen. et sp. ind. ....	..	6						

Tabular List of Genera &c. (continued).

		Genera and Species.	Depth in Fathoms.						
			0-5.	5-10.	10-20.	20-30.	30-40.	40-50.	50-60.
		MADREPORARIA PERFORATA.							
		Balanophyllia, <i>Searles Wood.</i>							
72.	T.	— parvula?, <i>Moseley</i> .....	..	..	..	..	..	50	
73.	T.	— scabrosa (?), <i>Dana</i> , sp. ....	..	..	..	..	40		
		<i>Dendrophyllia</i> , <i>Blainv.</i>							
74.	T.	— gravis, <i>Brugg. MS. ?</i> .....	..	..	..	26			
		<i>Montipora</i> , <i>Quoy et Gaim.</i>							
75.	T.	— papillosa, <i>Lam.</i> , sp. ....	..	..	..	25			
76.	M.	— foliosa, <i>Pallas</i> , sp. ....	..	..	..	20½			
77.	M.	— prolifica, <i>Brugg. MS. ?</i> .....	..	..	..	26½			
78.	M.	— lima (?), <i>Lam.</i> , sp. ....	..	..	..	26½			
79.	T.	—, sp. ....	..	8½					
80.	T.	— <i>Danae</i> , <i>E. & H.</i>	½						
81.	M.	—, sp. ....	..	..	..	..	40		
82.	M.	— porosa, sp. n. ....	..	..	..	..	35		
83.	M.	—, sp. ....	..	..	..	..	..	44	
		<i>Turbinaria</i> , <i>Oken.</i>							
84.	T.	— stellulata, <i>Blainv.</i> , sp. var. . .	5-10						
		<i>Madrepora</i> , <i>Linn.</i>							
85.	T.	— robusta, <i>Dana</i>	5						
86.	T.	— crebripora, <i>Dana</i>	5½						
87.	T.	— secunda, <i>Dana</i>	5						
88.	T.	— scabrosa, <i>Quelch</i> .....	..	6½					
89.	T.	— horrida, <i>Dana</i>	2						
90.	T.	— <i>Ehrenbergi</i> , <i>E. & H.</i>	5						
91.	M., T.	— dendrum, sp. n. ....	..	..	20	27			
92.	T.	— compressa, sp. n.	5						
93.	M.	—, sp. n. ....	..	..	..	26½			
94.	T.	— plantaginea, <i>Lam.</i> .....	..	6					
95.	T.	— valida, <i>Dana</i> .....	..	6					
96.	T.	— paxilligera, <i>Dana</i>	1						
97.	M., T.	— pyramidalis, <i>Kl.</i>	2						
98.	T.	— seriata, <i>Ehreb.</i> , sp.	2						
99.	T.	— tenuis, <i>Dana</i>	1						
100.	T.	— nasuta, <i>Dana</i>	5						
101.	T.	— effusa, <i>Dana</i>	5						
102.	T.	— globiceps, <i>Dana</i> .....	..	7					
103.	T.	— acervata, <i>Dana</i> .....	..	8½					
104.	T.	— aculeus, <i>Dana</i> .....	..	8½					
105.	T.	— corymbosa, <i>Lam.</i> .....	..	5½-9½					
106.	T.	— prostrata, <i>Dana</i> .....	..	6½					
107.	T.	— cytherea (?), <i>Dana</i> .....	..	6					
108.	T.	— efflorescens, <i>Dana</i>	6					
109.	T.	— spicifera (var. abbreviata), <i>Dana</i>	5					

Corals from the China Sea.

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Tabular List of Genera &c. (continued).

		Genera and Species.	Depth in Fathoms.						
			0-5.	5-10.	10-20.	20-30.	30-40.	40-50.	50-60.
110.	T.	— hyacinthus, Dana .....	..	9½					
111.	T.	— vastula (?), Quelch .....	..	7					
112.	T.	— flabelliformis, E. & H., var. ....	..					
113.	T.	— labrosa, Dana	5						
114.	T.	— fragilis, sp. n. ....	..	..	..	27			
115.	M.	— Rambleri, sp. n. ....	..	..	..	26½			
116.	M.	— Rambleri, var. ....	..	..	..	20½			
		Porites, Lam.							
117.	T.	— mucronata, Dana	½						
118.	T.	— conferta, Dana	2½						
119.	T.	— lutea, Quoy et Gaim.	½						
120.	T.	— tenuis, Verr.	½						
121.	T.	— arenosa, Esper, sp.	2-6						
122.	T.	— lichen (?), Dana	2½						
123.	T.	— solida, Forsk., sp.	2						
124.	T.	— crassa (?), Quelch .....	..	7					
		Rhodaræa, E. & H.							
125.	T.	— gracilis, E. & H.	2						
126.	M.	— (?) Lagrenii?, E. & H. ....	..	..	..	..	40		
		Alveopora, Quoy et Gaim.							
127.	M.	— dædalea, Forsk., sp. ....	..	..	..	27-40			
128.	M.	— retepora, Ell. & Sol., sp. ....	..	..	..	..	35		
129.	T.	— Tizardi, sp. n. ....	..	..	..	27			

References to Genera and Species.

MADREPORARIA.

Section MADREPORARIA APOROSA, Ed. & H.

Genus STYLOPHORA, Schweigger.

Stylophora digitata, Pallas, sp.*Madrepora digitata*, Pallas, Elench. Zooph. p. 326.

Two fragmentary specimens.

Tizard Bank. Depth from 3 feet to 7 fath.

Stylophora prostrata, Klunz.1879. *Stylophora prostrata*, Die Korallth. des rothen Meeres, Th. ii. p. 62, pl. vii. fig. 8, pl. viii. fig. 7.

Two specimens were obtained.

Tizard and Macclesfield Banks. Depth 26-27 fath.

Annex 392

United Kingdom, Hydrographic Department, *The China Sea Directory*, Vol. II (4th ed., 1901)

British Admiralty

**THE
CHINA SEA DIRECTORY.**

VOL. II.

CONTAINING

**DIRECTIONS FOR THE NAVIGATION OF
THE CHINA SEA,
BETWEEN SINGAPORE AND HONG KONG.**

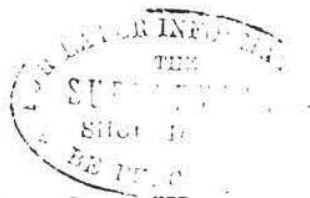
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in breadth. The least known depth is $4\frac{1}{2}$ fathoms, which was found on a patch, about three-quarters of a mile in extent, at the north extreme of the bank in lat. $10^{\circ} 50'$ N., long. $117^{\circ} 47'$ E. No less depth than 6 fathoms was obtained on any of the other patches surrounding the lagoon; the depths in the lagoon vary from 17 to 20 fathoms at the edge to 35 fathoms in the centre.

DANGEROUS GROUND.—SHOALS, THE POSITIONS OF WHICH ARE ONLY APPROXIMATE, LYING OUT OF THE TRACKS RECOMMENDED FOR VESSELS.

Caution.—The shoals lying in and bordering the ordinary routes to China have been given in Chapter III. The shoals about to be described lie out of the tracks recommended for shipping, and the following valuable observations of Horsburgh should be carefully attended to:—

“The archipelago of sand banks, rocks, or reefs above and under water lying between the coast of Paláwan and Pulo Sapatu, is so extensive, and the dangers that form it so numerous, that there can be little utility in entering into a minute description of them, for indeed they ought to be avoided by all navigators. No vessel can enter within the limits of this dangerous archipelago, *marked by a pecked line*, without getting embarrassed amidst the shoals; there are strong currents or irregular tidal streams among them, which render a vessel's position very uncertain when observations cannot be obtained. Although some vessels have with difficulty and risk passed through them, others have struck or lost their anchors amongst the extensive coral flats; and many have been wrecked.”
“Most of the disasters which have happened to shipping in the China sea have been consequent upon a disregard of the above advice.”

In the following descriptions we shall first refer to those shoals which lie near the Paláwan passage, and afterwards those which lie nearer the Main route, beginning at the southern end of the unsurveyed ground.

SHOALS NEAR THE PALÁWAN ROUTE.

Breakers, in lat. $7^{\circ} 38'$ N., long. $113^{\circ} 53'$ E., were reported to have been seen in 1860 by Mr. Dallas, while proceeding from the wreck of the *Fiery Cross* to Labúan in the boats (*see* page 241, Lizzie Webber shoal).

Mariveles reef.—The Spanish steam vessel *Mariveles*, 1879, struck on a coral reef, reported to lie in lat. $7^{\circ} 58'$ N., long. $113^{\circ} 50'$ E. This reef is said to be about 4 miles in length, 2 miles in breadth, and to be nearly awash, with 54 fathoms close-to.

See chart of Paláwan island, No. 967.

Gloucester and Ardasier breakers are two doubtful shoals; the former is placed upon the chart in lat. $7^{\circ} 50' N.$, long $114^{\circ} 15' E.$; and the latter in lat. $7^{\circ} 56' N.$, long $114^{\circ} 2' E.$ It is probable that these reported dangers including the breakers mentioned on the preceding page form part of Ardasier bank.

Investigator shoal, examined by Captain Crawford of the Indian Navy surveying vessel *Investigator*, in 1813, is about 20 miles in length, east and west, by 4 miles in breadth; its western extreme is in lat. $8^{\circ} 5' N.$, long. $114^{\circ} 31' E.$

Cay Marino is a doubtful shoal, in lat. $8^{\circ} 30' N.$, long. $114^{\circ} 21' E.$

S.W. and N.E. Shea shoals were seen by Mr. Shea, commanding the *Buckinghamshire*, in 1833. The first shoal appeared to consist of two reefs of rocks, with high breakers, extending $1\frac{1}{2}$ miles E. by S. and W. by N. and half a mile north and south; the centre of which was found to be in lat. $7^{\circ} 59' N.$, long. $114^{\circ} 55' E.$ by observations of sun, moon, and stars.

The other shoal, seen on the following morning, appeared to consist of two dry white banks, with a ridge of rocks extending from them to the westward about 2 miles; which was considered to be in lat. $8^{\circ} 36' N.$, long. $115^{\circ} 12' E.$ (These shoals are charted 4 miles west of the above positions, the longitudes having been amended.)

Viper shoal, the existence of which is doubtful, is said to lie in lat. $7^{\circ} 30' N.$, long. $115^{\circ} E.$ The *Royalist* passed over its assigned position, and when on the spot could get no bottom with 500 fathoms, though the day was clear, and conditions good for detecting a danger. The *Saracen* subsequently passed over the same ground with a view to its discovery, and with the same result.

North Viper shoal, or Seahorse, reported about 5 miles in extent, with rocks above water, is charted in lat. $8^{\circ} 2' N.$, long. $115^{\circ} 23' E.$ The reported position of this shoal was not examined by the *Rifleman*. The *Saracen* passed near it without seeing any appearance of shoal water, but from the following account of a reef seen by Mr Baird, this danger would appear to lie 17 miles N. $\frac{1}{2}$ E. of its ascribed position on the chart.

Commodore reef.—Mr. Hugh Baird, commanding the ship *Commodore*, reports as follows:—On 22nd December, 1862, at 8 a.m., saw what I took to be the North Viper shoal, or Seahorse, the north-east end bearing by compass N.N.W. 3 miles; it seemed to extend over 3 miles north-east and south-west, and to be composed of partly dry sand, with several rocks from 20 to 30 feet above water, and heavy breakers all around

See chart of Paláwan island, No. 967.

it. At noon it bore W. by S., distant about 6 miles. Observations placed the shoal in lat. $8^{\circ} 22' N.$, long. $115^{\circ} 25' E.$

Glasgow bank.—Mr. Baird, commanding the ship *Glasgow*, is said to have discovered a bank in lat. $8^{\circ} 29' N.$, long. $115^{\circ} 31' E.$ It apparently extended from this position for a distance of 3 miles to its north-east edge, and was composed of sand and rocky heads, in some places 20 to 30 feet above water. (*Naut. Mag.*, 1865, p. 52.) It is possibly identical with Commodore reef.

Director shoal.—The British bark *Director*, on November 8, 1887, when bound from Singapore to Shanghai, is reported to have struck on a shoal in lat. $8^{\circ} 28' N.$, long. $115^{\circ} 56' E.$

Alicia Anne shoal.—Captain R. Kirby, 1865, reports having seen a reef in lat. $9^{\circ} 25' N.$, long. $115^{\circ} 19' E.$, of lagoon form, 3 miles in length, north-west and south-east. There is a low sand bank at its north-west end, and a reef of rocks at its south-east extreme with several detached rocks around. There was a portion of wreck on the south-east end, and a junk with four boats close by; inside the lagoon there was a boat, apparently fishing. Soundings were tried for at a quarter of a mile from the south-east end, but no bottom was found with 100 fathoms of line. First Thomas shoal was made the next day, and the chronometer showed it to be 2 miles west of its position on the chart. (From *Merc. Mar. Mag.*, 1865, p. 29.) Two shoals marked Pennsylvania are charted between this shoal and north-east Shea shoal.

First and Second Thomas shoals appear by the chart to have been seen in 1839. The first is placed in lat. $9^{\circ} 18' N.$, long. $115^{\circ} 53' E.$; the second is shown as being 9 or 10 miles in length, and 4 miles in breadth; its southern part is charted in lat. $9^{\circ} 41' N.$, long. $115^{\circ} 47' E.$

Investigator N.E. shoal, in lat. $9^{\circ} 12' N.$, long. $116^{\circ} 23' E.$, is apparently awash.

Pennsylvania and Sabina shoals.—One of the many doubtful Pennsylvania shoals is placed on the chart 19 miles northward of N.E. Investigator, in lat. $9^{\circ} 32' N.$, long. $116^{\circ} 22' E.$; and there are three other patches of that name, about 10 miles north and north-eastward of Sabina.

Sabina shoal, charted in lat. $9^{\circ} 42' N.$, long. $116^{\circ} 34' E.$, was discovered by the master of the *Sabina* in 1836, who saw "rocks with the sea breaking over them." It is probably identical with one or more of the above. (From *Naut. Mag.*, 1836, p. 601.)

Mr. E. Routh, commanding the *Bombay* (1837) with the *Henry Clay* in company, sighted breakers, which his observations placed nearly in the position of Sabina shoal. (*Naut. Mag.*, 1837, p. 224.)

See chart of Paláwan island, No. 967.

Carnatic shoal is charted N.N.E. $\frac{1}{2}$ E, 47 miles from Bombay shoal, in lat. $10^{\circ} 6' N.$, long. $117^{\circ} 21' E.$, and is said to have as little as $2\frac{1}{2}$ fathoms on it. H.M. surveying vessel *Royalist*, in 1853, could not discover the shoal in the position assigned to it, or succeed in obtaining soundings with from 100 to 200 fathoms of line when in the neighbourhood.

Lord Auckland shoal appears on the chart as a bank with from 8 to 30 fathoms water over it. The 2-fathoms part is in lat. $10^{\circ} 21' N.$, long. $117^{\circ} 15' E.$; close to the eastward of the bank there is no bottom at 100 fathoms.

Fairy Queen shoal with 9 fathoms water, is charted in lat. $10^{\circ} 39' N.$, long. $117^{\circ} 38' E.$

A Sandy shoal is placed upon the chart in lat. $11^{\circ} 2' N.$, long. $117^{\circ} 37' E.$

Templer bank.—The *Minerva* passed over a bank in November 1835, having from 10 to 12 fathoms water. The bank appeared to extend about 4 miles north and south, and as no discoloured water was seen to the eastward, but several apparently shoal patches were perceived to the westward, it is supposed that the vessel passed over the eastern part of the bank. The centre of the bank is charted in lat. $11^{\circ} 7' N.$, long. $117^{\circ} 13' E.$

Other Pennsylvania shoals.—**Brown shoals.**—Another Pennsylvania shoal is placed on the chart in lat. $10^{\circ} 23' N.$, long. $116^{\circ} 33' E.$; and another, the Pennsylvania north reef, in lat. $10^{\circ} 49' N.$, long. $116^{\circ} 50' E.$ (HORSBURGH places this shoal in long. $117^{\circ} 10' E.$) The positions of these are very doubtful, and it is probable that the shoals seen by Mr. Brown commanding the *Arabian* in 1838, were the same; the following is his account of them (in *Naut. Mag.*, 1838, p. 721):—

“On the 8th January, 1838, at 10.30 a.m., passed close to windward of a coral patch, with apparently 5 or 6 fathoms water over it, in lat. $10^{\circ} 30' N.$, long. $116^{\circ} 41' E.$ Wind was fresh with a good deal of sea.

“Same day, at 3.30 p.m., came suddenly into shoal water. Saw the rocks very distinctly under the bottom; had several casts of about 5 fathoms. We appeared to be on the southern edge of coral flat, extending north-east and north-west of us some miles. By sights taken immediately we came off the shoal, this part of it lies in long. $117^{\circ} 0' E.$, or 4' east of the Bombay reef, which we left yesterday; latitude $10^{\circ} 35' N.$, which we observed at noon.

“The following day at 9 a.m., came again into shoal water; rocks seen close to our keel, but before we could get the lead forward we had passed over the ridge into 28 fathoms. From 9 h. to 11 h. 30 m. a.m. ran 8 miles on N.N.W. course over irregular coral bottom, least water, by the

See chart of Palawan island, No. 967.

lead, 11 fathoms, but at times we apparently had much less from the proximity of the coral rocks. We entered upon this flat in lat. $10^{\circ} 39' N.$, long. $117^{\circ} 24' E.$; came off in lat. $10^{\circ} 46' N.$, long. $117^{\circ} 19' E.$ The longitude computed from a series of sights before and after noon; the latitude by a good meridian altitude, four observers, and clear weather. In passing over this bank the water appeared very shoal east and west of us, lying in ridges in that direction. (Mr. Brown's longitudes have been altered 2 miles west from original report, as Bombay shoal was shifted the same amount.)

Amy Douglas shoal.—The *Amy Douglas* passed over a shoal about noon in lat. $10^{\circ} 52' N.$, long. $116^{\circ} 25' E.$, from good observations. The water was observed to be discoloured for about a mile on each side of the ship, and on sounding a depth of 14 fathoms was obtained. The master was of opinion that the water was much shallower to the westward of the ship. (*Naut. Mag.*, 1860.)

Reed bank.—H.M.S. *Rifleman* obtained soundings of 47 fathoms on a coral bank in lat. $11^{\circ} 28' N.$, long. $116^{\circ} 46' E.$; steering E. by S. $\frac{1}{4}$ S., 3 miles farther, had 44 fathoms, and shortly afterwards 12 fathoms on a coral patch in lat. $11^{\circ} 26' N.$, long. $116^{\circ} 53' E.$ Continuing the same course, the depths were 42 fathoms for a distance of 5 miles, when the water deepened.

Marie Louise shoal.—The German barque *Marie Louise*, 1884, passed over a shoal in lat. $11^{\circ} 55' N.$, and long. $116^{\circ} 51' E.$ A sounding was obtained in 15 fathoms, the bottom being seen and remaining visible for a distance of 3 or 4 cables.

SHOALS NEAR THE MAIN ROUTE.*

Returning again to the southern portion of the dangerous unsurveyed ground, the shoals eastward of those bordering the Main route which have been surveyed, will now be described.

Lizzie Webber shoal.—Mr. Dallas reported that while returning in a small vessel, the *Lizzie Webber*, to the wreck of the *Fiery Cross*, in 1860, they struck upon a reef in lat. $8^{\circ} 4' N.$, long. $113^{\circ} 12' E.$ This reef, which was very little under water, is a narrow strip of sand and coral lying in a north-east and south-west direction.

This shoal is supposed to extend about 25 miles to the north-eastward of the above position, for Mr. P. Orr, commanding the barque *Canada*, reported as follows:—

“On the 24th December, 1864, at 12.30 a.m., the British barque *Canada* was wrecked on a reef in the China sea—not marked on the charts. The

* See chart of the China sea, southern portion, No. 2,666b.

ship's lat. brought on from the previous noon was $8^{\circ} 20' N.$, long. $113^{\circ} 29' E.$ After leaving the ship we skirted the weather side of the reef until noon: when we cleared the south end, I got a meridian observation which puts us in $8^{\circ} 3' N.$, we were then about one mile south of the reef which is awash. I estimate the distance made in the boats from the time we left the ship till we cleared the south end of the reef to be 25 miles." This latitude of the southern end of the shoal agrees within a mile with that of the *Lizzie Webber*.

Pearson reef, in lat. $8^{\circ} 58' N.$, long. $113^{\circ} 40' E.$, was seen in 1843 by Mr. Pearson, commanding the *Bahamian*, who reported that he passed at about 3 miles from a shoal in the above position, which was about 2 miles in length in a north and south direction, with some rocks above water on the southern edge.

Doubtful shoals and islands.—Cornwallis south reef is placed on the chart in lat. $8^{\circ} 50' N.$, long. $114^{\circ} 11' E.$, and shown as being 3 or 4 miles in extent.

Ganges reef, 32 miles to the northward of Cornwallis south reef, in lat. $9^{\circ} 22' N.$, long. $114^{\circ} 11' E.$

Sin Cowe island, 22 miles north-eastward of Ganges reef, in lat. $9^{\circ} 42' N.$, long. $114^{\circ} 22' E.$

Fancy Wreck shoal, 35 miles eastward of Ganges reef, in lat. $9^{\circ} 43' N.$, long. $114^{\circ} 41' E.$

Cornwallis reef is shown on the chart as an extensive reef with rocks, 23 miles north-westward of Fancy Wreck shoal, in lat. $10^{\circ} 0' N.$, long. $114^{\circ} 23' E.$

Pennsylvania, one of a number of that name, is placed in lat. $10^{\circ} 0' N.$, long. $115^{\circ} 10' E.$; and about 20 miles N.N.W. of it, in lat. $10^{\circ} 18' N.$, long. $115^{\circ} 4' E.$, is another doubtful Ganges reef. About 14 miles N.N.E. of this latter, in lat. $10^{\circ} 32' N.$, long. $115^{\circ} 8' E.$, is Ganges north reef.

Third Thomas shoal (1839) is placed on the chart in lat. $10^{\circ} 52' N.$, long. $115^{\circ} 55' E.$

Two reefs marked *Mischief, 1861*, are charted about 25 and 58 miles southward of Third Thomas, the second being about 10 miles from Second Thomas shoal.

Flat island, in lat. $11^{\circ} 2' N.$, long. $115^{\circ} 41' E.$, is said to be low and flat, surrounded with breakers, and having a reef projecting from its north-east side. It is reported to have been seen by several vessels.

No dangers are charted northward of Flat island, though a pecked line is marked on the chart some 30 miles beyond it, within which distance it is not recommended to navigate until it has been surveyed.

See chart of the China sea, southern portion, No. 2660b.

Annex 393

United Kingdom Hydrographic Office, *China Sea Directory*, Vol. II (5th ed., 1906)

THE CHINA SEA DIRECTORY.

VOL. II.

CONTAINING

DIRECTIONS FOR THE NAVIGATION OF
THE CHINA SEA,
BETWEEN SINGAPORE AND HONG KONG.

FIFTH EDITION.

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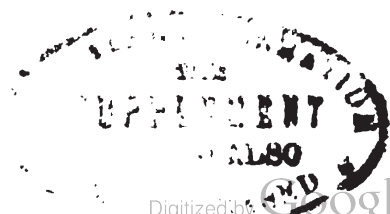
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Chart, 067 [2,650].
Var. $1\frac{1}{2}^{\circ}$ E.

embarrassed amidst the shoals; there are strong currents or irregular tidal streams among them, which render a vessel's position very uncertain when observations cannot be obtained. Although some vessels have with difficulty and risk passed through them, others have struck or lost their anchors amongst the extensive coral flats; and many have been wrecked."

Most of the disasters which have happened to shipping in the China sea have been consequent upon a disregard of the above advice.

In the following descriptions we shall first refer to those shoals which lie near the Paláwan passage, and afterwards those which lie nearer the Main route, beginning at the southern end of the unsurveyed ground.

SHOALS NEAR THE PALÁWAN ROUTE.

Lat. $7^{\circ} 38' N$
Long. $113^{\circ} 53' E$.

Breakers, in the position given in the margin, were reported to have been seen in 1860 by Mr. Dallas, while proceeding from the wreck of the *Fiery Cross* to Labúan in the boats (see page 250, Lizzie Webber shoal).

Lat. $7^{\circ} 58' N$
Long. $113^{\circ} 50' E$.

Mariveles reef.—The Spanish steam vessel *Mariveles*, 1879, struck on a coral reef reported to lie in the position noted. This reef is said to be about 4 miles in length, 2 miles in breadth, and to be nearly awash, with a depth of 54 fathoms close-to.

Gloucester and Ardasier breakers are two doubtful shoals; the former is placed upon the chart in lat. $7^{\circ} 50' N$, long $114^{\circ} 15' E$; and the latter in lat. $7^{\circ} 56' N$, long $114^{\circ} 2' E$. It is probable that these reported dangers, including the breakers mentioned above, form part of Ardasier bank; see page 151.

Lat. $8^{\circ} 5' N$
Long. $114^{\circ} 31' E$.

Investigator shoal, examined by Captain Crawford of the Indian Navy surveying vessel *Investigator*, in 1813, is about 20 miles in length, east and west, by 4 miles in breadth; its western extreme is in the position given in the margin.

Lat. $8^{\circ} 30' N$
Long. $114^{\circ} 21' E$.

Cay Marino is a doubtful shoal, charted in the marginal position. **S.W. and N.E. Shea shoals** were seen by Mr. Shea, commanding the *Buckinghamshire*, in 1833. The first shoal appeared to consist of two reefs of rocks, with high breakers, extending $1\frac{1}{2}$ miles E. by S. and W. by N. and half a mile north and south; the centre of which was found to be in lat. $7^{\circ} 59' N$, long. $114^{\circ} 52' E$.

The other shoal appeared to consist of two dry white banks, with a ridge of rocks extending from them to the westward about 2 miles; which was considered to be in lat. $8^{\circ} 30' N$, long. $115^{\circ} 15' E$.

Lat. $7^{\circ} 30' N$
Long. $115^{\circ} 0' E$.

Viper shoal, the existence of which is doubtful, is said to lie in the position noted. The *Royalist* passed over its assigned locality, and when on the spot could get no bottom with 500 fathoms; though the day was clear, and conditions good for detecting a danger, nothing to indicate one was observed. The *Saracen* subsequently passed over this ground with a view to discover the shoal, and with the same result.

Chap. VIII.] SHOALS LYING OUT OF RECOMMENDED TRACKS. 247

North Viper shoal, or Seahorse, reported to be about 5 miles in extent, with rocks above water, is charted in lat. $8^{\circ} 2' N.$, long. $115^{\circ} 23' E.$ Var. $14^{\circ} E.$ The reported position of this shoal was not examined by the *Rifleman*. The *Saracen* passed near it without seeing any appearance of shoal water, but from the following account of a reef seen by Mr. Baird, this danger would appear to lie 17 miles N. $\frac{1}{2}$ E. of its ascribed position on the chart.

Commodore reef.—Mr. Hugh Baird, commanding the ship *Commodore*, reported as follows:—On 22nd December 1862, at 8 a.m., saw what I took to be the North Viper shoal, or Seahorse, the north-east end bearing by compass N.N.W. 3 miles; it seemed to extend over 3 miles north-east and south-west, and to be composed of partly dry sand, with several rocks from 20 to 30 feet above water, and heavy breakers all around it. At noon it bore W. by S., distant about 6 miles. Observations placed the shoal in the position given. Lat. $8^{\circ} 22' N.$
Long. $115^{\circ} 25' E.$

Glasgow bank.—Mr. Baird, commanding the ship *Glasgow*, is said to have discovered a bank in lat. $8^{\circ} 29' N.$, long. $115^{\circ} 31' E.$ It apparently extended from this position for a distance of 3 miles to its north-east edge, and was composed of sand and rocky heads, in some places 20 to 30 feet above water. (*Naut. Mag.*, 1865, p 52.) It is possibly identical with Commodore reef.

Director shoal.—The British bark *Director*, on November 8th, 1887, when bound from Singapore to Shanghai, is reported to have struck on a shoal in the position noted. Lat. $8^{\circ} 28' N.$
Long. $115^{\circ} 56' E.$

Alicia Annie shoal.—Captain R. Kirby, 1865, reported having seen a reef in lat. $9^{\circ} 25' N.$, long. $115^{\circ} 19' E.$, of lagoon form, 3 miles in length, north-west and south-east. There is a low sand bank at its north-west end, and a reef of rocks at its south-east extreme with several detached rocks around. There was a portion of wreck on the south-east end, and a junk with four boats close by; inside the lagoon there was a boat, apparently fishing. Soundings were tried for at a quarter of a mile from the south-east end, but no bottom was found with 100 fathoms of line. First Thomas shoal was made the next day, and the chronometer showed it to be 2 miles west of its position on the chart. (From *Merc. Mar. Mag.*, 1865, p. 29.) Two shoals marked Pennsylvania are charted between this shoal and North-east Shea shoal.

First and Second Thomas shoals appear by the chart to have been seen in 1839. The first is placed in lat. $9^{\circ} 18' N.$, long. $115^{\circ} 53' E.$; the second is shown as being 9 or 10 miles in length, and 4 miles in breadth; its southern part is charted in lat. $9^{\circ} 41' N.$, long. $115^{\circ} 47' E.$

Investigator N.E. shoal, in the position noted in margin, is apparently awash. Lat. $9^{\circ} 12' N.$
Long. $116^{\circ} 23' E.$

Pennsylvania and Sabina shoals.—One of the many doubtful Pennsylvania shoals is placed on the chart about 19 miles north-

Chart, 967 [2,650].
Var. $1\frac{1}{2}^{\circ}$ E.

ward of Investigator N.E. shoal, in lat. $9^{\circ} 32' N.$, long. $116^{\circ} 22' E.$; and there are three other patches of that name, about 10 miles north and north-eastward of Sabina.

Sabina shoal, charted in lat. $9^{\circ} 42' N.$, long. $116^{\circ} 34' E.$, was discovered by the master of the *Sabina* in 1836, who saw "rocks with the sea breaking over them." It is probably identical with one or more of the above. (From *Naut. Mag.*, 1836, p. 601.)

Mr. E. Routh, commanding the *Bombay* (1837) with the *Henry Clay* in company, sighted breakers, which his observations placed nearly in the position of Sabina shoal. (*Naut. Mag.*, 1837, p. 224.)

Lat. $10^{\circ} 6' N.$
Long. $117^{\circ} 21' E.$

Carnatic shoal is charted N.N.E. $\frac{3}{4}$ E., 47 miles from Bombay shoal, and is said to have as little as $3\frac{1}{2}$ fathoms water on it. H.M. surveying vessel *Royalist*, in 1853, could not discover the shoal in the position assigned to it, or succeed in obtaining soundings with from 100 to 200 fathoms of line when in the neighbourhood.

Lord Auckland shoal appears on the chart as a bank with from 8 to 30 fathoms water over it. The 8-fathoms part is in lat. $10^{\circ} 21' N.$, long. $117^{\circ} 15' E.$; close to the eastward of the bank there is no bottom at 100 fathoms.

Lat. $10^{\circ} 39' N.$
Long. $117^{\circ} 38' E.$

Fairy Queen shoal with 9 fathoms water, is charted in the position here given.

A Sandy shoal is placed upon the chart, about 14 miles N.E. $\frac{1}{2}$ N. of Seahorse or Routh bank (*see* page 245), in lat. $11^{\circ} 2' N.$, long. $117^{\circ} 37' E.$

Lat. $11^{\circ} 7' N.$
Long. $117^{\circ} 13' E.$

Templer bank.—The *Minerva* passed over a bank in November 1835, having from 10 to 12 fathoms water. The bank appeared to extend about 4 miles north and south, and as no discoloured water was seen to the eastward, but several apparently shoal patches were perceived to the westward, it is supposed that the vessel passed over the eastern part of the bank. The centre of the bank is charted in the position given.

Other Pennsylvania shoals.—Brown shoals.—Another Pennsylvania shoal is placed on the chart in lat. $10^{\circ} 23' N.$, long. $116^{\circ} 33' E.$; and yet another, the Pennsylvania North reef, in lat. $10^{\circ} 49' N.$, long. $116^{\circ} 50' E.$ (HORSBURGH places this shoal in long. $117^{\circ} 10' E.$) The positions of these are very doubtful, and it is probable that the shoals seen by Mr. Brown commanding the *Arabian* in 1838, were the same; the following is his account of them (in *Naut. Mag.* 1838, p. 721):—

"On the 8th January, 1838, at 10.30 a.m., passed close to windward of a coral patch, with apparently 5 or 6 fathoms water over it, in lat. $10^{\circ} 30' N.$, long. $116^{\circ} 41' E.$ Wind was fresh with a good deal of sea.

"Same day, at 3.30 p.m., came suddenly into shoal water. Saw the rocks very distinctly under the bottom, had several casts of about

Chap. VIII.] SHOALS LYING OUT OF RECOMMENDED TRACKS. 249

5 fathoms. We appeared to be on the southern edge of a coral flat, extending north-east and north-west from us for some miles. By sights taken immediately we came off the shoal, this part of it lies in long. $117^{\circ} 0' E.$, or 4' east of the Bombay reef, which we left yesterday; latitude $10^{\circ} 35' N.$, which we observed at noon. Chart, 267 [2,650].
Var. $1\frac{1}{2}^{\circ} E.$

"The following day at 9 a.m., came again into shoal water; rocks seen close to our keel, but before we could get the lead forward we had passed over the ridge into 28 fathoms. From 9h. to 11h. 30m. a.m. ran 8 miles on a N.N.W. course over irregular coral bottom, least water, by the lead, 11 fathoms, but at times we apparently had much less from the proximity of the coral rocks. We entered upon this flat in lat. $10^{\circ} 39' N.$, long. $117^{\circ} 24' E.$; came off in lat. $10^{\circ} 46' N.$, long. $117^{\circ} 19' E.$ The longitude computed from a series of sights before and after noon; the latitude by a good meridian altitude, four observers, and clear weather. In passing over this bank the water appeared very shoal east and west of us, lying in ridges in that direction."

Amy Douglas shoal.—The *Amy Douglas* passed over a shoal about noon in a position ascertained from good observations. The water was observed to be discoloured for about a mile on each side of the ship, and on sounding a depth of 14 fathoms was obtained. The master was of opinion that the water was much shallower to the westward of the ship. (*Naut. Mag.*, 1860.) Lat. $10^{\circ} 52' N.$
Long. $116^{\circ} 25' E.$

Reed bank.—H.M.S. *Rifleman* obtained soundings of 47 fathoms on a coral bank in lat. $11^{\circ} 28' N.$, long. $116^{\circ} 46' E.$; steering E. by S. $\frac{1}{4}$ S., 3 miles farther, had 44 fathoms, and shortly afterwards 12 fathoms on a coral patch in the position noted in margin. Continuing the same course, the depths were 42 fathoms for a distance of 5 miles, when the water deepened. Lat. $11^{\circ} 26' N.$
Long. $116^{\circ} 33' E.$

Marie Louise shoal.—The German barque *Marie Louise*, 1885, passed over a shoal in the marginal position. A sounding was obtained in 15 fathoms, the bottom being seen and remaining visible for a distance of 3 or 4 cables. Lat. $11^{\circ} 55' N.$
Long. $116^{\circ} 51' E.$

West York island, so named from the vessel wrecked on it in 1905, is situated in lat. $11^{\circ} 5\frac{1}{4}' N.$ and long. $115^{\circ} 1\frac{1}{2}' E.$, about 50 miles E.S.E. from North Danger islands. It is of coral formation and about one mile in length by half a mile in breadth and 15 feet in height. On it are a few cocoanut trees and some other vegetation, and it is frequented by turtle and sea birds.

A coral reef surrounds this island which extends a quarter of a mile off shore on its east side and fully two miles to the southward. Anchorage was obtained by the U.S. vessel *Naushan* in 14 fathoms with the north

Chart, 987 [2,650].
Var. $1\frac{1}{4}^{\circ}$ E.

point of West York island, bearing S. 25° W. distant $2\frac{1}{2}$ miles. Chinese fishermen from Hainan appear to frequent it during the latter part of the N.E. monsoon to gather trepang, as a joss house and three graves were found on the island, as well as an old iron cannon. Some remains of wrecks were also seen.

Flat island is a low sand cay about 250 yards across and surrounded by a reef which extends 2 to 3 miles from the cay in an easterly direction. The cay is situated in lat. $10^{\circ} 48\frac{1}{4}'$ N. long. $115^{\circ} 50\frac{1}{2}'$ E., and about 16 miles S.E. of its originally reported position. The *Nanshan* passed over that position without seeing any danger there. See page 251.

Nanshan island, situated in lat. $10^{\circ} 42\frac{1}{4}'$ N. long. $115^{\circ} 49\frac{1}{2}'$ E., is about 600 yards across and appeared to be covered with small trees.

SHOALS NEAR THE MAIN ROUTE.

Returning again to the southern portion of the dangerous unsurveyed ground, the shoals eastward of those bordering the Main route which have been surveyed, will now be described.

Lat. $8^{\circ} 4' N.$
Long. $113^{\circ} 12' E.$

Lizzie Webber shoal.—Mr. Dallas reported that while returning in a small vessel, the *Lizzie Webber*, to the wreck of the *Fiery Cross*, in 1860, they struck upon a reef in the position given. This reef, which was very little under water, is a narrow strip of sand and coral lying in a north-east and south-west direction.

This shoal is supposed to extend about 25 miles to the north-eastward of the above position, for Mr. P. Orr, commanding the barque *Canada*, reported as follows:—

“On the 24th December 1864, at 12.30 a.m., the British barque *Canada* was wrecked on a reef in the China sea—not marked on the charts. The ship's lat. brought on from the previous noon was $8^{\circ} 20' N.$, long. $113^{\circ} 29' E.$ After leaving the ship we skirted the weather side of the reef until noon; when we cleared the south end, I at that time got a meridian observation which put us in lat. $8^{\circ} 3' N.$, we were then about one mile south of the reef which is awash. I estimate the distance made in the boats from the time we left the ship till we cleared the south end of the reef to be 25 miles.” This latitude of the southern end of the shoal agrees within a mile with that of the *Lizzie Webber*.

Lat. $8^{\circ} 28' N.$
Long. $113^{\circ} 40' E.$

Pearson reef was seen in 1843 by Mr. Pearson, commanding the *Bahamian*, who reported that he passed at about 3 miles from a shoal in the position noted, which was about 2 miles in length in a north and south direction, with some rocks above water on the southern edge.

General chart, 2,600 [2,679].

Annex 394

U.S. Hydrographic Office, *Asiatic Pilot: The Shores of the China Sea from Singapore Strait to and including Hongkong*, Vol. IV (1915)

No. 125

ASIATIC PILOT

Volume IV

THE SHORES OF THE CHINA SEA
FROM SINGAPORE STRAIT TO
AND INCLUDING HONGKONG

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1915

THE ASIATIC PILOT.

VOL. IV.

CHAPTER I.

GENERAL REMARKS ON THE VARIOUS COUNTRIES.— WINDS AND WEATHER.—CURRENTS.—PASSAGES.

General remarks.—The China Sea is the water area between Singapore Strait and Hongkong, which is bounded on the west by the Malay Peninsula, the coasts of Siam, French Indo-China (consisting of Cambodia, Cochin-China, Anam, and Tongkin), and the southwest Province of China, including Canton and West Rivers, and Hongkong; the description of these coasts and their dangers, with the dangers bordering the main route of the China Sea, form the subject of this volume.

Toward the center of the southern portion of the China Sea there is a considerable area known to be occupied by numerous coral banks and reefs, only partially surveyed, and therefore dangerous, which should be avoided by all vessels.

Mariners are advised to follow the tracks recommended and shown on the charts, as far as practicable.

Malay Peninsula—The Federated Malay States of Perak, Selangor, Negri Sembilan, and Pahang, which occupy a large portion of the Malay Peninsula, are under British protection; of these, only Pahang on the east coast lies within the limits of this volume.

By the treaty between Great Britain and Siam, February, 1910, Siam transfers to Great Britain the rights of suzerainty and protection, etc., as she has possessed over the tract of territory lying to the northward of the Federated Malay States, and embracing the whole of Tringano, all but the northeastern corner of Kelantan, the next State northward (and the greater part of Kedah, Perlis, etc., and off-lying islands, all in the Straits of Malakka), Great Britain undertaking to facilitate railway construction so that the Siamese railways may be connected with the Federated States. These new territories comprise an area of about 15,000 square miles and a population of about half a million.

CHAPTER III.

MAIN ROUTE TO HONGKONG.—DESCRIPTION OF ISLANDS, REEFS, AND SHOALS.

EASTERN SIDE OF MAIN ROUTE.

Caution.—Vessels should not attempt to pass eastward of the banks that are here described, as numerous shoals exist over a very large central area known as “Dangerous ground,” which have not been correctly charted.

Currents and tides.—While H. M. S. surveying vessel *Rifleman* was at anchor on the reefs, during both monsoons, careful observations were taken of the set of the current on the reefs, which, for 16 hours out of the 24, invariably set to windward, generally with the greatest force when the monsoon was strongest; it is not to be supposed that this action occurs at any great distance from the reef, it being an eddy, more or less.

The rise of tide at springs was about 5 feet, and at neaps one to 2 feet; one tidal stream in the 24 hours.

Banks on eastern side—Vanguard Bank, having 9 fathoms least water, and general depths of 20 to 60 fathoms, is crescent-shaped, about 34 miles in length, and has an average breadth of 6 miles. The position of the 11 fathoms on its eastern end is Lat. $7^{\circ} 30' N.$, Long. $109^{\circ} 55' E.$, or about 110 miles eastward of Charlotte bank, the southernmost bank on the western side of the main route.

Grainger Bank, the center of which lies 37 miles 64° from the eastern patch of the Vanguard, is 5.5 miles in length by 2 miles in breadth. There are coral heads with 6 to 8 fathoms over them, and depths of 10 to 20 fathoms around; the coral bottom is visible over nearly the whole of it.

Prince Consort Bank lies between the Vanguard and the Prince of Wales Bank, and extends about 16 miles north and south by 9 miles east and west. No danger exists on it; the general depths are from 30 to 50 fathoms, sand and coral, the least water found being on some coral heads near the western edge, with depths of 10 to 13 fathoms, with no bottom at 200 fathoms at a short distance.

Prince of Wales Bank, between 20 to 33 miles east-northeastward of Prince Consort Bank, is 12 miles in extent northeast and southwest, and 7 miles in breadth; it is of coral formation, with irregular depths, there being several heads with depths of 8 to 10

fathoms, and one of 4 fathoms near its northwestern corner, in Lat. $8^{\circ} 8'$ N., Long. $110^{\circ} 27'$ E.

Alexandra Bank, about 5 miles southeastward of Prince of Wales Bank, is 5 miles in length north and south, 3.5 miles in breadth, and steep-to. A patch with 3 fathoms lies near the eastern edge, and there are others with 6 to 7 fathoms; the general depth is about 15 fathoms, the bottom, coral, distinctly visible.

Rifleman Bank is about 30 miles in length in a north and south direction by about 13 miles in breadth. Shallow patches, varying from $1\frac{1}{2}$ to 7 fathoms, exist around the edges, within which are depths of 20 to 40 fathoms, sand and coral; around the bank are depths of about 500 fathoms.

Bombay Castle Shoal, with $1\frac{1}{2}$ fathoms, situated at the northern end of Rifleman Bank, in Lat. $7^{\circ} 56'$ N., Long. $111^{\circ} 42'$ E., is marked by heavy breakers except during the finest weather.

Bombay Castle, Orleana, Johnson, and Kingston Shoals have been found to be patches on the edges of Rifleman Bank, and are named accordingly. It is quite possible that other small shoal patches may exist on the bank.

Owen Shoal, reported to be about 2 miles in extent, and to have a depth of $3\frac{1}{2}$ fathoms, over coral, is charted 22 miles northeastward of Rifleman Bank, in Lat. $8^{\circ} 8'$ N., Long. $111^{\circ} 59'$ E. It has not been examined.

Ladd Reef (Lat. $8^{\circ} 39'$ N., Long. $111^{\circ} 40'$ E.), about 42 miles northward of the Rifleman, is a coral reef 3 miles in length, east and west, and about 1 mile in breadth. In the center of the reef is a lagoon with a bottom of white sand. The surrounding reef uncovers at half tide in many places, and at low water it is almost impossible for boats to cross over into the lagoon.

Spratly (or Storm) Island, situated 14 miles eastward from Ladd Reef, is a bare flat island about 8 feet high, 500 yards in length, and 300 yards in breadth, with a margin of bright white sand and broken coral. At a distance of 3 or 4 miles, in the breeding season, the birds standing erect look like small bushes.

The island is on the western end of a coral bank, which is 1.3 miles in length by 1,400 yards in breadth. Northward of the island at $\frac{1}{4}$ mile distant, there is a depth of $3\frac{1}{2}$ fathoms close to the edge of the bank, decreasing toward the shore. Northeastward the depth is 7 or 8 fathoms not quite $\frac{1}{2}$ mile from the island. Rocky ledges, dry at low water, surround the island, requiring caution when landing, which during the southwest monsoon may be effected on the lee side. The bank is steep-to, the sea breaking heavily upon it, except in very fine weather.

The Rifleman anchored in about 6 fathoms on the northeastern point of the bank, fairly sheltered from the southwest, with the

extremities of the island bearing about 221° and 244° , and the extremity of the breakers on the western edge, 264° .

In the months of June and July turtle frequent the island, and they may possibly do so at other seasons. Numbers were taken on the beach, being easily turned over by two or three men. Quantities of their eggs were found on the southwestern side of the island. Sea birds' eggs covered the ground in the months mentioned.

There were no signs in 1889 of anyone ever having tried to live there.

Tides.—Observations at Spratly Island in the summer months showed but one tide during the 24 hours, and in the early part of July it was found to be high water at 9h. a. m., the rise and fall being $5\frac{1}{2}$ feet. The direction of the stream at the northeastern corner of the bank was southwestward during the rising tide, and from southeast to east-northeast during the falling tide.

Amboyna Cay (Lat. $7^{\circ} 51' N.$, Long. $112^{\circ} 55' E.$), about 68 miles eastward of Rifleman Bank, and at the southwestern extremity of a small coral bank, is 150 yards in extent, and 8 feet high. It is surrounded by coral ledges, partly dry at low water, and steep to, to the distance of nearly 400 yards in places, upon which the sea breaks heavily with any swell.

A pile beacon, composed of driftwood collected on the cay, a few lumps of coral, etc., was erected in the center of the island, and possibly still exists.

A bank, 400 yards wide, extends about 1 mile northeastward of the cay, with a depth of 4 fathoms at about 670 yards from it; at the extremity of the bank the water deepens suddenly from 9 to 17 fathoms, and thence to deep water.

Anchorage on this bank has been found in 5 fathoms, in the southwest monsoon, fairly sheltered by the cay from the prevailing wind.

A reef, with a depth of 2 to $2\frac{1}{2}$ fathoms, reported as lying with the center of Amboyna Cay bearing 137° , distant from $\frac{1}{2}$ to 1 mile; it is too near the cay to be shown on the chart, which is on a small scale.

Eastward of Amboyna Cay is the edge of the "dangerous ground" still unsurveyed, and which should be avoided, as before mentioned.

Tides.—By observations at Amboyna Cay 2 days before neaps, the maximum rate of the tidal stream was 1.4 knots per hour, the flood stream setting northward, the ebb westward; flood commencing at 11 p. m., and the ebb at 6 a. m.; rise and fall doubtful.

Remains of huts, which had been made of stones, pieces of coral, planks and bamboos, parts of an old boat, etc., were seen on the cay (1889), all covered with a white coating of guano, denoting that it is a long time since anyone was working guano, or living on Amboyna Cay.

Stags Shoal, northward of Amboyna Cay, was reported in 1802 in Lat. $8^{\circ} 24' N.$, Long. $112^{\circ} 57' E.$, as consisting of rocks showing above water.

A sounding of 1,085 fathoms, ooze, has been found in the position assigned to Stags Shoal. Amboyna Cay has been found to be 11 miles farther west than first reported, and it is possible, therefore, that the position of the Stags given may be 11 or 12 miles eastward of its true position. H. M. S. Renard, in 1862, got upon the position ascribed to the Stags Shoal, and steered a few miles east and west, but could not discover it. It is probably the northern end of Lizzie Webber Shoal.

London Reefs.—The London Reefs, four in number, lie about 60 miles northeastward of Rifleman Bank, extend over a distance of about 38 miles in an east and west direction, and are steep-to.

Like most dangers in the China Sea, the London Reefs are surrounded by deep water, thus rendering the lead useless; great caution is therefore necessary when navigating in the vicinity of these reefs, and vessels should not stand toward them with the sun shining ahead, as under these circumstances it becomes almost impossible to distinguish shoal water or breakers.

West (London) Reef (Lat. $8^{\circ} 51' N.$, Long. $112^{\circ} 12' E.$) is about 4 miles in extent with several detached coral heads dry at low water around its edge. In the center of the reef there are depths of 6 to 10 fathoms, with several coral heads. The only approach to the center is from the southeast side, but so many coral patches exist that the navigation is hazardous. On the eastern side of the reef is a sand cay, 2 feet high.

Central Reef is a coral patch awash $\frac{1}{2}$ mile in extent, with a shallow lagoon within the belt of coral, at 9 miles northeastward of West Reef. On the southwestern extremity of the reef is a sandbank, probably covered at high-water springs.

This reef lies directly in the track of vessels working up or down the China Sea. It is not always marked by breakers, like those which so readily point out the positions of East and West London Reefs.

East (London) Reef, 16 miles eastward of West Reef, is 7 miles in length, east and west, and from 1 to 2 miles in breadth. The coral around its edges inclose a lagoon, having depths of 4 to 8 fathoms, with many rocky heads; no entrance into the lagoon was discovered. The sea breaks heavily on the reef, and on its western extremity are one or two rocks which seldom cover.

Quarteron Reef, the easternmost of the London Reefs, at about 10 miles eastward of East Reef, is awash, crescent-shaped, about 3 miles in length, and very steep-to. Although deep water is found close to all of these reefs, there was generally some slope from the edges, on which the surveying vessel could anchor with safety for a

short period to enable the position to be fixed, but on Cuarteron Reef no anchorage could be found, it being "steep-to" all around.

The Fiery Cross or Northwest Investigator Reef is a coral reef having several dry patches, upon most of which the sea breaks even in light winds, or with a slight swell. It is 14 miles in length, northeast and southwest, and 4 miles in breadth. The largest dry patch is at its southwestern end in Lat. $9^{\circ} 32' N.$, Long. $112^{\circ} 52' E.$

Dhaille Reef, reported in 1826 to exist in Lat. $9^{\circ} 32' N.$, Long. $112^{\circ} 24' E.$, is considered to be identical with one of the neighboring reefs. In this locality a depth of 1,060 fathoms is charted.

Discovery Great Reef, the southern point of which lies east-northeastward 55 miles from Fiery Cross Reef, in Lat. $10^{\circ} 1' N.$, Long. $113^{\circ} 51' E.$, is a narrow coral reef, about 7 miles in length, the greater part of which dries at low water, but with several large rocks always showing; in the center is a lagoon, which appeared to be shallow, and to have no passage leading into it. No bottom was found with 100-fathom line within a short distance of any part of the reef, except off its northern end, where the surveying vessel anchored in 42 fathoms nearly $\frac{1}{2}$ mile from the rocks.

The Hainan Island fishermen reported a reef or shoal lying 10 miles northeastward of Discovery Great Reef, but depths of 40 fathoms, no bottom, have been found in that locality.

Discovery Small Reef, lying about 10 miles eastward from the south point of Discovery Great Reef, is a round coral patch, 670 yards in diameter, dry in places at low water, with very deep water all round.

Western or Flora Temple Reef (Lat. $10^{\circ} 15' N.$, Long. $113^{\circ} 37' E.$) is the westernmost reef in this part of the China Sea, and dangerous, having patches of rock just under water at the southwestern part and from 1 to 3 fathoms in other places. It is a narrow reef, 1.5 miles in length, northeast and southwest, with depths of 20 to 70 fathoms close-to, and no bottom at 200 fathoms at a short distance.

Tizard Bank, with reefs and islands.—Tizard Bank lies about 16 miles northeastward of Discovery Small Reef. Like most of the large coral banks in the China Sea, it consists of a lagoon bordered by reefs dry at low water, two with islands on them, and a third with a sand cay. The bank is about 30 miles in length in an east and west direction, with an average breadth of about 8 miles. In the lagoon are several coral heads of 5 to 6 fathoms. The tops of the few trees on the islands may possibly be seen from a distance of 8 to 10 miles.

Hainan fishermen, who subsist by collecting trepang and tortoise shell, were found upon most of these islands; some of them remain for years amongst the reefs. Junks from Hainan (Tonkin Gulf) annually visit the islands and reefs of the China Sea with supplies of rice and other necessaries, for which the fishermen give trepang and

other articles in exchange; the junks leave Hainan in December or January and return with the first of the southwest monsoon. The water found in the well on Ita Aba Island was better than elsewhere.

Itu Aba (Lat. $10^{\circ} 23' N.$, Long. $114^{\circ} 21' E.$), the larger of the two islands, lies at the northwestern corner of Tizard Bank, and is $\frac{3}{4}$ mile in length. The reef surrounding it extends in some places nearly $\frac{1}{2}$ mile, its limits being generally defined by a line of breakers. The island is covered with small trees and bushes, and there are a few coconut and plantain trees near a well, the tops of which are about 25 feet above the sea.

Sand Cay.—About 6 miles eastward of Itu Aba Island is a sand cay, near the center of a reef $\frac{3}{4}$ mile in diameter. This cay, which was a mere patch of sand when visited by H. M. surveying vessel Rifleman in 1867, had bushes on it about 9 feet high; when seen from H. M. S. Rambler in 1888, their tops were about 15 feet above high water.

The island and cay are connected by a line of shallow patches; nearly midway between is a reef about 1,400 yards in diameter, covered at high tide. Elsewhere on the northern edge of the bank there is a depth of not less than 4 fathoms, and vessels may safely anchor in 7 to 10 fathoms about midway between the sand cay and the reef last described.

Petley Reef, an oval-shaped patch about a mile in extent, forms the extremity of a ledge of coral, about 1.3 miles wide, projecting nearly 5 miles in a northerly direction from the northern side of the bank, and with irregular depths; no bottom could be obtained with 100 fathoms at a short distance on either side of the ledge.

Eldad Reef forms the eastern extremity of Tizard Bank. It is 4.5 miles in length, from 200 yards to nearly a mile in breadth, and steep-to on its northern and southern sides; a ridge, about 1 mile in length, extends northeastward of the reef, with depths increasing from 8 to 45 fathoms, beyond which it drops sharply to 100 fathoms and more. A few large rocks on Eldad Reef are always visible, and at low water many smaller ones uncover.

Nam yit Island (Lat. $10^{\circ} 12' N.$, Long. $114^{\circ} 21' 30'' E.$), on the southern side of Tizard Bank, is 600 yards in length by 200 yards in breadth, and surrounded by a reef which projects more than a mile to the westward and about 670 yards in other directions. It is about 20 feet in height and covered with small trees and bushes.

Gaven Reefs, two in number, form the southwestern extremity of Tizard Bank; they are each about 1 mile in extent, covered at high water, and about 2.5 miles apart, with coral heads between.

Anchorage—Directions.—The above comprise the whole of the shallow dangers found on Tizard Bank, and with the exception of a 3-fathom patch, about a mile northeastward of Nam yit, nothing less than 4 fathoms was discovered on any of the shoal patches surround-

ing the lagoon. Vessels of moderate draft can, therefore, in cases of necessity and in fine weather, find convenient anchorage, observing always due care and caution in approaching them, so as to guard against possible danger from some shoal spot having escaped detection by the lead.

Loai ta Bank extends 21 miles in a northeast and southwest direction and is 7 miles wide near its middle, tapering toward the ends.

Loai ta Island (Lat. $10^{\circ} 41' N.$, Long. $114^{\circ} 25' E.$) lies 10° distant 18 miles from Itu Aba Island on Tizard Bank. It is a sand cay, 300 yards in diameter, covered with bushes, and surrounded by a reef extending in some places nearly $\frac{1}{2}$ mile.

A reef, about 1.3 miles in extent, dry at low water, with a sand cay near the center, lies 5 miles northwestward of Loai ta Island. Another reef about 1.8 miles in extent, lies $\frac{3}{4}$ mile to the southwestward of the one just mentioned. Not less than 4 fathoms was found anywhere on the northern edge of Loai ta Bank.

Lan kiam Cay and adjacent reefs.—A coral patch, $\frac{1}{2}$ mile in extent, partly dry at low water, lies 75° distant 2 miles from Loai ta Island; and 67° distant about 6.8 miles from the same island, is a reef $\frac{3}{4}$ mile in diameter, having a sand cay near its center, known to the Hainan fishermen as Lan kiam.

At 3 and 4.5 miles northeastward from Lan kiam are two coral reefs which dry at low water, forming the southeastern extremity of Loai ta bank; no shallow reefs were found northward of these, though they may exist, the least depth being 6 fathoms near the northern end.

Thi tu Island and reefs consist of several dangerous patches upon two coral banks, 12 miles in length, separated by a narrow and deep channel.

Thi tu (Lat. $11^{\circ} 3' N.$, Long. $114^{\circ} 16\frac{1}{2}' E.$) is a low sand island, about 800 yards in length, situated on the reef which forms the eastern extremity of the western bank. There are a few coconut and plantain trees near a small well.

Banks.—The western bank is 7 miles in length, with a maximum breadth of about 3.3 miles; its northern side is marked by a round coral reef, $\frac{3}{4}$ mile in diameter, between which and the island reef are depths of $2\frac{1}{2}$ to 6 fathoms.

A sand cay lies on the northwestern edge of the bank, on a reef dry at low water and about 1.5 miles in extent; between it and the western extremity of the bank are reefs, nearly always marked by breakers. There is a passage into the lagoon between the sand cay reef and the reef eastward of it, with depths of 5 fathoms.

The southern extremity of the bank is marked by a small reef, situated 2 miles southwestward of the island.

The southern side of the bank is not nearly so dangerous as the northern side, and vessels may anchor upon it, with the sand cay on the northwestern side bearing between 36° and 328° , or to the eastward of the small reef on its southern extremity, where there is not less than 4 fathoms. In the lagoon the depths are as much as 19 fathoms.

The eastern bank is a mass of reefs and patches 4.5 miles in length, with a breadth of 2 miles; its western extremity is about 1,400 yards eastward of Thi tu Island reef.

Subi Reef (Lat. $10^\circ 54'$ N., Long. $114^\circ 7'$ E.), the northern end of which lies southwestward 12.5 miles from Thi tu Island, is an irregular shaped coral reef, 3.5 miles in length by 2 miles in breadth, dry at low water, and has a lagoon, into which there appears to be no passage; it usually breaks and is apparently steep-to.

North Danger Reef, of coral formation, is about 8.5 miles in length, northeast and southwest, 4.5 miles in breadth, and situated from 20 to 28 miles northward of Thi tu Islands.

On its northwestern side are two sand cays, each about $\frac{1}{2}$ mile in length; northeast cay, the northern one (Lat. $11^\circ 28'$ N., Long. $114^\circ 21'$ E.) is 10 feet high, and the southern 15 feet. Between the cays is a passage 1 mile wide, with depths of about 5 fathoms leading into the lagoon of the reef, where the depth is from 20 to 27 fathoms.

Shallow water exists all round the edge of North Danger Reef, and there are heavy breakers over the coral, awash at its northeastern and southwestern extremities. No bottom could be obtained close to the edge of the reef with upward of 100 fathoms of line.

Both cays are covered with coarse grass, and on the northeastern of the two is a stunted tree. The cays are frequented by Chinese fishermen from Hainan, who collect *bêche-de-mer*, turtle shell, etc., and supply themselves with water from a well in the center of the northeastern cay.

Trident Shoal, lying 16 miles eastward of North Danger, is composed of coral, and is 7.5 miles in length by 6 miles in breadth; there are many patches on this shoal with less than 10 fathoms water over them, two of which are very shallow. The patches lie around the edge of the shoal, forming a lagoon, the depths in which are 20 to 35 fathoms; close outside the shoal there is no bottom at 100 fathoms.

The shallowest patch, situated at the northern extremity of the shoal, is about 2 miles in length, east and west, having near its center (Lat. $11^\circ 31'$ N., Long. $114^\circ 39'$ E.) a spot which dries at low water springs; the depths on other parts of the patch vary from 1 to 5 fathoms. Another shallow patch lies at the eastern extremity, with a least depth of $2\frac{1}{2}$ fathoms. A depth of 4 fathoms was found on a head about a mile southwestward of the northern patch, but not less than 5 fathoms on any of the other patches.

Lys Shoal, about 5 miles in length, lies 2 miles southward of Trident Shoal, and like the latter is formed of a number of patches under 10 fathoms, with a lagoon in the center. A spot of $2\frac{1}{2}$ fathoms was found, near the southwest extremity of the bank. Some 5-fathom patches exist near the northeast end of the bank, but nothing under 6 fathoms was discovered elsewhere; the bank is steep-to.

Reported Reef.—A reef on which the steamer *Kasenga*, drawing 16 feet of water, touched, is reported (1910) in Lat. $11^{\circ} 50' N.$, Long. $114^{\circ} 37' E.$, about 26.5 miles 39° from northeast cay, North Danger Reef.

WESTERN SIDE OF MAIN ROUTE—ISLANDS AND DANGERS.

Charlotte Bank, in Lat. $7^{\circ} 8' N.$, Long. $107^{\circ} 35' E.$, is the first bank met with on the western side of the main route northward of the Anamba Islands. It has a least depth of 5 fathoms, with from 32 to 40 fathoms around it, and is about 4 miles in length, east and west, by 2 miles in breadth.

Scawfell Shoal, originally reported in 1865 as a patch of $7\frac{1}{2}$ fathoms, practically in the position since found to be in, has a least depth of 5 fathoms, coral, near its center; it is $\frac{1}{2}$ mile in length, east and west, by $\frac{1}{4}$ mile in breadth, within the 10-fathom curve, and situated in Lat. $7^{\circ} 18' N.$, Long. $106^{\circ} 51' E.$ The shoal at the time of examination by the *Waterwitch* in 1908 was not marked by discolored water nor by overfalls.

Pulo Condore Group, known as *Connon* by the Cochin Chinese, consists of about a dozen islands, situated about 45 miles from the coast of Cambodia, in the track of vessels proceeding between Singapore and Saigon River; their north extremity is distant 97 miles from Cape St. James, at the entrance to that river.

The principal island (Lat. $8^{\circ} 41' N.$, Long. $106^{\circ} 36' E.$) is nearly 9 miles in length, northeast and southwest, from 2 to 4 miles in breadth, and is formed of a ridge of mountains the summit being flat-topped and 1,954 feet above high water. The eastern side is divided into two bays by a rocky peninsula, the northern of which is completely opened to the eastward; on the western side is Southwest Bay. Pulo Condore is encompassed by several smaller islands, which are mostly high and covered with trees, the highest attaining an elevation of 1,076 feet. The peak on Little Condore, 800 yards westward of the Gullet, forms an excellent landmark from the southward or westward.

Settlement—Supplies.—The French have established a fortified post and a penal settlement at the village in Great or East Bay. A small pier fronts the village. The island is but thinly populated, but it furnishes plenty of fruits and abounds with timber. The natives

Annex 395

U.S. Hydrographic Office, *Asiatic Pilot: Sunda Strait and the Southern Approaches to China Sea with West and North Coasts of Borneo and Off-Lying Dangers*, Vol. V (1915)

No. 126

ASIATIC PILOT

Volume V

SUNDA STRAIT AND THE SOUTHERN APPROACHES TO
CHINA SEA WITH WEST AND NORTH COASTS
OF BORNEO AND OFF-LYING DANGERS

PUBLISHED BY THE HYDROGRAPHIC OFFICE
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FIRST EDITION



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1915

MINNESOTA
HISTORICAL SOCIETY

In 1911 the population numbered about 2,000.

There is a native hospital, several churches, and Government offices.

A resident lives at Kudat, and also officials of the North Borneo Co. The residency is near the point, half a mile westward of Tanjong Bornugus, and has a flagstaff and small pier.

Jetty.—Vessels of 16 feet draft can lie afloat alongside the jetty at the south extreme of the settlement.

Trade.—The chief exports are tobacco, catch, timber, camphor, and beeswax. Over 1,125,000 pounds of tobacco are shipped annually to Europe.

Shipping.—In 1910 the number of vessels entered was 169.

Communications.—The North German Lloyd steam vessels, trading between Singapore and Sandakan, call every two weeks, and those trading between Singapore and Hongkong call monthly. Frequent communication by local steamers is maintained with Sandakan.

Kudat is connected by telegraph with Labuan, Jesselton, and Sandakan, and with the world in general via Labuan by submarine cable.

Supplies.—The water supply is not good; none is obtainable for shipping. Beef is fairly plentiful and good; fowls are plentiful and cheap; vegetables and bread are scarce. There is no coal.

Climate.—The mean maximum temperature is 87° F. and the mean minimum 74°. From May to August the temperature reaches 92° at times. Rainfall is about 130 inches. December to March are the most rainy months, about 85 inches falling in that period; the remainder is distributed over the other months. The southwest monsoon is the most unhealthy period at Kudat; fever is then prevalent and rather severe; whilst at the opposite season, with the wind coming across the sea, it is almost absent.

PALAWAN PASSAGE.

General remarks.—The dangers near the coast of Palawan Island are described with the coast in Philippine Islands Sailing Directions, Sections VI and VII, issued by the U. S. Coast and Geodetic Survey, for the assistance of vessels navigating inshore, though with the present small scale chart, it is not recommended that this should be done without local knowledge, unless obliged to enter the ports of western Palawan.

The dangers near the edge of the bank, with depths of less than 100 fathoms, which fronts the coast of Palawan to the distance of 15 to 30 miles, and forms the east side of Palawan Passage, have been described in groups, with the coast abreast which they lie, as the land is in sight from them.

Those bordering that portion of the China Sea charted as "Dangerous ground," and which form the western side of Palawan Pas-

sage, will now be described, followed by those included in the "Dangerous ground," from Ardasier Bank, near the south extreme round northward, westward, and southward to the same bank.

Dangers on the western side of Palawan Passage.—**Half-Moon Shoal** has a rock named the Inclined Rock (latitude $8^{\circ} 51'$ north, longitude $116^{\circ} 16'$ east), which always shows above water, on its southeastern side. The shoal, formed by a belt of coral even with the water's edge, of an average width of about 200 yards, is of oblong shape, nearly 3 miles in length, in a northeast and southwest direction, with a breadth of 1 mile. On the eastern side, at 400 and 1,000 yards southward of the Inclined Rock, there are two channels into the lagoon, the southernmost of which has a depth of 4 to 9 fathoms, and is marked by a cluster of rocks on its north side awash at half tide, and which generally show. Other half-tide rocks are interspersed over the belt. The average depth in the lagoon is 14 to 16 fathoms, with numerous patches of coral scattered about it. From the shoals, Balabac Peak (not in sight) bears 141° , distant 71 miles.

Tides.—It was high water, five days after full and change, at Half-moon Shoal at 10h. 45m., and the rise about 4 feet.

Royal Captain Shoal lies 69° about 24 miles from Half-Moon Shoal, contracting Palawan Passage, which is here the narrowest part, to about 27 miles between it and the shoal heads on the bank southward of Paragua Ridge. Observation Rock, at its north extremity, shows at half tide, is in latitude $9^{\circ} 02'$ north, longitude $116^{\circ} 39'$ east, and from it Bulanbau Mountain bears 120° , distant 48 miles. In clear weather the high land of Mantalinghan is visible from this distance.

The shoal is elliptical, the length being 1.75 miles in a northwest and southeast direction, with a breadth of 1 mile. The coral belt, on which a few rocks are visible at low water, is covered at high water, and varies in width from 100 to 400 yards. There are depths of 15 to 17 fathoms, sand and coral, with several coral patches in the lagoon. There is no entrance, but at high water a boat can cross the belt. The outer edge is steep-to, having no bottom, with upward of 100 fathoms within 100 yards of the reef.

Bombay Shoal lies 31° about 30 miles from the Royal Captain Shoal, and is steep-to. From Madagascar Rock, on its northeast extreme, in latitude $9^{\circ} 26'$ north, longitude $116^{\circ} 56'$ east, which shows at half ebb, Mantalingahan Mountain bears 130° , distant 56.5 miles, and is visible in clear weather.

This shoal is circular in shape, and about 1 mile in diameter. The lagoon, in which there are depths of 16 to 18 fathoms, sand, is completely inclosed by the coral belt, on which three or four rocks show

at half tide, the most conspicuous being at the northwest and west extremes of the shoal.

Tides.—It was high water, seven days after full and change, at the Bombay Shoal, at noon; rise about 4 feet. While the tide was rising, the current was observed setting to the northeastward.

Carnatic Shoal, charted 31° true, 47 miles from Bombay Shoal, is referred to with other doubtful shoals below.

Seahorse or Routh Shoal, forming the northernmost known danger on the western side of Palawan Passage, was examined by the surveying vessel *Rifleman*. It is a pear-shaped coral bank 8 miles in length in a north-northeast and opposite direction and from 3 to 4.5 miles in breadth. The least known depth is $4\frac{1}{2}$ fathoms, which was found on a patch about three-quarters of a mile in extent at the north extreme of the bank, in latitude $10^{\circ} 50'$ north, longitude $117^{\circ} 47'$ east.

No less depth than 6 fathoms was obtained on any of the other patches surrounding the lagoon. The depths in the lagoon vary from 17 to 20 fathoms at the edge to 35 fathoms in the center.

Dangerous ground.—Shoals, the positions of which are only approximate, lying out of the tracks recommended for vessels:

Caution.—The shoals lying in and bordering the main route through the China Sea will be found in the Asiatic Pilot, Volume IV. The shoals about to be described lie out of the tracks recommended for shipping, and the following valuable observations of Horsburgh should be carefully attended to:

The archipelago of sand banks, rocks, or reefs above and under water lying between the coast of Palawan and Pulo Sapatu is so extensive and the dangers that form it so numerous that there can be little utility in entering into a minute description of them, for, indeed, they ought to be avoided by all navigators. No vessel can enter within the limits of this dangerous archipelago, marked by a pecked line, without getting embarrassed amidst the shoals. There are strong currents or irregular tidal streams among them, which render a vessel's position very uncertain when observations can not be obtained. Although some vessels have with difficulty and risk passed through them, others have struck or lost their anchors amongst the extensive coral flats, and many have been wrecked.

Most of the disasters which have happened to shipping in this portion of the China Sea have been consequent upon a disregard of the above advice.

Order in describing.—In the following descriptions we shall first refer to those shoals which lie near the Palawan Passage, beginning from the south extreme, near Ardasier Bank and following the bank around northeastward to the northwest end of Palawan Passage, thence westward and southward to the same bank.

Note.—The original reports of many of these shoals will be found in the nautical magazines in the year or that following the dates herein given.

Breakers were reported to have been seen in 1860 in latitude $7^{\circ} 38'$ north, longitude $113^{\circ} 53'$ east (westward of Ardasier Bank), by Mr. Dallas while proceeding from the wreck of the *Fiery Cross* to Labuan in the boats. (See Lizzie Webber Shoal, described below.)

Mariveles Reef.—The Spanish steam vessel *Mariveles*, 1879, struck on a coral reef reported to lie in latitude $7^{\circ} 58'$ north, longitude $113^{\circ} 50'$ east. This reef is said to be about 4 miles in length, 2 miles in breadth, and to be nearly awash, with a depth of 54 fathoms close-to.

Gloucester and Ardasier Breakers are two doubtful shoals; the former is placed upon the chart in latitude $7^{\circ} 50'$ north, longitude $114^{\circ} 15'$ east, and the latter in latitude $7^{\circ} 56'$ north, longitude $114^{\circ} 02'$ east. It is probable that these reported dangers, including the breakers mentioned above, form part of Ardasier Bank.

Investigator Shoal, examined by Capt. Crawford, of the Indian navy surveying vessel *Investigator*, in 1813, is about 20 miles in length, east and west, by 4 miles in breadth; its western extreme is in latitude $8^{\circ} 05'$ north, longitude $114^{\circ} 31'$ east.

Cay Marino is a doubtful shoal, charted in latitude $8^{\circ} 30'$ north, longitude $114^{\circ} 21'$ east.

Southwest and Northeast Shea Shoals were seen by Mr. Shea, commanding the *Buckinghamshire*, in 1833. The first shoal appeared to consist of two reefs of rocks, with high breakers, extending 1.5 miles east and west and half a mile north and south, the center of which was found to be in latitude $7^{\circ} 59'$ north, longitude $114^{\circ} 52'$ east.

The other shoal appeared to consist of two dry white banks, with a ridge of rocks extending from them to the westward about 2 miles, which was considered to be in latitude $8^{\circ} 30'$ north, longitude $115^{\circ} 15'$ east.

North Viper Shoal, or Seahorse, reported to be about 5 miles in extent, with rocks above water, is charted in latitude $8^{\circ} 02'$ north, longitude $115^{\circ} 23'$ east. The reported position of this shoal was not examined by the *Rifleman*. The *Saracen* passed near it without seeing any appearance of shoal water, but from the following account of a reef seen by Mr. Baird this danger would appear to lie 17 miles 7° from its ascribed position on the chart.

Commodore Reef.—Mr. Hugh Baird, commanding the ship *Commodore*, reported as follows:

On 22d December, 1862, at 8 a. m., saw what I took to be the North Viper shoal, or Seahorse, the northeast end bearing by compass north-northwest 3 miles. It seemed to extend over 3 miles northeast and southwest, and to be composed of partly dry sand, with several rocks from 20 to 30 feet above water, and heavy breakers all around it. At noon it bore west by south, distant about 6 miles. Observations placed the shoal in latitude $8^{\circ} 22'$ north, longitude $115^{\circ} 25'$ east.

Glasgow Bank.—Mr. Baird, commanding the ship *Glasgow*, 1865, is said to have discovered a bank in latitude $8^{\circ} 29'$ north, longitude $115^{\circ} 31'$ east. It apparently extended from this position for a distance of 3 miles to its northeast edge, and was composed of sand and rocky heads, in some places 20 to 30 feet above water. It is possibly identical with Commodore Reef.

Director Shoal.—The British bark *Director*, on November 8, 1887, when bound from Singapore to Shanghai, is reported to have struck on a shoal in latitude $8^{\circ} 28'$ north, longitude $115^{\circ} 56'$ east.

Alicia Annie Shoal.—Capt. R. Kirby, 1865, reported having seen a reef in latitude $9^{\circ} 25'$ north, longitude $115^{\circ} 19'$ east, of lagoon form, 3 miles in length, northwest and southeast. It had a low sand bank at its northwest end and a reef of rocks at its southeast extreme, with several detached rocks around. Soundings were tried for at a quarter of a mile from the southeast end, but no bottom was found with 100 fathoms of line. First Thomas shoal was made the next day, and the chronometer showed it to be 2 miles west of its position on the chart. Two shoals, marked Pennsylvania, are charted between this shoal and Northeast Shea Shoal.

First and Second Thomas Shoals appear by the chart to have been seen in 1839. The first is placed in latitude $9^{\circ} 18'$ north, longitude $115^{\circ} 53'$ east; the second is shown as being 9 or 10 miles in length and 4 miles in breadth; its southern part is charted in latitude $9^{\circ} 41'$ north, longitude $115^{\circ} 47'$ east.

Investigator Northeast Shoal, reported in latitude $9^{\circ} 12'$ north, longitude $116^{\circ} 23'$ east, apparently awash.

Pennsylvania and Sabina Shoals.—One of the many doubtful Pennsylvania Shoals is placed on the chart about 19 miles northward of Investigator Northeast Shoal, in latitude $9^{\circ} 32'$ north, longitude $116^{\circ} 22'$ east, and there are three other patches of that name about 10 miles north and northeastward of Sabina.

Sabina Shoal, charted in latitude $9^{\circ} 42'$ north, longitude $116^{\circ} 34'$ east, was discovered by the master of the *Sabina* in 1836, who saw "rocks with the sea breaking over them." It is probably identical with one or more of the above.

Mr. E. Routh, commanding the *Bombay* (1837), with the *Henry Clay* in company, sighted breakers, which his observations placed nearly in the position of Sabina Shoal.

Other Pennsylvania Shoals—Brown Shoals.—Another Pennsylvania shoal is placed on the chart in latitude $10^{\circ} 23'$ north, longitude $116^{\circ} 33'$ east; and yet another, the Pennsylvania North Reef, in latitude $10^{\circ} 49'$ north, longitude $116^{\circ} 50'$ east. (Horsburgh places this shoal in longitude $117^{\circ} 10'$ east.) The positions of these are very doubtful, and it is probable that the shoals seen by

Mr. Brown commanding the *Arabian*, in 1838, were the same. The following is his account of them (in *Nautical Magazine*, 1838, p. 721):

On January 8, 1838, at 10.30 a. m., passed close to windward of a coral patch, with apparently 5 or 6 fathoms water over it, in latitude $10^{\circ} 30'$ north, longitude $116^{\circ} 41'$ east. Wind was fresh, with a good deal of sea.

Same day, at 3.30 p. m., came suddenly into shoal water. Saw the rocks very distinctly under the bottom, had several casts of about 5 fathoms. We appeared to be on the southern edge of a coral flat, extending northeast and northwest from us for some miles. By sights taken immediately we came off the shoal; this part of it lies in longitude $117^{\circ} 0'$ east, or 4' east of the Bombay Reef, which we left yesterday; latitude $10^{\circ} 35'$ north, which we observed at noon.

The following day at 9 a. m., came again into shoal water; rocks seen close to our keel, but before we could get the lead forward we had passed over the ridge into 28 fathoms. From 9 a. m. to 11.30 a. m. ran 8 miles on a north-northwest course over irregular coral bottom, least water, by the lead, 11 fathoms, but at times we apparently had much less from the proximity on the coral rocks. We entered upon this flat in latitude $10^{\circ} 39'$ north, longitude $117^{\circ} 24'$ east; came off in latitude $10^{\circ} 46'$ north, longitude $117^{\circ} 19'$ east. The longitude computed from a series of sights before and after noon; the latitude by a good meridian altitude, four observers, and clear weather. In passing over this bank the water appeared very shoal east and west of us, lying in ridges in that direction.

Carnatic Shoal is charted 31° , 47 miles from Bombay Shoal, in latitude $10^{\circ} 06'$ north, longitude $117^{\circ} 21'$ east, and is said to have as little as $3\frac{1}{2}$ fathoms water on it. The British surveying vessel *Royalist*, in 1853, could not discover the shoal in the position assigned to it, or succeed in obtaining soundings with from 100 to 200 fathoms of line when in the neighborhood.

Lord Auckland Shoal appears on the chart as a bank with from 8 to 30 fathoms water. The 8-fathoms part is in latitude $10^{\circ} 21'$ north, longitude $117^{\circ} 15'$ east.

Fairy Queen Shoal, with 9 fathoms water, is charted in latitude $10^{\circ} 39'$ north, longitude $117^{\circ} 38'$ east.

A sandy shoal is charted in latitude $11^{\circ} 02'$ north, longitude $117^{\circ} 37'$ east, near the northeast extreme of the "Dangerous ground."

Templer Bank.—The *Minerva* passed over a bank in November, 1835, having from 10 to 12 fathoms water. The bank appeared to extend about 4 miles north and south, and as no discolored water was seen to the eastward, but several apparently shoal patches were perceived to the westward, it is supposed that the vessel passed over the eastern part of the bank. The center of the bank is charted in latitude $11^{\circ} 07'$ north, longitude $117^{\circ} 13'$ east.

Amy Douglas Shoal.—The *Amy Douglas*, 1860, passed over a shoal about noon, in latitude $10^{\circ} 52'$ north, longitude $116^{\circ} 25'$ east, ascertained from good observations. The water was observed to

be discolored for about a mile on each side of the ship, and, on sounding, a depth of 14 fathoms was obtained. The master was of opinion that the water was much shallower to the westward of the ship.

Reed Bank.—The *Rifleman* obtained soundings of 47 fathoms on a coral bank in latitude $11^{\circ} 28'$ north, longitude $116^{\circ} 46'$ east; steering 105° , 3 miles farther, had 44 fathoms, and shortly afterwards 12 fathoms on a coral patch in latitude $11^{\circ} 26'$ north, longitude $116^{\circ} 53'$ east. Continuing the same course, the depths were 42 fathoms for a distance of 5 miles, when the water deepened.

Marie Louise Shoal.—The German bark *Marie Louise*, 1885, passed over a shoal in latitude $11^{\circ} 55'$ north, longitude $116^{\circ} 51'$ east. A sounding was obtained in 15 fathoms, the bottom being seen and remaining visible for a distance of 600 or 800 yards; this is outside and northward of the pecked line inclosing the "Dangerous ground."

West York Island, so named from the vessel wrecked on it in 1905, is situated in latitude $11^{\circ} 05' 15''$ north, and longitude $115^{\circ} 1' 30''$ east, near the northwest part of the "Dangerous ground," about 50 miles east-southeastward from North Danger Islands. It is of coral formation, and about 1 mile in length by half a mile in breadth, and 15 feet in height. On it are a few coconut trees and some other vegetation, and it is frequented by turtle and sea birds.

A coral reef surrounds this island, which extends a quarter of a mile off-shore on its east side, and fully 2 miles to the southward. Anchorage was obtained by the United States vessel *Nanshan*, in 14 fathoms, with the north point of West York Island, bearing 205° , distant 2.5 miles. Chinese fishermen from Hainan appear to frequent it during the latter part of the northeast monsoon to gather trepang, as a josshouse, and three graves were found on the island, as well as an old iron cannon. Some remains of wrecks were also seen.

A note on the chart states that numerous dangers exist in this neighborhood.

Flat Island is a low sand cay about 250 yards across, and surrounded by a reef, which extends 2 to 3 miles from the cay in an easterly direction. The cay is charted in latitude $10^{\circ} 49'$ north, longitude $115^{\circ} 51'$ east, and about 16 miles southeast of its originally reported position. The *Nanshan* passed over that position without seeing any danger there.

Third Thomas Shoal is charted in latitude $10^{\circ} 52'$ north, longitude $115^{\circ} 55'$ east, northeastward of Flat Island.

Mischief.—Two reefs, marked on chart "Mischief, 1861," are charted about 25 and 57 miles southward of Third Thomas, the

second being about 10 miles northward of Second Thomas Shoal, before mentioned.

Nanshan Island, situated in latitude $10^{\circ} 42' 15''$ north, longitude $115^{\circ} 49' 30''$ east, is about 600 yards across, and appeared to be covered with small trees.

Ganges Reefs.—About 35 miles southward of West York Island is Ganges North Reef, charted in latitude $10^{\circ} 32'$ north, longitude $115^{\circ} 08'$ east.

A Ganges Reef is also charted about 14 miles southward of the above, in latitude $10^{\circ} 18'$ north, longitude $115^{\circ} 04'$ east, and a third in latitude $9^{\circ} 22'$ north, longitude $114^{\circ} 11'$ east; all doubtful.

Pennsylvania Reef, one of a number of that name, on the "Dangerous ground," is charted in latitude $10^{\circ} 00'$ north, longitude $115^{\circ} 10'$ east.

Cornwallis Reef is shown as an extensive reef with rocks, just within the western edge of the "Dangerous ground," southward of Tizard bank and reefs, in latitude $10^{\circ} 00'$ north, longitude $114^{\circ} 23'$ east.

Sin Cowe Island is charted 18 miles southward of Cornwallis Reef, in latitude $9^{\circ} 42'$ north, longitude $114^{\circ} 22'$ east.

Fancy Wreck Shoal is charted in latitude $9^{\circ} 43'$ north, longitude $114^{\circ} 41'$ east.

Cornwallis South Reef is charted in latitude $8^{\circ} 50'$ north, longitude $114^{\circ} 11'$ east.

Pearson Reef was seen in 1843 by Mr. Pearson, commanding the *Bahamian*, who reported that he passed at about 3 miles from a shoal in latitude $8^{\circ} 28'$ north, longitude $113^{\circ} 40'$ east, which was about 2 miles in length in a north and south direction, with some rocks above water on the southern edge.

Lizzie Webber Shoal.—Mr. Dallas reported that while returning in a small vessel, the *Lizzie Webber*, to the wreck of the *Fiery Cross* in 1860 they struck upon a reef in latitude $8^{\circ} 04'$ north, longitude $113^{\circ} 12'$ east. This reef, which was very little under water, is a narrow strip of sand and coral lying in a northeast and southwest direction.

This shoal is supposed to extend about 25 miles to the northeastward of the above position, for Mr. P. Orr, commanding the bark *Canada*, reported as follows:

On December 24, 1864, at 12.30 a. m., the British bark *Canada* was wrecked on a reef in the China Sea—not marked on the charts. The ship's latitude brought on from the previous noon was $8^{\circ} 20'$ north, longitude $113^{\circ} 29'$ east. After leaving the ship we skirted the weather side of the reef until noon; when we cleared the south end I at that time got a meridian observation, which put us in latitude $8^{\circ} 3'$ north; we were then about 1 mile south of the reef, which is awash. I estimate the distance made in the boats from the time we left the ship till we cleared the south end of the reef to be 25 miles.

This latitude of the southern end of the shoal agrees within a mile with that of the *Lizzie Webber*.

This completes the circle of the "Dangerous ground."

DIRECTIONS FOR MAKING PASSAGES.

VESSELS WITH LOW STEAM POWER—OUTWARD ROUTE.

Singapore to Manila—Northeast monsoon.—An alternative route to the full-powered route above mentioned and for vessels of less power is, after passing westward of the Anambas (see Asiatic Pilot, Vol. IV), to steer about 30 miles westward of Prince of Wales Bank and North Danger Reef, thence direct.

Palawan Route.—Vessels with too little power to follow the alternative route taken by full-powered vessels in the northeast monsoon are recommended to take the Palawan Passage. On leaving Singapore pass southward of Pengibu (Victory) and Kayu Ara (Barren) Islands, then steer to sight the small island of St. Pierre, on which a light is now established (carefully observing and allowing for the set of the current), and afterwards steer for Api Passage, keeping toward Merundung Island rather than Tanjong Api. Having passed Merundung and Tanjong Datu, the course is clear up to the entrance of the Palawan Passage, passing between the South Luconia Shoals and Tanjong Barram and keeping as close as circumstances may make convenient to the Borneo coast until abreast of that point. Thence a course should be shaped to keep seaward of the 100-fathom edge of the bank fronting Palawan to Balabac Island; thence midway between the Royal Captain Shoal and the edge of the bank. This portion, about 28 miles in width, is the narrowest and most dangerous part of the channel.

If the wind be well to the southward and the weather thick, Balabac Island may be approached sufficiently near in order to obtain a good observation of the land, but caution is necessary not to go within 12 miles of it, as soundings of 26 and 20 fathoms extend that distance off, in a westerly direction from the peak, having shoal patches immediately inside them.

If the wind be to the westward, with thick, cloudy weather, Balabac Island should not be approached nearer than 30 miles, as westerly winds usually force a strong easterly current through the passages. Off the southwest end of Palawan it is not unusual, particularly in squalls, for the wind to veer to west-northwest, and sometimes northwest, blowing with violence and placing the vessel on a lee shore with respect to the shoals inside the edge of the bank. This weather generally prevails off the southwest end of Palawan about September and October, rendering it uncertain and difficult to make the narrowest part of the channel, owing to the land being obscured, especially

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United Kingdom, Hydrographic Department, *China Sea Pilot*, Vol. II (1st ed., 1936)

CHINA SEA PILOT

VOL. II

COMPRISING
THE WESTERN AND NORTH-WESTERN
COASTS OF BORNEO, THE PHILIPPINE
ISLANDS FROM BALABAK ISLAND TO
CAPE BOJEADOR IN LUZON, AND THE OUT-
LYING ISLANDS AND DANGERS IN THE
SOUTHERN AND EASTERN PARTS OF THE
CHINA SEA

FIRST EDITION, 1936

ALL BEARINGS ARE TRUE

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1937

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*Chart 2660b.***OUTLYING SHOALS AND DANGERS.—Southern dangers.**

—Lydie shoal, a small coral patch with a depth of 19 fathoms (24^m7), and with from 25 to 27 fathoms (45^m7 to 49^m4) around, lies about 71 miles west-north-westward from Tanjong Kidurong. 5

Parsons shoal, with a depth of 13 fathoms (23^m8) and James shoal, with a depth of 12 fathoms (21^m9), lie, respectively, about 14 miles eastward, and 16 miles east-north-eastward from Lydie shoal; both are composed of coral, and are of small extent. During the north-east monsoon a distinct line of tide-rips may be met in the vicinity 10 of, and westward of these shoals.

Chart 2107.

Acis shoals, found by H.M.S. *Acis*, in 1860, consist of two coral patches; the south-eastern shoal, with a depth of 8½ fathoms (16^m0), is situated about 39 miles north-westward from Tanjong Kidurong; 15 the north-western shoal, with a depth of 9½ fathoms (16^m9), lies about 6 miles further north-westward.

Chart 2108.

A 9½-fathom (17^m9) patch lies about 32 miles westward from Tanjong Batu (*Lat.* 4° 06' N., *Long.* 113° 48' E.); another, with a 20 depth of 10 fathoms (18^m3), is situated about 25 miles west-north-westward from the same point.

A bank, with a depth of 11 fathoms (20^m1), is situated about 13½ miles westward from Tanjong Lobang.

Chart 2660b.

Sierra Blanca reef, on which the s.s. *Sierra Blanca* is reported to have struck in 1908, is charted about 89 miles westward from Tanjong Baram (page 91); the existence of this reef is doubtful. A sandy patch, which dries, was reported, in 1925, about 25 miles south-south-westward of the charted position of Sierra Blanca reef, and dis- 30 coloured water, the existence of which is doubtful, was reported, in 1923, about 13 miles south-eastward from the same position.

South Luconia shoals.—South Luconia shoals, consisting of a number of coral reefs, lie northward and north-eastward of the charted position of Sierra Blanca reef; they are steep-to, break in places, 35 and can usually be seen from aloft.

Herald reef, the southernmost shoal, situated about 84 miles west-north-westward of Tanjam Baram, is a small atoll reef about 4 cables in diameter, with depths of less than 3 fathoms (5^m5) on the reef, and 30 fathoms (54^m9) on the centre. This reef is steep-to and very 40 difficult to discern.

Luconia breakers, which dry, and on which the sea breaks heavily, is situated about 3½ miles north-eastward of Herald reef.

Stigant reef (*Lat.* 5° 02' N., *Long.* 112° 29' E.), situated about 9 miles west-north-westward of Herald reef, is horseshoe shaped, and 45 has general depths of from 2½ to 6 fathoms (4^m6 to 11^m0); a patch, with a depth of 16 feet (4^m9), lies near its north-western extreme.

Richmond reef, with a least known depth of 16 feet (4^m9) near its centre, is a ridge about 2 miles long in a north-north-easterly and south-south-westerly direction; it is situated about 2½ miles north- 50 eastward of Luconia breakers.

A shoal, with a least depth of 4½ fathoms (8^m2), coral, lies about 13 miles eastward of the northern part of South Luconia shoals.

Chart 2660b.

Connell reef, with a least depth of 27 feet (8^m2), is situated about $6\frac{1}{2}$ miles north-westward of Richmond reef.

The area between the South Luconia shoals has not been examined and other reefs may exist.

North Luconia shoals.—North Luconia shoals lie about 100 miles north-westward from Tanjong Baram and from 15 to 52 miles northward from South Luconia shoals; they were partly examined by H.M.S. *Rifleman*, in 1866, and found to consist of a great number of coral reefs and shoals with no safe passages between them. The channel between South and North Luconia shoals, and the space westward of the latter have not been examined.

Hayes reef, the southernmost of the North Luconia shoals is a small steep-to reef which dries; it breaks heavily in all weathers.

15 Seahorse breakers, with depths of from 2 to 6 fathoms (3^m7 to 11^m0), are steep-to on their eastern side. They are situated about 10 miles north-north-westward of Hayes reef. A detached coral reef lies close southward, and a small patch, which dries, on which the sea breaks heavily, is situated about 2 miles westward of Seahorse breakers.

20 Friendship shoal, the northernmost of the Luconia shoals, has a least known depth of $4\frac{1}{2}$ fathoms (8^m2), but shoaler water may exist. The position of this shoal is approximately in Lat. $5^\circ 59' N.$, Long. $112^\circ 32' E.$

Northern dangers.—Louisa reef, situated in Lat. $6^\circ 20' N.$, Long. $113^\circ 14' E.$, about 50 miles east-north-eastward from Friendship shoal is composed of coral; it is from 4 to 6 feet (1^m2 to 1^m8) high. Close to this reef the depths are not less than 50 fathoms (91^m4).

Royal Charlotte reef is situated about 42 miles north-north-eastward from Louisa reef; it is nearly rectangular in shape; near its south-eastern side are some boulders from 2 to 4 feet (0^m6 to 1^m2) high, and some rocks, awash, lie on its north-eastern side.

Swallow reef is situated about 27 miles north-north-eastward from Royal Charlotte reef. This reef is formed by a narrow belt of coral surrounding a shallow basin; near its eastern end there are some rocks from 5 to 10 feet (1^m5 to 3^m0) high; there are also some rocks above water near its south-eastern side.

Ardasier bank, with a least known depth of $2\frac{1}{4}$ fathoms (4^m1), but which has only been partly examined, lies with its shoalest spot in Lat. $7^\circ 36' N.$, Long. $114^\circ 10' E.$

40 For dangerous ground northward and north-eastward of Ardasier bank, see pages 186-7.

Tidal streams.—In October, the tidal stream was observed to be setting west-north-westward near Louisa reef, at noon on full and change days.

45 *Chart 2108.***MIRI ANCHORAGE AND APPROACHES.—Dangers.**—

Between Tanjong Lobang (Lat. $4^\circ 22' N.$, Long. $113^\circ 58' E.$) and Tanjong Baram about 14 miles northward, the coast recedes forming a bight near the southern end of which, about $1\frac{1}{2}$ miles north-eastward from Tanjong Lobang, lies the entrance to the Sungei Miri (page 91).

50 A range of coast hills, about 300 feet (91^m4) high, extends about 4 miles north-north-eastward from Tanjong Lobang; northward of these the land is low, and where it has not been cleared, densely wooded.

Charts 1263.

Annex 397

United Kingdom, Hydrographic Department, *China Sea Pilot*, Vol. I (1st ed., 1937)

CHINA SEA PILOT

VOL. I

COMPRISING
THE WESTERN SHORE OF THE CHINA SEA FROM
TANJONG PENAWAR, ON THE EASTERN SIDE
OF JOHORE, TO FOKAI POINT, BIAS BAY ; THE
ANAMBA ISLANDS AND HAINAN ISLAND ; ALSO
THE ISLANDS AND BANKS BORDERING THE
MAIN ROUTE FROM SINGAPORE STRAIT TO
HONG KONG

FIRST EDITION, 1937

ALL BEARINGS ARE TRUE

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Chart 2661a.

Outlying shoal.—St. Esprit shoal (*Lat. 19° 33' N., Long. 113° 02' E.*) lies near the edge of the bank, with depths of less than 100 fathoms (182^m9) over it, which extends south-eastward from the 5 coast of China. The shoal, on which the least depth obtained was 7 fathoms (12^m8), is situated about 160 miles north-north-eastward of the Paracel islands and about 35 miles westward of the main route to Hong Kong as indicated on the chart.

Strong tide-rips have been observed in the vicinity of St. Esprit 10 shoal, but on examination deep water was found to exist. The current was observed to set generally with the wind.

Chart 1263.

EASTERN SIDE OF MAIN ROUTE.—**Caution.**—Vessels bound from Singapore to Hong Kong should not attempt to pass 15 between the banks, described hereafter in this chapter, and the numerous shoals which exist over a very large area between the parallels of 7° 33' N. and 12° 00' N., and the meridians of 112° 50' E. and 117° 44' E., enclosed on the charts by a pecked line. This area is known as "Dangerous Ground" and has not been surveyed. The 20 shoals on the eastern side of "Dangerous Ground" are described in China Sea Pilot, Volume II.

Currents.—H.M.S. *Rifleman*, when surveying in the vicinity during the years from 1864 to 1868, anchored on most of the banks and reefs which exist between the Main route and "Dangerous Ground," 25 and observed that, for sixteen hours out of the twenty-four, the current invariably set to windward, generally at the greatest rate when the monsoon was strongest.

Chart 2660a.

SOUTHERN GROUP.—**Banks.**—**Dangers.**—Vanguard bank, 30 with a least depth of 9 fathoms (16^m5) over it, lies about 60 miles south-eastward of the main route between Singapore and Hong Kong; its southern extremity is situated about 173 miles north-north-eastward of Laut, page 99. There is a depth of 11 fathoms (20^m1) (*Lat. 7° 30' N., Long. 109° 55' E.*) on the eastern end of Vanguard 35 bank, about 30 miles north-eastward of the southern extremity.

Prince Consort bank, composed of sand and coral, lies about 12 miles north-north-eastward of Vanguard bank, the least depth found being 10 fathoms (18^m3), near the north-western edge of the bank. Depths of 12 and 13 fathoms (21^m9 and 23^m8), coral, exist on the western edge 40 of the bank, southward of the shoalest part.

Grainger bank, with depths of from 6 to 8 fathoms (11^m0 to 14^m6) over it, coral, lies about 35 miles north-eastward of the eastern end of Vanguard bank. The coral bottom of Grainger bank is visible over nearly the whole of it.

45 Prince of Wales bank, with a depth of 4 fathoms (7^m3) over it on its western side, lies about 12 miles northward of Grainger bank; it is of coral formation and the depths over it are very irregular.

Alexandra bank, with a depth of 3 fathoms (5^m5) over it on its eastern side, lies about 2 miles south-eastward of Prince of Wales 50 bank; the coral bottom of this bank is distinctly visible.

Charts 2660a and b.

Rifleman bank consists of sand and coral with shallow patches

Chart 1263.

Chart 2660a and b.

round the edges within which are greater depths. Bombay Castle (Lat. $7^{\circ} 56' N.$, Long. $111^{\circ} 42' E.$), a shoal with a depth of $1\frac{3}{4}$ fathoms (3^{m2}) over it, and over which the sea breaks except in the finest weather, is the shoalest part of Rifleman bank and is situated on its northern end about 64 miles eastward of Alexander bank. Johnson patch, with a depth of 4 fathoms (7^{m3}) over it, lies on the western side of Rifleman bank; Kingston shoal, with a depth of 6 fathoms (11^{m0}) over it, lies at its southern end; and Orleans shoal, with a depth of $4\frac{1}{2}$ fathoms (8^{m2}) over it, lies on the eastern side.

Owen shoal, reported by the ship *David Scott*, in 1835, to have a depth of $3\frac{1}{2}$ fathoms (6^{m4}) over it, coral, is charted 22 miles north-eastward of Rifleman bank. It has not been examined.

Chart 2660b.

Amboina cay and Spratly island.—Anchorages.—Amboina cay (Lat. $7^{\circ} 53' N.$, Long. $112^{\circ} 54' E.$), 8 feet (2^{m4}) high, lies about 70 miles eastward of Rifleman bank, near the south-western edge of the "Dangerous Ground" mentioned on pages 1 and 112. The cay is composed of two parts, the eastern consisting of a beach of sand and broken coral, and the western being covered with a bed of guano strewn with debris. It is surrounded by coral ledges, which partly dry, extending for a distance of 2 cables offshore in places, and upon which the sea breaks heavily with any swell. In 1933 there were traces of old habitations and there was a flagstaff and a temporary beacon on the cay.

A reef extends north-westward of Amboina cay for a distance of about half a mile, and a bank, 2 cables wide, extends north-eastward of the cay for a distance of about a mile. The bank has a depth of 4 fathoms (7^{m3}) over it at a distance of $3\frac{1}{2}$ cables from the cay, and a depth of 9 fathoms (16^{m5}) at its outer edge, where it is steep-to. Fairly sheltered anchorage was obtained by H.M.S. *Rifleman* on this bank, in the south-west monsoon, in a depth of 5 fathoms (9^{m1}). In 1933, the French surveying vessel *Astrolabe* anchored with the flagstaff bearing 106° , distant about $3\frac{1}{2}$ cables, in a depth of $6\frac{1}{2}$ fathoms (11^{m9}). It is also possible to anchor south-eastward of the cay with the flagstaff bearing 300° , at a distance of $2\frac{1}{2}$ cables. Good anchorage is also obtainable with the centre of the cay bearing 224° , distant one mile, in a depth of 8 fathoms (14^{m6}).

Caution is required when anchoring as the banks are exceedingly steep-to.

A reef, with depths of from 2 to $2\frac{1}{2}$ fathoms (3^{m7} to 4^{m6}) over it, was reported by H.M.S. *Wanderer*, in 1889, to lie about three-quarters of a mile north-westward of Amboina cay. For tides and tidal streams at Amboina cay, see page 114.

Stag shoal, about 33 miles northward of Amboina cay, was reported, in 1802, in lat. $8^{\circ} 24' N.$, long. $112^{\circ} 57' E.$ as consisting of rocks showing above water. The shoal was not seen by H.M.S. *Renard*, in 1862, when in the vicinity, and, in 1867, H.M.S. *Rifleman* obtained a sounding of 1,085 fathoms (1984^{m2}), ooze, in its assigned position. It is possible that Stag shoal lies about 11 miles further westward.

Charts 2660a and b.

Ladd reef, composed of coral enclosing a lagoon with a bottom of white sand, lies about 42 miles northward of Rifleman bank. The reef dries in parts and, at low water, it is almost impossible for boats to cross over into the lagoon.

Charts 2660a and b.

Spratly or Storm island, about 8 feet (2^m4) high, and flat, with a margin of white sand and broken coral, is situated about 15 miles eastward of Ladd reef and is frequented by a large number of birds. In 1936, the island was covered with short grass, and had a clump of coconut trees at its south-western end, with some isolated trees further north-eastward. Spratly island is surrounded by rocky ledges, which dry, and stands on the western edge of a coral bank which is over a mile long and about three-quarters of a mile broad. There is a depth of 3½ fathoms (6^m4) at a distance of about three-quarters of a mile northward of the island, close to the edge of the bank, and depths of from 7 to 8 fathoms (12^m8 to 14^m6) about half a mile north-eastward of the island; the bank is steep-to and the sea breaks heavily upon it, except in very fine weather.

There was a flagstaff, in 1933, on the northern side of Spratly island; landing is possible on the lee side of the island during the south-west monsoon, but is dangerous in a swell on account of the numerous coral heads found close to the beach.

A vessel can anchor on the bank either north-eastward or south-westward of the island. The north-eastern anchorage appears to be the better, even with a north-easterly wind. Anchorage can be obtained with the flag staff bearing 228°, distant about half a mile, in a depth of 7 fathoms (12^m8). In very fine weather it is possible to anchor further in on the same bearing. Vessels can anchor at a distance of 2½ cables from the south-western side of the island, with the clump of trees bearing 021°, the north-western extreme of the island bearing 012°, and the south-eastern extreme bearing 037°, in a depth of 20 fathoms (36^m6).

H.M.S. *Rifleman* anchored on the north-eastern part of the bank, fairly sheltered from the south-westward, with the south-eastern extreme of the island bearing about 221°, the north-western extreme bearing about 244°, and the northern extreme of the breakers on the western edge of the bank bearing 264°, in a depth of about 6 fathoms (11^m0).

Tides and tidal streams.—By observations at Amboina cay two days before neap tides, the water was found to commence rising at 2300 and falling at 0600, the rise and fall being doubtful. While the tide was rising the tidal stream set northward, while falling it set westward. The maximum rate of the tidal stream was about 1½ knots.

Observations at Spratly island in the summer months showed but one tide during the 24 hours, and in the early part of July it was found to be high water at 0900, the rise and fall being 5¼ feet (1^m6). The direction of the tidal stream at the north-eastern end of the bank was south-westward during the rising tide, and from south-eastward to north-eastward during the falling tide.

Chart 2660b.

London reefs.—London reefs, four in number, extend over a distance of about 38 miles in an easterly direction and are steep-to, thus rendering sounding of little value when approaching them, and great caution is necessary when navigating in their vicinity. They should not be approached with the sun ahead, when it becomes difficult to distinguish shoal water or breakers.

West reef (*Lat.* 8° 51' N., *Long.* 112° 13' E.), the westernmost of the London reefs, lies about 21 miles north-eastward of Spratly island.

Chart 2660b.

Round the edge of West reef are several detached coral heads, which dry, and on its eastern side, in 1865, there was a sand cay, 2 feet (0^m6) high; in the centre of the reef there are depths of from 6 to 10 fathoms (11^m0 to 18^m3), with several coral heads. The only approach to the centre is from the south-eastern side, but so many coral patches exist that the navigation is hazardous. 5

There was a conspicuous wreck, in 1933, on the south-western extreme of West reef.

Central reef is a coral patch, awash, with a shallow lagoon within the belt of coral, lying about 8 miles north-eastward of West reef. On the south-western extreme of Central reef there was a sandbank, in 1865, which was reported to cover, probably, at high water springs. Unlike West and East reefs, this reef is not always marked by breakers. 10

East reef, enclosing a lagoon, lies about 16 miles eastward of West reef. The sea breaks heavily on the reef, and on its western extreme are one or two rocks which seldom cover; no entrance was discovered into the lagoon. 15

Cuarteron reef, awash and steep-to, lies about 9 miles eastward of East reef and about 6 miles westward of the western edge of the "Dangerous Ground" as indicated on the charts. There is a lagoon in the middle of Cuarteron reef. 20

Although considerable depths were found, in 1865, close to all the London reefs, there was generally some slope from the edges on which H.M.S. *Rifleman* found safe anchorage for a short period, but on Cuarteron reef no anchorage could be found. 25

Dhaulle shoal, reported in 1826 by a schooner of that name, to exist in lat. 9° 32' N., long. 112° 24' E., is considered to be identical with one of the neighbouring reefs. In this locality, about 36 miles northward of Central reef, a depth of 1,060 fathoms (1938^m5) was obtained by H.M.S. *Rifleman*, in 1868, while searching for this danger. 30

CENTRAL GROUP.—Reefs south-westward of Tizard bank—

This group of dangers lies close north-westward of the north-western edge of "Dangerous Ground".

Fiery Cross or N.W. Investigator reef lies near the western edge of "Dangerous Ground", about 27 miles eastward of the assigned position of Dhaulle shoal. The reef is steep-to and composed of patches of coral, several of which dry or are awash, with depths of from 8 to 22 fathoms (14^m6 to 40^m2) between them. At high water the whole reef is covered except a conspicuous rock (Lat. 9° 33' N., Long. 112° 40' 53' E.), about 2 feet (0^m6) high, situated, on the south-eastern side of the largest drying patch, near the south-western end of the reef; in fine weather, the sea does not break over this reef. In 1933 the French vessel *Alerte* anchored between two shoals near the north-eastern end of the reef, in a depth of 11 fathoms (20^m1). Anchorage is also obtainable at a distance of about 2 cables from the reef, with the 2-foot (0^m6) high rock, bearing 062°, distant 7 cables, in a depth of 13 fathoms (23^m8). 35 40 45

Discovery Great reef, most of which dries, and on which are several above-water rocks, lies about 54 miles east-north-eastward of Fiery Cross reef. There is a lagoon in the centre which appeared to have no entrance. The reef is steep-to, but H.M.S. *Rifleman*, in 1867, anchored about half a mile off the rocks at the northern end, in a depth of 42 fathoms (76^m8). 50

Chart 1263.

Chart 2660b.

The Hainan island fishermen, in 1867, reported a reef or shoal lying 10 miles north-eastward of Discovery Great reef, but depths of 40 fathoms (73^m2), no bottom, have been found in that locality.

Discovery Small reef, about 10 miles eastward of the southern extremity of Discovery Great reef, is a round coral patch which dries, with very deep water all round.

Western or Flora Temple reef lies about 17 miles west-north-westward of the northern extremity of Discovery Great reef. There are patches of rock, just under water, at the south-western end of Western reef and depths of from one to 3 fathoms (1^m8 to 5^m5) in other places; it is steep-to and dangerous.

Chart 1201, plan of Tizard bank and reefs.

15 **Tizard bank.—Reefs and islands.**—Tizard bank lies about 15 miles north-eastward of Discovery Small reef. It consists of a lagoon bordered by shoals, over which the depths are irregular, and by reefs which dry. There are islands on two of the reefs, and a sand cay on another. In the lagoon are several coral heads with depths of from 5 to 20 6 fathoms (9^m1 to 11^m0) over them, the position of which can best be seen on the chart.

Fishermen from Hainan usually visit the islands annually in December and January, and leave again at the commencement of the south-west monsoon.

25 Itu Aba (*Lat.* 10° 23' N., *Long.* 114° 21' E.), an island 8 feet (2^m4) high, lies near the north-western end of Tizard bank; the reef surrounding the island extends in some places for a distance of nearly half a mile offshore, its limits being generally defined by breakers. Itu Aba is covered with trees and scrub, the tops of which are about 30 99 feet (30^m2) high; in 1933 the island was deserted, but there were signs of recent habitation, and also a temporary beacon.

A shoal, with a depth of 3 fathoms (5^m5) over it, lies about a quarter of a mile south-westward of the western extreme of the reef surrounding the island, and there is a depth of 3½ fathoms (6^m4) at a distance 35 of about half a mile further southward.

A reef, covered at high water, lies about 2 miles eastward of Itu Aba; in the middle of the channel between the reef and Itu Aba there is a shoal, with a depth of 4 fathoms (7^m3) over it.

A sand cay, with bushes about 15 feet (4^m6) high on it in 1888, 40 lies about 3½ miles eastward of the last mentioned reef, to which it is connected by a spit, over which the depths are irregular. The sand cay is surrounded by a reef extending for a distance of nearly half a mile offshore; on the spit there is a depth of 5½ fathoms about 2 miles westward of the cay, two detached 4-fathom (7^m3) patches at a 45 distance of about three-quarters of a mile north-westward of the cay, and a 4½-fathom (8^m2) patch about a quarter of a mile further north-westward. For anchorage on the spit, *see* page 117.

Petley reef lies near the extremity of a ledge of coral which is steep-to and projects from the north-eastern side of Tizard bank for a distance 50 of about 5 miles.

Eldad reef, on which are a few large above-water rocks and many other smaller ones, which dry, lies at the eastern end of Tizard bank, about 7 miles south-eastward of Petley reef. The north-eastern end of Eldad reef is narrow and steep-to, and a ridge, about a mile long,

Chart 1201, plan of Tizard bank and reefs.

on which the depths gradually increase to over 50 fathoms (91^m4), extends from it for a distance of nearly a mile.

Nam yit, an island about 20 feet (6^m1) high and covered with small trees and bushes, lies on the southern side of Tizard bank, about 5 20 miles south-westward of Eldad reef. It is surrounded by a reef which extends westward for a distance of about a mile and for about 3½ cables in other directions. There is a patch, with a depth of 3 fathoms (5^m5) over it, about a mile north-eastward of Nam yit, and a shoal, with a depth of 3¾ fathoms (6^m9) over it, at a distance of 10 about 2 miles west-south-westward of the island.

Gaven reefs, two in number, about 2½ miles apart in a north-westerly direction, form the south-western end of Tizard bank; the south-eastern reef lies about 6 miles westward of Nam yit. These reefs are covered at high water and between them are some coral heads, 15 one of which, with a depth of 3½ fathoms (6^m4) over it, lies about three-quarters of a mile north-westward of the south-eastern reef.

Anchorage.—Vessels can anchor with safety on the spit westward of the reef with a sand cay on it, in depths of from 7 to 10 fathoms (12^m8 to 18^m3). 20

In case of necessity and in fine weather, shallow-draught vessels can anchor as convenient almost anywhere on the banks surrounding the lagoon, but care must be exercised to avoid any undiscovered dangers.

The French vessel *Astrolabe* anchored, in 1933, in the lagoon, 25 southward of Itu Aba, in a depth of 7 fathoms (12^m8).

Chart 1201, plan of Loai ta island and reefs.

Loai ta bank.—Islands and reefs.—Loai ta bank is steep-to and consists of a lagoon surrounded by shoals, over which the depths are irregular. On the southern edge of the bank there are reefs, on 30 two of which there are sand cays and, on the southernmost, an island.

Loai ta (*Lat. 10° 41' N., Long. 114° 25' E.*), is an island about 6 feet (1^m8) high, covered with mangrove bushes, above which rose 6 coconut palms and some bushy trees. The island was deserted in 1933, but there were traces of recent habitation, and also a temporary 35 beacon; it lies at the southern end of Loai ta bank, about 16 miles northward of Tizard bank, and is surrounded by a reef which dries, extending for a distance of about half a mile from its northern side and for a less distance in other directions.

A shoal, with a depth of 3 fathoms (5^m5) over it, lies about 2 miles 40 westward of Loai ta. Two reefs, about a mile apart in a north-easterly direction, lie about 5 miles north-westward of Loai ta. A shoal, with a depth of 3 fathoms (5^m5) over it, lies about three-quarters of a mile eastward of the south-western reef. In the centre of the north-eastern reef, which dries, there was a sand cay, in 1868. 45

Not less than 4 fathoms (7^m3) was found, in 1868, anywhere on the north-western edge of Loai ta bank, north-eastward of the two last mentioned reefs.

A coral patch, which partly dries, lies about 2 miles east-north-eastward of Loai ta. 50

Lan kiam cay lies about 6½ miles north-eastward of Loai ta. It is composed of sand, and lies near the centre of a reef which extends from it, in places, for a distance of nearly half a mile. Two coral reefs, which dry, lie, respectively, 3 and 4 miles north-eastward of Lan kiam cay. 55

Charts 2660b, 1263.

Chart 1201, plan of Loai ta island and reefs.

The eastern edge of Loai ta bank extends northward of the last mentioned reef for a distance of about 9 miles. Near the northern end of the reef is a depth of 6 fathoms (11^{m0}).

5 **Anchorage.**—Anchorage may be obtained on Loai ta bank with the centre of Loai ta bearing 260°, distant about 4 cables. In this position the reef is visible.

Chart 1201, plan of Thi tu island and reefs, and Subi reef.

Thi tu island and reefs.—Subi reef, which usually breaks and is 10 apparently steep-to, lies about 21 miles north-westward of Loai ta. The reef is composed of coral, which dries, and surrounds a lagoon into which there appears to be no passage.

Thi tu island and reefs consist of several dangerous patches upon two coral banks, separated by a narrow and deep channel.

15 **Thi tu** (*Lat. 11° 03' N., Long. 114° 16' E.*), an island about 11 feet (3^{m4}) high, lies near the eastern end of the westernmost of the above-mentioned banks, about 14 miles north-eastward of Subi reef. The island is covered with grass and scrub, the top of which is about 60 feet (18^{m3}) high, except at the palm grove at its south-western 20 end. There are no coconut trees on this island. It is surrounded by a drying reef which extends from its north-eastern side for a distance of about half a mile. Thi tu was inhabited by 5 Chinese in 1933.

From Thi tu, the western bank extends westward for a distance of about 6 miles, with reefs and irregular depths on its edges and greater 25 depths within.

A reef lies about 1½ miles north-westward of Thi tu; in the channel between, there is a depth of 4½ fathoms (8^{m2}), about three-quarters of a mile north-westward of Thi tu, and a shoal, with a depth of 2½ 30 fathoms (4^{m6}) over it, about half a mile south-eastward of the reef.

There is a depth of 3½ fathoms (6^{m4}) at a distance of about three-quarters of a mile southward of the reef.

A reef, which dries and near the centre of which is a sandy cay, lies about 1¼ miles west-south-westward of the last mentioned reef. In the middle of the passage between the two reefs, leading into the lagoon, there 35 is a detached shoal, with a depth of 5 fathoms (9^{m1}) over it.

A reef, forming the western extreme of the bank, lies about 2 miles west-south-westward of the sandy cay, with detached reefs, nearly always marked by breakers, between them.

On the southern edge of the bank is a small reef, lying about 2 miles 40 south-westward of Thi tu. The southern edge of the western bank is not so dangerous as the northern edge.

The eastern bank is a mass of reefs and shoal patches; its western edge lies about three-quarters of a mile eastward of the reef extending from Thi tu. From this position, the bank extends in a north-easterly 45 direction for a distance of about 4½ miles.

Anchorage.—Anchorage may be obtained by shallow-draught vessels on the southern edge of the western bank with the sandy cay bearing between 328° and 036°.

Anchorage may also be obtained about a mile south-westward of 50 Thi tu, in a depth of 10 fathoms (18^{m3}), in which position the reef is visible.

Chart 1201, plan of North Danger.

North Danger.—North Danger, of coral formation, and steep-to, is situated from 20 to 23 miles northward of Thi tu. The centre of the

Chart 1201, plan of North Danger.

formation is remarkably flat and even, having a general depth of a little over 20 fathoms (36^m6); it is surrounded by a shallow reef of varying width on which there are many dangers, with depths of less than 5 fathoms (9^m1) over them; extensive areas of this reef, which 5 uncover at low water in patches, exist at the north-eastern and south-western ends of the formation, and, on its north-western side there are two islets.

All the known dangers are plainly visible in suitable conditions of light. 10

The shoal area at the north-eastern end of North Danger breaks heavily on its north-eastern side during the north-east monsoon. Between this area and North-east cay, the north-eastern of the two islets mentioned above, about 2 miles west-south-west from its centre, there are numerous shoals with depths of less than 3 fathoms (5^m5) 15 over them, and the passage between should not be attempted.

North-east cay (*Lat.* 11° 27' N., *Long.* 114° 21' E.), about 8 feet (2^m4) high, is covered with coarse grass, with a fringe of low bushes round the edges; a clump of larger bushes, with a conspicuous coconut palm, 35 feet (10^m7) high, exists near the centre and south-eastern side 20 of the islet. The cay stands on a reef which dries in patches and extends offshore for a distance of from one to 5 cables.

South-west cay, about 13 feet (4^m0) high and covered with coarse grass, lies about 2 miles south-westward of North-east cay, separated by a channel in which there are numerous patches, with depths of less 25 than 5 fathoms (9^m1) over them. This islet is a breeding place for sea birds, and is covered with guano, the export of which has, at some time, been carried out on a considerable scale; it is surrounded by a coral reef which dries in patches and extends for a distance of a little more than half a cable from its south-eastern side, and as much as 3 30 cables in other directions. Landing is possible on the south-eastern side of the islet during the south-west monsoon, even when it is blowing fresh. There are two wells near the centre of the south-eastern side of the islet, and a mast, 40 feet (12^m2) high.

There is a patch, with a least depth of 12 feet (3^m7) over it, and 35 numerous patches having depths of less than 3 fathoms (5^m5) over them, situated on the surrounding reef, about a mile south-westward of South-west cay. This shoal occasionally breaks in rough weather.

The shoal area at the south-western end of North Danger breaks heavily on its south-western side during the south-west 40 monsoon.

There is a shoal, with a least depth of 13 feet (4^m0) over it, and numerous patches having depths of less than 3 fathoms (5^m5) over them, at the south-eastern end of North Danger, about 3 miles south-eastward of South-west cay. A shoal, with a least depth of 16 feet 45 (4^m9) over it, lies about 6 cables east-north-eastward of the last mentioned shoal.

A shoal, with a least depth of 9 feet (2^m7) over it, and numerous patches having depths of less than 3 fathoms (5^m5) over them, lies about a mile southward of the south-eastern end of the shoal area at 50 the north-eastern end of North Danger (*Lat.* 11° 28' N., *Long.* 114° 23' E.).

A ridge, on which there are several heads, with depths of less than 5 fathoms (9^m1) over them, and between which there are greater depths,

Charts 2660b, 2661a, 2661b, 1263.

Chart 1201, plan of North Danger.

runs in a north-westerly direction across North Danger about a mile south-westward of the shoal area at its north-eastern end. Between this ridge and the shoal area north-eastward, there are several patches, 5 with depths of less than 5 fathoms (9^m1) over them.

Anchorage.—The bottom within the surrounding reef is composed of sand and coral, and no special anchorages can be recommended. Calm water may be obtained under the lee of the shoal area at the north-eastern end of North Danger during the north-east monsoon, 10 and under the lee of the shoal area at the south-western end during the south-west monsoon.

Tides.—Currents.—The tides are almost entirely diurnal. The higher high water follows the moon's lower transit when the moon's declination is North, and the upper transit when the declination is 15 South. The mean rise of higher high water is about 5 feet (1^m5).

The currents appear to be mainly seasonal, depending on the prevailing monsoon. In the centre of the formation a rate of half a knot is never exceeded except with a very strong wind. On or near the encircling reef, stronger currents may be expected, up to a maximum 20 rate of a little over a knot; the direction is still mainly with the prevailing wind, but weak currents, against the wind, occur at times for short periods. There is no connection between currents and tides, and the vagaries are probably due to eddies forming in the shallow water over the reefs.

25 *Charts 2660b and 2661b.*

Shoals eastward of North Danger.—Lys shoal (*Lat. $11^{\circ} 19' N.$, Long. $114^{\circ} 35' E.$*) lies about 13 miles east-south-eastward of North Danger; it is steep-to and consists of a number of patches, with depths of less than 10 fathoms (18^m3) over them, with a lagoon in the centre. 30 A patch, with a depth of $2\frac{3}{4}$ fathoms (5^m0) over it, is situated near the south-western extreme of the shoal and some patches, with a depth of 5 fathoms (9^m1) over them, exist near the north-eastern end of the shoal.

Trident shoal, about 2 miles northward of Lys shoal, is composed 35 of coral and is steep-to; round its edge are many patches, with depths of less than 10 fathoms (18^m3) over them, enclosing a lagoon in which the depths are greater. At the northern end of Trident shoal is a patch which dries; on its eastern side is a patch with a depth of $2\frac{1}{4}$ fathoms (4^m1) over it; and on its north-western side is a patch 40 with a depth of 4 fathoms (7^m3) over it.

Numerous dangers are reported to exist about 25 miles eastward of Lys and Trident shoals.

Chart 270.

NORTHERN GROUP.—Macclesfield bank.—Macclesfield bank 45 is situated eastward of the main route from Singapore to Hong Kong, its south-western extreme lying about 66 miles east-south-eastward of Bombay reef, page 107. The bank is a submerged atoll with patches, over which there is a depth of less than 10 fathoms (18^m3), on the edge.

The shoalest part of the edge is at the north-eastern end of Pigmy 50 shoal, which lies at the north-eastern end of the bank, where there is a depth of $6\frac{1}{2}$ fathoms (11^m9).

In the lagoon are several detached shoals, with less than 10 fathoms (18^m3) over them, the shoalest being Walker shoal, with a depth

Charts 2661a, 2661b, 1263.

Chart 170.

of 5 fathoms (9^m1) over it, which lies near the centre of the bank.

The chart is the best guide for the depths over the other shoals on the bank. The western portion of the lagoon has only been partially surveyed. 5

Caution.—Macclesfield bank can generally be seen from aloft. In heavy weather the sea on its edge is high and confused. Vessels are recommended to pass either eastward or westward of the bank as uncharted dangers may exist on it.

Charts 2661a and b. 10

Helen shoal.—Current.—Helen shoal (*Lat. 19° 12' N., Long. 113° 53' E.*), which breaks in bad weather, lies about 15 miles eastward of the Main route as indicated on the chart, and about 53 miles south-eastward of St. Esprit shoal, page 112. The least depth over Helen shoal is 6½ fathoms (11^m9), with depths of over 100 fathoms (182^m9) 15 close round it. Strong tide rips were observed in the vicinity of Helen shoal, but, on examination, deep water was found to exist there. The current was found to set generally with the wind.

Depths of 26 and 27 fathoms (47^m5 and 49^m4) were reported, in 1925, to exist about 4 and 9 miles southward, respectively, of Helen shoal. 20

Discoloured water was reported, in 1923, by s.s. *Kasama* about 57 miles northward of Helen shoal in lat. 20° 09' N., long. 113° 57' E. *Chart 2661b.*

Dangers north-eastward of Helen shoal.—A description of Pratas reef and the Vereker banks, which lie about 185 and 157 25 miles north-eastward, respectively, of Helen shoal is given in China Sea Pilot, Volumes II and III.

Chart 1263.

Annex 398

“East Sea: Coming to Da Thi Island (Petley Reef), to face Chinese ships,” *BDN*

East Sea: Coming to Da Thi Island (Petley Reef) to face Chinese ships

On our way from Da Nam (South Reef) to Da Thi (Petley Reef), we were passing through the Da Su Bi (Subi Reef) area (part of the Spratly Islands) which currently is being occupied by China illegally.

We have seen many Chinese fishing boats and military vessels in front of us.



Da Thi Island on a stormy day (Photo by Hong Chuyen)

Facing Chinese ships

Onboard, Lieutenant Colonel Nguyen Van Doan, Captain of the ship HQ996 said “Su Bi Reef is being occupied and fortified by China. Su Bi Reef is surrounded by many large Chinese fishing boats, service boats and military vessels”.



Chinese fishing boats infringing on the Truong Sa fishing grounds and nearby the Vietnamese ship HQ996 (Photo by Hong Chuyen)

This fleet of 32 Chinese fishing boats, is believed to have been authorized by China to conduct harassing activities in the Spratly fishing grounds. They are anchored close to each other and are not engaging in any typical fishing activities. Viewing through our binoculars, we have observed 32 fishing boats and a service boat.



China has illegally developed Su Bi Reef into a blockhouse (Photo by Hong Chuyen)

We arrived at Đá Thị Island at 5 AM on June 10. Đá Thị appeared like a solid structure with an architectural appearance similar to that of the Northern Delta. Da Thi Island, aka Nui Thi Island, is 322 nautical miles of Cam Ranh peninsula. The island is located at 10^o24'39" North and 114^o35 '15" East, 7 nautical miles southwest of Son Ca (Sand Cay) island.

Da Thi Island is a coral reef with a rather flat surface and a few deep pools. Đá Thị, Sơn Ca and Nam Yết (Namyit) islands form a strategic triangular formation on the map. West of Đá Thị island is Ba Bình island (Itu Aba island, the largest island of the Spratlys) which has been occupied illegally by Taiwan since the 50s. Adjacent to it is Da Ga Ven (Gaven Reefs), which has been occupied by China since the late 80s.

Pursuant to the Directive of the High Command of the Vietnam People's Navy on implementation of CQ88, on March 15, 1988 the navy ship No. 709 was sent to anchor at Đá Thị island; ships No.16,11, and 05 (administered by the Vietnamese Ministry of Defense' Military Zone 5) were instructed to transport construction materials and workers to the island for development.

Present Da Thi Island

Đá Thị Island is now equipped with wind and solar energy generation facilities. There are solid and spacious houses seen on the island. This leads one to believe that the lives of Đá Thị soldiers are gradually improved.



Journalist Manh Vy - Vietnam Journalists Association of Ministry of Information And Communications reporting from Da Thi Island (Photo by Hong Chuyen)

The island has been supplied with televisions and modern digital Karaoke systems. The soldiers can access the Vietnam Television Network through their satellite broadcasting system to watch news and stay updated on current events. A library consisting of more than 1000 book titles, 20 types of magazines, and law books has also been provided. This is not only to enrich the soldiers' knowledge, but also to intensify their faith and responsibility to the mission of protecting Vietnam's sovereignty.

Unlike on the elevated islands, freshwater supply mainly comes from rainwater. In recent years, the soldiers have been building water conservation tanks to store rainwater and have managed to meet their

East Sea: Coming to Da Thi Island (Petley Reef) to face Chinese ships

Page 4 of 5

daily freshwater needs. Due to the lack of soil on the island, the soldiers need to import small bags of soil from the mainland. The soldiers are faced with some challenges in farming vegetables.



Navy soldiers on Da Thi Island are caring for vegetables (Photo by Hong Chuyen)

Due to the soldiers' water conservation methods, they have been able to grow vegetables and raise cattle successfully despite the initial lack of freshwater; thereby enriching their food supplies and improving their health. Total production in 2012 was recorded at an equivalent of VND 30Mil which was made up of 962kg of vegetables, 166kg of fish and 354kg of meat.

The Đả Thi soldiers demonstrated patriotism and readiness by facing imminent threats head-on to protect their Motherland's sovereignty. The Spartlys' challenges have gradually improved these soldiers making them stronger than ever and ready for the mission of protecting their Motherland.

BDN (According to Infonet)

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- Giới thiệu về biển Đông
- Hoàng Sa, Trường Sa
- Thế giới đại dương
- Tư liệu
- Sự kiện
- Sự ký

Các quốc gia tranh chấp

Đang truy cập

Hiện có 54 khách Trực tuyến

Thống kê

Hôm nay	1396
Hôm qua	2015
Tuần này	3411
Tuần trước	15823
Tháng này	3411
Tháng trước	63963
Tất cả	4083433

Truy cập (20 phút trước): 16
IP của bạn: 65.207.8.102
MSIE 9.0., WINDOWS
Now is: 2015-03-02 14:02

Alexa Site Stats

Site Info
biendong.net
Rank: **900,994**
Links in: **87**
Powered by Alexa

Liên kết

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Biển Đông: Đến đảo Đá Thị, giáp mặt tàu Trung Quốc



BienDong.Net: Trên đường đi từ Đá Nam đến Đá Thị, con tàu chờ chúng tôi phải đi qua khu vực Đá Su Bi (thuộc quần đảo Trường Sa) do Trung Quốc chiếm đóng bất hợp pháp.

Trước mắt chúng tôi có rất nhiều tàu cá, tàu quân sự Trung Quốc.



Đảo Đá Thị ngày giông bão (Ảnh Hồng Chuyên)

Giáp mặt tàu Trung Quốc

Trên Cabin, Thuyền Trưởng tàu HQ996, Trung tá Nguyễn Văn Đoàn cho biết đá Su Bi đang bị Trung Quốc chiếm đóng, xây dựng kiên cố. Xung quanh đá Su Bi có rất nhiều tàu cá cỡ lớn neo đậu vòng quanh đảo ở giữa còn có tàu hậu cần nghề cá và tàu quân sự của Trung Quốc.



Tìm kiếm

Tìm kiếm

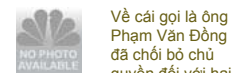
Bài đọc nhiều



Quần đảo Hoàng Sa



Quần đảo Trường Sa



Về cái gọi là ông Phạm Văn Đồng đã chối bỏ chủ quyền đối với hai quần đảo Hoàng Sa và Trường Sa



Cờ sở pháp lý khẳng định chủ quyền Hoàng Sa và Trường Sa của Việt Nam



Bờ biển Việt Nam thực tế dài bao nhiêu km?



Điểm qua kho vũ khí phòng vệ của Việt Nam



Tranh chấp chủ quyền



Địa lý và phát triển kinh tế Trường Sa



Nước Việt Nam



Trung Quốc tuyên bố chủ quyền

Video Clips



Tư liệu hình ảnh



Tàu cá Trung Quốc xâm phạm ngư trường Trường Sa ở rất gần tàu HQ 996 (Ảnh Hồng Chuyên)

Đây là 32 tàu cá mà Trung Quốc cho ở ạt tiến xuống quấy phá ngư trường Trường Sa. Những con tàu này neo đậu ở đây mà không thực hiện việc đánh cá bình thường vì vị trí neo đậu rất gần nhau. Giương ống nhòm lên, chúng tôi đếm đủ 32 tàu cá và một tàu dịch vụ hậu cần nghề cá đi cùng.



Trung Quốc đã xây dựng trái phép Đá Su Bi thành một lò cốt (Ảnh Hồng Chuyên)

5 giờ sáng ngày 10/6 chúng tôi đã đến đảo Đá Thị. Trước mắt chúng tôi, Đá Thị là một ngôi nhà kiên cố rất giống kiến trúc nhà đồng bằng Bắc Bộ nổi giữa trập trùng sóng nước.

Đảo Đá Thị còn có tên gọi khác là đảo Núi Thị, cách bán đảo Cam Ranh 322 hải lý, đảo Đá Thị nằm ở 10⁰ 24'39" vĩ độ Bắc, 114⁰ 35' 15" kinh độ Đông cách đảo Sơn Ca 7 hải lý về phía Tây Nam.

Đảo Đá Thị là bãi san hô có bề mặt tương đối bằng phẳng, thỉnh thoảng có những vũng sâu. Nhìn trên bản đồ, Đá Thị, Sơn Ca, Nam Yết tạo thành thể chân kiềng vững chãi. Phía Tây là đảo Ba Bình (đảo lớn nhất của quần đảo Trường Sa) hiện do Đài Loan chiếm đóng bất hợp pháp từ thập niên 50. Kế bên là đá Ga Ven Trung Quốc chiếm đóng vào cuối thập niên 80.

Ngày 15 - 03 - 1988, thực hiện Chỉ thị của Bộ Tư Lệnh Hải quân Việt Nam về việc thực hiện nhiệm vụ CQ88, tàu Hải quân 709 đến và thả neo ở đảo Đá Thị; tàu 16, 11 và tàu 05 (Quần khu 5) đưa lực lượng và vật liệu xây dựng nhà ở.

Đá Thị hôm nay

Đảo Đá Thị đã được xây dựng nhà lầu bền khang trang, sạch đẹp, có hệ thống năng lượng gió, năng lượng mặt trời. Hiện nay đời sống vật chất tinh thần của chiến sỹ đảo Đá Thị từng bước được cải thiện.



PV Mạnh Vỹ - Liên chi Hội nhà báo Thông tin và Truyền thông đang tác nghiệp tại Đá Thị (Ảnh Hồng Chuyên)



Thời tiết các thành phố

AN NHON

Nhiệt độ: 24°C Trong

Tốc độ gió N 6 Km/h

Độ ẩm: 84%

MT mọc: 5:59 am

MT lặn: 5:51 pm

Tỷ giá

(VND)

Biển Đông: Đến đảo Đá Thị, giáp mặt tàu Trung Quốc

Đảo được trang bị tivi, hệ thống Karaoke kỹ thuật số hiện đại. Trạm thu phát tín hiệu vệ tinh của Đài truyền hình Việt Nam đã giúp cho chiến sỹ trên đảo cập nhật kịp thời những thông tin trong nước và thế giới. Trên đảo có tủ sách, báo với gần 1.000 đầu sách và trên 20 đầu báo các loại, 1 tủ sách pháp luật... góp phần nâng cao nhận thức, niềm tin, trách nhiệm với sự nghiệp bảo vệ vững chắc chủ quyền của Tổ quốc.

Khác với các đảo nổi, ở đây nguồn nước ngọt dùng cho sinh hoạt được khai thác chủ yếu từ nước mưa. Những năm gần đây do được trang bị hệ thống bể chứa nên đảo đã chủ động bảo đảm được 100% nhu cầu nước sinh hoạt. Để tổ chức tăng gia trồng rau xanh, chiến sỹ đảo Đá Thị phải vận chuyển từ đất liền ra từng bao đất nhỏ. Do đó, công tác tăng gia trồng rau xanh, chăn nuôi của cán bộ, chiến sỹ gặp rất nhiều khó khăn.



Chiến sỹ Hải Quân đảo Đá Thị chăm rau (Ảnh Hồng Chuyên)

Mặc dù nguồn nước ngọt khan hiếm, song nhờ các biện pháp sử dụng nước ngọt tiết kiệm, khoa học và phù hợp trong sinh hoạt, chiến sỹ đảo Đá Thị đã thực hiện tốt công tác trồng rau xanh và chăn nuôi đáp ứng nhu cầu sinh hoạt, nâng cao sức khỏe. Tổng sản lượng tăng gia năm 2012 của đảo đạt gần 30 triệu đồng trong đó rau xanh 962kg, các các loại gần 166kg và thịt các loại trên 354 kg.

Ngày nay, trước những diễn biến phức tạp tiềm ẩn nhiều nhân tố khó lường, chiến sỹ đảo Đá Thị luôn cố gắng phát huy truyền thống, chắc tay súng sẵn sàng chiến đấu bảo vệ chủ quyền thiêng liêng của Tổ quốc... Sóng gió Trường Sa đã tôi rèn ý chí người lính đảo Đá Thị, khiến các anh luôn vững vàng kiên trung bám biển, bám đảo gìn giữ phần đất tổ tiên trước muôn trùng bão tố, hiểm nguy.

BDN (Theo Infonet)

Tin mới hơn:

27/09/2013 02:28 - Dân mình bám biển: Nhọc nhằn đời nữ ngư phủ
 21/09/2013 01:47 - Dân mình bám biển: Những ngôi nhà chống bão ở làng...
 21/09/2013 01:27 - Dân mình bám biển: Đội tàu xa bờ của thầy giáo Ty
 16/09/2013 02:36 - Đến với lính nhà giàn
 09/09/2013 23:05 - "Thành đồng trên Biển Đông": Đảo Len Đao và Trạn c...

Tin cũ hơn:

24/08/2013 02:27 - Gian nguy nghề lặn biển
 23/08/2013 04:04 - Tranh chấp trên Biển Đông: Trung Quốc có chịu thực...
 12/08/2013 02:41 - Sắp phán quyết hồ sơ vụ kiện "đường 9 đoạn"
 09/08/2013 00:31 - Tranh chấp biển đảo: Nhật - Trung đều chú trọng lí...
 08/08/2013 01:40 - Báo Nga: Trung Quốc tung 'đòn Tôn Tử' ở Biển Đông

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Annex 399

“Feu de Joie pour le Quatorze Juillet”, *Peiping Chronicle* (15 July 1933)

FEU DE JOIE POUR LE QUATORZE JUILLET

It is a supreme sense of the fitness of things that has dictated the French choice of the Fourteenth of July as the date for announcing to the world the annexation to France of the nine islands in the South China Sea on which the French flag had been raised. The act will doubtless give infinite satisfaction in France, and it ought to give equal satisfaction outside France, if the world outside France prefers stern facts to fairy fancies. The message we publish today simply indicates that France has annexed nine islands, unnamed, in the neighbourhood of Lat. N. 10° and Long. E. 115° . Fixing the spot on a large-scale map helps little towards knowing what islands these are, for there is a whole archipelago of unallotted specks—at least fifty of them—in the neighbourhood; but they almost sing "Rule Britannia"—Trident Reef, North Danger Reef, Cornwallis Reef, London Reef, Royal Captain Reef, Alexandra Bank, Prince of Wales Bank, and so forth. The map is not altogether irrelevant, however. The point Lat. N. 10° , Long. E. 115° , is two-thirds of the way, in almost a straight line, from Saigon to Palawan, well to the east of the normal steamer route from Singapore to Manila, just far enough away from it, in fact, to avoid too great publicity; and one-third of the way from British North Borneo to Hongkong.

The first question that arises from this Autolycean grab is whether on ground of prior rights any other Power can claim sovereignty or possession. Apparently nobody except China has any sort of claim, China's claim resting on the fact that the islands seized are said to be inhabited by Chinese fishermen, and that claim will be brushed aside as irrelevant. Apparently China has never exercised jurisdiction over the islands, though as possible dependencies of the KING OF SULU they may at one time have owed an indirect allegiance to China. We had thought that the day of annexations had gone, but if they have not, France could hardly have made her coup more choicely. She has managed to give the incident the appearance of a case of treasure trove rather than one of bag-snatching or smash-and-grab.

But, comes the vital question, why annex at all? There can be little question that this is France's retort to the Manchurian rape. France's declaration to the world that she considers the Washington Treaties no longer valid. Under the very first of the series signed at Washington in 1922, the United States, Great Britain and Japan agreed that "the *status quo* at the time of the signing of the treaty with regard to fortifications and naval bases shall be maintained in their respective territories and possessions" in the Far East. It was expressly stipulated that the "maintenance of the *status quo*" should "imply that no new fortifications or naval bases should be established in the territories and possessions specified, that no measures should be taken to increase the existing naval facilities, ... and that no increase should be made in the coast defences of the territories and possessions" specified. France was not a signatory to the articles quoted, but she was signatory to the general Treaty of which they form part. Technically, therefore, the subsequent fortification of her new seizure would not violate the letter of the Treaty, though it would be subversive of the whole policy laid down at Washington. France will, of course, find her justification in the fact that Japan, who was expressly a signatory of the articles quoted above, has in spirit not merely violated but contemptuously outraged letter and spirit of the articles. Again, by the third of the Washington Treaties, the United States, the British Empire, France and Japan agreed "between themselves to respect their rights in relation to their insular possessions and insular dominions in the region of the Pacific Ocean." This treaty simply concerned then existing insular possessions and dominions. These the three Powers engaged mutually to respect; but there was no pledge not to enlarge such possessions or dominions at the expense of any other Power or by annexation of un-sovereigned territory. Of this loop-hole Japan took advantage, in her disguised annexation of Manchuria, Jehol and other parts of Eastern Inner Mongolia. France, seeing the whole structure of the Covenant falling to pieces and the whole fabric of the Washington Treaties already torn to rags by Japan, and likely to be pulped up after 1936—when the London naval ratio agreement terminates—in order to make superfine quality paper for a Japanese declaration of sole rights of hegemony in the Far East, is taking time by the forelock. In short, in pursuit of the "security" that France demands above all things else, France is preparing for the coming Far Eastern conflict. Japanese aggression in Manchuria and Jehol and Luantung is but the opening round. The hostility it has provoked precipitated the Japanese agreement with Holland that in all probability assures to Japan the use of Netherlands East Indies oil reserves. France has determined not to be unprepared. A naval base, or a strongly defended airport and wireless station in the South China Sea, fed by and helping to defend French possessions in Indo-China, is a thing not to be lightly esteemed. France is taking no risks, but her action is highly significant of the new risks that have to be considered since Japan broke loose and ran amok in the north-west Pacific.

Annex 400

[Untitled Article], *New York Times* (30 July 1933)

WASHINGTON, July 29 (AP).— State Department officials said today they had no knowledge of French occupation of seven small islands off the Philippines, and that they had never even heard of the islands until mention of them was made in press dispatches.

Although the names of the islands, none of which is apparently more than three-quarters of a mile long, have been variously given in press dispatches, government geographers believe that Spratly, Amboyna, Itu, Aba, Loaita and Phitu are among the islands under discussion.

These are west of Palawan in the Philippine archipelago outside of the line of American ownership, and are part of a large group of dots on the ocean which are fragments of coral reefs and rise not more than eight feet above the sea.

The New York Times

Published: July 30, 1933

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Annex 401

P.J. Philip, "Barren Coral Isles in Pacific Cause International Dispute", *New York Times* (27 Aug. 1933)

Barren Coral Isles in Pacific Cause International Dispute

French Sailor's Literary Urge Prematurely Reveals Annexation of Paraçels, Arousing Protest From Japan.

By P. J. PHILIP.

PARIS, Aug. 25.—France and Japan are engaged just now in one of the most delicate diplomatic debates which has arisen over the Pacific since that ocean's affairs were believed to have been settled at the Washington naval conference.

Alongside France's worries about what is going to happen in Central Europe and her annual war in Morocco, this is an incident of little importance. But that is not how it is regarded in Tokyo. The usual calm Asiatic Department at the French Foreign Office has been somewhat ruffled during the past few weeks by polite but firm remonstrances from the Japanese.

It all began last April when two French destroyers, *Astrolabe* and *Alert*, discreetly hoisted the French flag over the little Paracel Archipelago, between Indo-China and the Philippines, at the entrance of the China Sea. These islands are almost entirely uninhabited, except for a few Chinese engaged in turtle fishing, although the Japanese claim they have for some time been engaged in exploiting a superficial layer of phosphate on some of the islands.

Islands "Belonged to No One."

Anyhow, as is argued here, they belonged to no one until the captain of the *Astrolabe* formally claimed them for France on April 7 and buried below a carved stone on each of them a bottle containing an account of how they passed into French possession.

Their names, *Thitu*, *Loaita* and *Itaaba*, have a romantic sound, and perhaps that was what led to this exchange of diplomatic notes, which is still going on. Some member of the French expedition could not resist the temptation to follow the tradition which Pierre Loti established in the French navy and write a glowing description of this latest acquisition to France's overseas possessions.

It was this article in *L'Illustration* which let the cat out of the bag and caused this ripple on the Pacific waters. If he hadn't been

seduced into adjectival ecstasy, no one need ever have known France had taken possession until perhaps some day someone else should happen along and wish to do the same. Then France could quietly have said "Excuse me. That reef of little islands is mine, and I intend to build a lighthouse there for the benefit of shipping."

Message Found at Deserted Hut.

This disciple of Pierre Loti had one excellent story to tell. On *Thitu* he found a deserted hut and a board on which was scratched in Chinese characters the following message to the hut's missing occupant:

"I, *Ti Mung*, captain of a junk, came here during the full moon in March, bringing food. I found no one and am leaving rice below a pile of stones and going away."

Within a very few days after the publication of this article, Tokyo began to make inquiries. Official Japan was greatly exercised, although neither the United States, with the Philippines near by, nor Great Britain with Singapore as a next door neighbor, seemed to object to the French action.

So far Japan has not claimed, here at least, any sovereignty over these deserted coral reefs which rise scarcely more than nine feet above the sea level. All that has been done is to ask for protection for Japanese interests, presumably the phosphate works, and to remind France that she was not quite playing fair to take possession without first informing the other Pacific powers.

Lagoons Offer Shelter for Craft.

Perhaps that was just forgetfulness on the part of France, but the writer of the article in *L'Illustration* was candid enough to say that, while the islands are of no value or importance, "it seemed that their lagoons of quiet water might form an excellent refuge for hydroplanes and submarines and that their control by a foreign power might be dangerous in time of war

Continued on Page Two.

BARREN ISLES GET POWERS INTO ROW

By P. J. PHILIP.

Continued from Page One.

for the security of French maritime communications."

That predominantly was the French reason for taking possession. Presumably, also, it is the Japanese reason for not wanting these islands to be France's or any one else's possession. And it is arguable that, if France had notified the rest of the world first that she intended to take possession, a long, inconclusive discussion might have followed. It seemed more practical to take possession first and to argue the question afterward when that question should arise. It arose just a little prematurely, owing to the literary ambitions of the contributor to L'illustration.

The French are likely to soon remind Tokyo that they are not a signatory to the treaty clauses concerning the occupation of new territories in the Pacific, and so there is really nothing more to be done.

The New York Times

Published: August 27, 1933

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Annex 402

“France’s Tiny New Island Empire”, *New York Times* (13 Aug. 1933)

FRANCE'S TINY NEW ISLAND EMPIRE

FRANCE has planted her flag on seven almost-forgotten islands lying between the Philippines and Indo-China. These islands, in which Japan has also shown some interest, are merely dots of coral, comprising some 225 acres. They are outside the zone of American ownership.

Except for a few Chinese fishermen, who spend part of each year there and the remains of a Japanese enterprise prospecting for phosphates, the islets are given over to turtles and sea birds.

Two of the larger islands, Amboyne and Tempête, have cocoanut and banana groves and sweet-potato fields, the latter planted by visiting fishermen. The smaller islands, Loaita, ThiTu, Deux Iles and Itu Aba, are covered with thick moss and hedged by thickets of mangroves.

Amboyne lies at the extreme south of the group, the Deux Iles at the north, with a reef barrier that offers many hidden dangers to

navigators. In fact, many ships have in times past met disaster among the reefs. Recently the area was explored by a French oceanographic ship which sounds the ocean bed around Indo-China and charts were made of the larger reefs and their relative proximity to the seven islands.

Brilliantly colored fishes find a home in the lagoons and among the coral reefs. With fish and turtles, bananas, cocoanuts and sweet potatoes at hand, a castaway might find some of the islands at least a fairly hospitable place of sojourn.

A placard found on the island of Itu Aba offers mute testimony of a generous gesture by one fisherman toward another. The lettering on the placard, roughly translated, read: "I, Ti Mung, captain of a junk, came here in the full moon of March to bring you nourishment. I found no one. I leave rice in the stone cellar and I go away."

The New York Times

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Annex 403

“Pacific Isles Under Dispute: Groups in the Far East have Often been Cause of Controversies”, *New York Times* (3 Sept. 1933)

PACIFIC ISLES UNDER DISPUTE

Groups in the Far East Have Often Been Cause of Controversies

THE recent dispute between France and Japan over the ownership of a group of islands lying between the Philippines and Indo-China recalls other international quarrels regarding islands in the Pacific. Ownership of most of the many thousands of isles in that ocean was established a century or more ago by early explorers; war, aggressive nationalism, and the discovery of something of value on some bit of land have contributed to recent changes in their status.

The case of the little Island of Yap, which brought a degree of dissension between the United States and Japan more than a decade ago, caused an uproar which was in no way commensurate with the size of the island. At the Peace Conference Yap, one of the Caroline group formerly owned by Germany, was awarded to Japan under mandate. The United States protested because of Yap's cable connections: Yap is a station on the direct line from the United States to the Dutch East Indies via Guam, while another cable runs from Yap to Shanghai. The matter was settled at the Washington Conference in 1921, this country recognizing the mandate and Japan agreeing that the United States should have free access to Yap for cable purposes.

Two other groups, besides the Caroline Islands, which formerly belonged to Germany, were awarded to Japan by the peace treaty—the Marshall Islands and the Ladrone or Marianne Islands. Under the mandate Japan must give an account to the League of Nations every year. But Japan has served notice of her withdrawal from the League, and this circumstance has raised the question whether she, as a non-member, can benefit from a League award. Another cause for dispute is the report that Japan has been fortifying these islands. Such an act would threaten the security of Guam, a United States possession in the middle of the Caroline archipelago. Japan, however, has denied the charge that she has built fortifications.

Many Tiny Islands. *

These three groups of islands comprise more than 1,400 islets, islands and reefs, with a total area of about 830 square miles. A census made in 1931 showed that there were only about 73,000 inhabitants—50,000 natives, 22,889 Japanese and 100 foreigners. The natives are divided into two tribes—the Chamorros, who number only about 3,400, and the Kanakas.

Since the Japanese took control of the islands industries and agriculture have been developed considerably. The chief product of the islands is sugar, with copra and phosphate also of importance. Each year Japan has aided the islands with a subsidy, that in 1922 being as high as \$2,619,980, while that in 1931 sank to \$186,230. These figures indicate that the islands are becoming self-supporting, in spite of the costly program of improvements in agriculture and industry.

The islands over which France recently raised her flag, drawing protests from Japan, are part of the Paracels archipelago, at the entrance to the China Sea. The most important are Thitu, Loaita and Itaaba. They are almost entirely uninhabited, except for a few Chinese engaged in turtle fishing. The Japanese say they themselves have for some time engaged in exploiting a superficial layer of phosphate on some of the islands.

Two islands, Amboyne and Tempete, have cocoanut and banana groves and sweet potato fields, the latter planted by visiting fishermen. Amboyne lies at the extreme south of the group, with a reef barrier that offers many hidden dangers to navigators.

Brilliantly colored fishes find a home on the lagoons and among the coral reefs.

Last Fall a minor dispute arose concerning other Pacific islands. The Princess Dayang, daughter of the Sultan of Sulu, lord of the Mohammedan archipelago that scatters its islands between the Philippines and Borneo, claimed a number of islands belonging to the Turtle Group. Owned by the United States by virtue of a treaty with Great Britain, they are Sibaung, Boaan, Lihiman, Langaan, Great Batkungan, Taganak and Baguan. The Princess asserted that they had been given to her by her grandmother, Queen Lana.

The New York Times

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Annex 404

“The Texts of the Day’s Communiques on the Fighting in Various War Zones”, *New York Times* (4 May 1945)

The Texts of the Day's Communiqués on the Fighting in Various War Zones

United Nations

PARIS, May 3 (AP)—Communiqué 390 of Supreme Headquarters, Allied Expeditionary Force:

Allied forces, breaking out of their bridgehead over the Elbe River near Lauenburg, completely overcame enemy resistance and drove to the Baltic coast and captured Wismar. Between the Elbe and Wismar we captured a number of towns, including Ludwigslust, Hagenow, Schwerin and Moelln. Farther west we captured Luebeck.

North of Bremen we occupied Bremervoerde. East of Leer we captured Remels and Grossander.

In Holland we eliminated the pocket near Delfzijl, on the Ems estuary.

Enemy road movement in the triangular area of Luebeck, Wismar and Schwerin was repeatedly attacked by fighter-bombers and rocket-firing fighters. More than 1,500 road vehicles were destroyed or damaged. The communications center of Itzehoe was attacked by medium bombers. Last night light bombers attacked objectives at Kiel.

During the day thirty-two enemy aircraft were shot down and others were destroyed or damaged on the ground. Four of our fighters are missing.

Our forces effected another juncture with Russian forces along the Elbe River at a point five miles southeast of Wittenberge. Farther south our cavalry patrols reached the Czechoslovak border at several points southeast of Cham. In Austria our forces crossed the Inn River in the area west of Brounau.

Our units are clearing the area twelve miles east of Munich along a twenty-mile front. Huge quantities of enemy material were taken in the Munich area. About eighty-five planes, including ten jet-propelled aircraft, and more than 137,000 gas and smoke shells were captured. In this area a Hungarian infantry division surrendered intact.

South of Munich armored spearheads advanced rapidly to the east to reach the Inn River at two points south of Rosenheim.

In the Austrian Alps our forces met increased resistance, but advanced to a point eight miles west of Innsbruck and within twenty-five miles of the Italian border. Thirty miles to the west we advanced along the Lech River to within twenty miles of the Austrian southern border. East of Lake Constance we pushed south from Bregenz to Dornbirn.

Field Marshals von Rundstedt, Freiherrn von Welchs and von Sperrle and eighteen German generals were captured. Allied forces in the west captured 83,797 prisoners on April 30 and May 1.

Approximately 900 heavy bombers dropped food supplies for the Dutch population in enemy-occupied Holland.

In the period March 30 to April 30 61,764 tons of supplies were carried by air supply missions to our battle units and 64,076 casualties and 104,739 repatriates were evacuated.

ROME, May 3 (AP)—An Allied Mediterranean communiqué:

AIR

Fighting has ceased in northern Italy west of the Isonzo River with the unconditional surrender of all enemy troops under command of German Army Group C. There remain only the multitudinous administrative details of assembling and disarming the scattered and disorganized remnants of the once-proud Wehrmacht.

In northeast Italy the New Zealand Division has occupied the important port of Trieste. General Freyberg accepted the surrender of the German garrison to the Allied forces at 4:30 P. M. on Wednesday. Elements of the New Zealand Division have also occupied Gorizia.

The total number of German prisoners taken by the Fifteenth Army Group prior to the cessation of hostilities was in excess of 230,000.

AIR

Routine patrolling by small units of MAAF aircraft yesterday comprised the bulk of air activity in this theatre.

Balkan Air Force light bombers attacked gun positions on an island in the Adriatic and Tactical Air Force fighters and fighter-bombers attacked gun positions north of Trieste and rail and road targets in the Villach-Klagenfurt-Ljubljana areas.

From these operations two of our aircraft are missing. The MAAF flew approximately 200 sorties.

MANILA, Friday, May 4 (UP)—A communiqué:

BORNEO

Australian ground forces, expanding their beachhead at Tarakan, with close air and naval support have driven to within a few hundred yards of the airfield and are on the outskirts of the main city. Tanks are assisting the infantry in smashing enemy pockets of resistance. Unloading is proceeding unhampered by any air opposition.

Heavy and medium bombers struck airdromes, bivouacs and defenses at Jesselton, Kudat, Sandakan and Tawao. Air and naval patrols in the coastal sectors sank ten freighters, four coastal vessels, five supply laden barges and a number of smaller craft.

PHILIPPINES

Mindanao: Strong units of the Twenty-fourth Division have penetrated Davao city. Coastal guns and ammunition dumps have been captured intact and the enemy is retreating to the north. Matina airfield, south of the city, is under our control and our forces are rapidly clearing small enemy groups from the vicinity of Libby Airfield. In the interior the Thirty-first Division has advanced two miles north along the Central Highway. Our dive-bombers are attacking in close support.

Luzon: Our medium and attack bombers and fighters, carrying over 325 tons, bombed and strafed in attacks over the Cagayan Valley, silencing gun positions and starting numerous fires.

FORMOSA

Following night harassing attacks our heavy, medium and fighter-bombers swept over the industrial cities on the western coastal plain from Koshun in the south to Koko in the north. Many buildings were destroyed. Heito sugar refinery was heavily damaged and large fires and explosions covered the target areas with smoke to 5,000 feet. Nine locomotives, rolling stock and vehicles were also wrecked in low-level attacks.

CHINA SEA

Medium units and fighters bombed the island outpost of Itu Aba, 240 miles west of Palawan, destroying 85 per cent of the installations. Daily sea patrols of our air blockade sank a coastal vessel at Hong Kong, attacked Samah airdrome and harassed rail facilities at Hainan and French Indo China. Several locomotives, twenty box cars, many vehicles and barracks were destroyed or damaged.

EAST INDIES

Air patrols attacked shipping near Pare Pare on Celebes, sinking a coastal freighter and damaging seven more by strafing. Other planes harassed airdromes at Kendari and Flores Island in the Lesser Sundas. Light naval units at night attacked enemy shore positions at Hallamahera.

NEW GUINEA-BISMARCKS-SOLOMONS

Bombers and fighters in all categories continued to support Australian ground forces and neutralize installations in enemy rear areas, dropping 260 tons of explosives on airdromes, bivouacs, defenses and supplies at Wewak, New Britain, New Ireland and Bougainville.

CALCUTTA, India, May 3 (AP)—A communiqué:

LAND

Fourteenth Army Front: In the Irrawaddy sector patrols have entered Prome, 178 miles north-northwest of Rangoon and have advanced as far as the railway station. Pyawbwe, to the west of the Irrawaddy, nineteen miles south of Minbu, has been captured after some opposition. Pegu has been captured.

Northern Combat Area Command: Chinese Fiftieth Division and First Army troops continued to patrol south of the Kyaukme-Hsipaw-Mongyai line yesterday.

AIR

Allied aircraft of the Eastern Air Command yesterday in strength attacked Japanese targets along the Rangoon River ahead of the seaborne landings. Heavy bombers hit gun positions beside the river and fighter-bombers and fighters bombed and strafed beach positions, bunkers, trenches, gun pits and anti-aircraft defenses. Aircraft on patrol attacked Syriam, east of the city, hitting a factory and other buildings and machine-gunning trenches.

One Allied aircraft is missing.

A special communiqué:

Troops of the Allied land forces entered Rangoon this morning.

United States

GUAM, Friday, May 4 (AP)—Pacific Fleet communiqué 351:

(1) The Tenth Army resumed the attack in southern Okinawa on May 3, (East Longitude date), meeting artillery, mortar and small-arms fire from the enemy's fortified line. The First Marine Division made a limited advance in its zone of action, while other sectors remained stable. The attack was supported by ships, guns and aircraft.

(2) In the early evening hours of May 3 four small groups of enemy aircraft attacked our shipping off the coast of Okinawa, inflicting some damage on our forces and sinking two light units. Seventeen enemy aircraft were destroyed.

(3) Planes from escort carriers of the United States Pacific Fleet continued neutralizing attacks on airfields and air installations in the Sakishima group on May 2.

(4) As of May 2, according to the most recent reports available, 1,131 officers and men of the United States Pacific Fleet had been killed in action in the Okinawa operation and associated operations against Japan. A total of 2,816 were wounded and 1,604 were missing. All figures are preliminary and incomplete.

(5) Search privateers of Fleet Air Wing 1 destroyed three twin-engine planes on the ground, damaged a locomotive and set numerous fires in a low-level attack on

Kanoya airfield, Kyushu, during the early evening of May 3. Planes of the same wing probably sank a small cargo ship off the coast of central Honshu on the same date.

(6) Planes of the Fourth Marine Aircraft Wing bombed targets in the Palaus and strafed installations on Sonsorol Island, southwest of the Palaus, on May 3. On the same date dive-bombers of this wing struck the airstrip on Yap. Neutralizing attacks were carried out on enemy bases in the Marshalls by marine aircraft on the previous day.

(7) A search privateer of Fleet Air Wing 2 bombed barracks and shops on Wake Island on May 2.

WASHINGTON, May 3 (AP)—A Twentieth Air Force announcement:

B-29's of the Twentieth Air Force resumed their attack on the network of air bases on the southern Japanese homeland island of Kyushu, today, May 3. Eastern war time. The attack was mounted in sizable strength by Superfortresses of the Twenty-first Bomber Command under Maj. Gen. Curtis E. LeMay and was directed at six important installations.

Further details will be announced after the bombers return to their bases in the Marianas Islands.

PARIS, May 3 (AP)—A communiqué of the United States Strategic Air Forces in Europe:

Approximately 400 B-17 Flying Fortresses of the United States Eighth Air Force dropped about 800 tons of food to civilians in Holland Thursday for the third consecutive day. Dropping zones were between Alkmaar and Utrecht.

British

LONDON, May 3 (AP)—An Air Ministry communiqué:

Last night Mosquitos of the RAF Bomber Command made concentrated attacks on the German naval base at Kiel. Night fighter and intruder aircraft of the Bomber Command supported the bombers and attacked airfields.

Three of our aircraft are missing.

French

A French First Army communiqué, as transmitted yesterday by the French Press Agency (AFP) and reported by the Federal Communications Commission:

Troops of the French First Army have continued to advance in the redoubt in the Austrian Alps in spite of enemy resistance, which is still fierce in this mountainous sector and which is based upon an entire system of concrete buildings.

In the upper Rhine Valley our forces captured Goetzis. More than 2,000 prisoners were taken yesterday.

Russian

Yesterday's communiqué, as broadcast from Moscow to the Soviet Union and reported by the Federal Communications Commission:

During May 3, southwest of the town and port of Pillau, troops of the Third White Russian Front continued to fight in order to clear the enemy from the Frische Neherung land strip. Our troops occupied the inhabited localities of Kahlberg-Liep and Kaiserhof.

Troops of the Second White Russian Front, developing their offensive, captured the towns of Barth, Bad Doberan, Neubukow, Warin and Wittenberge, and on May 3 linked up with our allies, the British troops, on the Wismar-Wittenberge line. Troops of this front captured also the large inhabited localities of Kroepelin, Neukloster, Buetzow, Guestrow, Goldberg, Karow, Meyenburg, Putlitz, Pritzwalk and Perleberg.

In the fighting during May 2 troops of this front took prisoner 10,600 German officers and men and captured 328 aircraft. Among the

prisoners is the commander of the Fifth Stettin District for Labor Service, Major General Natorp.

Northwest of Berlin troops of the First White Russian Front, continuing their offensive, fought their way into and captured the large inhabited localities of Wilsnak, Gloewen, Stuedenitz, Netzow, Vehl-gast, Strohdene, Rhinow, Spaatz and Hohenauen, and, having reached the River Elbe southeast of the town of Wittenberge, linked up with our allies, the American troops.

On May 2 after 9 P. M., in Berlin, troops of this front further took prisoner more than 20,000 German officers and men. In addition, 10,800 wounded German soldiers were taken prisoner in hospitals. Altogether in Berlin on May 2 troops of this front took prisoner 100,700 German officers and men. Among the prisoners is the commander of the Government Air Squadron, Lieutenant General Baur; the head of the Berlin police medical service, Major General of Medical Service Wrubel; Lieutenant General of Police Rattenhuber, and the chief of Goebbels' office, Seiler.

During May 2 troops of the First Ukrainian Front have taken prisoner in the Berlin area more than 34,000 German officers and men and captured thirty-seven tanks and more than 140 field guns. Among the prisoners is the commander of the 236th German Infantry Division, Major General Rowen.

Thus, altogether, on May 2 in the Berlin area more than 134,000 German officers and men were taken prisoner. One hundred thousand of them were taken by troops of the First White Russian Front and 34,000 by troops of the First Ukrainian Front.

Troops of the Fourth Ukrainian Front, continuing their offensive, on May 3, captured the town of Cieszyn [Teschen], an important road junction and powerful stronghold of German defenses, and occupied also the large inhabited localities of Waltersdorf [Valterovice], Butovice, Frydek, Karvinna, Pogwizdow, Goleszow, Leszna and Makov. In battles during May 2 troops of this front took prisoner more than 1,400 German officers and men.

Troops of the Second Ukrainian Front, continuing their offensive east of the town of Brno [Brunn], fought their way into and occupied the large inhabited localities of Lacnov, Zlin, Ostrokovice, Selesovice, Rataje and Krenovice. During May 2 troops of this front took prisoner more than 1,000 German officers and men. Czechoslovak partisans have captured and handed over to our troops the commander of the Sixteenth German Tank Division, Major General Mueller.

There were no substantial changes in other sectors of the front.

During May 2 on all fronts fifty-three German tanks and self-propelled guns were damaged or destroyed.

The Thursday midnight supplementary communiqué, as broadcast from Moscow to the Soviet press and reported by the Federal Communications Commission:

Troops of the Second White Russian Front were developing their offensive. Having captured the towns of Rostock and Warnemuende, the Soviet units cut off the lines of retreat of the group of German troops that was in the area of the town of Barth. By swift blows our tank troops and infantrymen suppressed the enemy resistance and captured the town of Barth, a port on the Baltic Sea.

Troops of this front, making their way forward in a westerly direction, advanced about sixty kilometers and linked up with our Allies, the British troops. In the day's fighting more than 2,000 German officers and men were wiped out.

Troops of the Fourth Ukrainian Front continued their offensive. The enemy put up stubborn resistance on the approaches to the Czechoslovak town of Cieszyn [Te-

schen]. The Germans had turned Cieszyn into a powerful stronghold of their defenses. From the north and east the town was covered by several lines of trenches, reinforced concrete cleats and extensive minefields. Stone houses and factory buildings in the town were adapted for all-round defense.

The enemy brought up large forces into the Cieszyn area and repeatedly threw them into counter-attacks. Our guards' units, by powerful blows, broke the Germans' resistance and broke into the streets of Cieszyn from three sides. In fierce fighting that developed into hand-to-hand clashes our troops routed the enemy garrison and captured the town of Cieszyn, a junction of four railways and several highways.

On the approaches to the town and in its streets many enemy dead were left. Forty-two guns, 240 machine guns, stores of military equipment, a trainload of fuel, four trainloads of horses and other booty were captured from the Germans.

Yugoslav

Yesterday's communiqué, as broadcast from Belgrade and reported by the Federal Communications Commission:

"All praise from the Supreme Commander to units of the Fourth Army and to units of the Navy. After eleven days of fierce street fighting, taking house by house, troops of our Fourth Army broke the resistance of strong German forces and today, on May 3, 1945, captured and liberated the great seaport town of Rijeka [Fiume]. In this fighting two German divisions were defeated and completely destroyed.

"Troops of our Navy, after having successfully advanced to the area of Istria after four days of fierce fighting, have broken very strong enemy resistance and today, May 3, 1945, have captured and liberated the town of Pulj [Pola], a great sea and war port. Thus, enemy resistance is completely broken in the whole area of Istria and the Slovene Littoral, and both these areas are completely liberated and free from the invader.

"I express my gratitude to the heroic troops of our glorious Fourth Army under the command of Col. Gen. Petar Draksina, Col. Gen. Pavle Jaksitch and Col. Bosko Timodovitch and to the brave troops of our Navy under the command of Maj. Gen. Josip Cerni and Col. Dragisa Ivanovitch and to all fighters and leaders of these units that have won these glorious victories.

"Honor to the fallen heroes for the liberation of our country. Death to fascism. Liberty to the people."
MARSHAL TITO.

On the front in Croatia our troops have continued their advance and, after breaking enemy resistance, have captured and liberated Bjurdjevac, a strongly defended enemy strong point. Many other localities were also liberated, including Badjevac, Pukolica, Ravnos, Krastovac, Pulnac, Nova Vreca, Gogonovac, Ljupovljani, Nova and Stara Subotka. Bulgarian units have captured the enemy strong point of Ferdinandovac.

Continuing their offensive operations in the Una Valley our troops, after fierce fighting, have captured and liberated Bosnaska Kostajnica and have liquidated all enemy strong points between Bosanski Novi and Rostajnica.

In the fighting for the liberation of Novi and Dobrljin the enemy had more than 1,500 killed. Our troops have destroyed bridges over the Una near Bosanski Novi.

Rumanian

Yesterday's communiqué, as broadcast domestically from Bucharest and reported by the Federal Communications Commission:

West of Morava Rumanian troops, continuing to advance along the entire front, reached with part of

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their forces the immediate vicinity of Kromeriz and by-passed this town on the west with other forces which cut the important line of communications, Kromeriz - Brno [Bruenn]. More than twenty-five places were captured, the most important being Galekovice, Slitahnev, Kosiki, Neticice, Tetetice, Vejke, Drjinov and Rataje.

Northwest and northeast of Uzher-ski-Brod our troops, in collaboration with Soviet units, continued their victorious advance, penetrating another twelve to twenty kilometers in a northerly direction. More than sixty places were taken, the most important being Frantova-Ljota, Libecice, Valaske-Klobouki, Sloniz, Luhacovice and Brzezoloupe.

Bulgarian

Yesterday's communiqué, as broadcast domestically from Sofia and reported by the Federal Communications Commission:

On the western front of Stoycheff's Army the enemy carried out lively artillery and patrol activity.

On the southern front our troops operating south of the River Drava continued to pursue the enemy in a westerly direction.

German

A German communiqué, broadcast last night over a hook-up of north German stations still in Nazi hands and reported by the Federal Communications Commission:

[Street fighting was reported to be raging in Bregenz, in Austria, at the southeast tip of Lake Constance, and said that the German garrison of Fiume was holding out against "concentric attacks." It then went on:]

The High Command of the Armed Forces has declared the naval bases of Kiel and Flensburg open cities and has ordered that they should not be defended.

Our troops continue to fight their way back from the west Alpine front to the northeast under most difficult conditions. Enemy pressure continues at the northern part of Lake Garda.

Northeast of Brno [Bruenn] the enemy extended his penetration area and captured Wischau after heavy fighting. Southeast of Moravska Ostrava the Soviets were held by immediate counter-thrusts after some gains of ground during the forenoon.

On the Frische Nehrung heavy defensive fighting continues. From Courland [Latvia] only local fighting is reported.

The enemy air force made many low-level attacks, particularly in the north German area, and continued the terror against the civilian population.

[The communiqué was broadcast at midnight (German time," fifteen hours later than usual. Imperfect reception conditions made it impossible to record the text in full.]

Japanese

A communiqué, as transmitted overseas in English by Domei yesterday and recorded by the Federal Communications Commission:

The present battle situation on Tarakan Island is as follows:

(1) Although the enemy in stubbornly attempting to infiltrate into the Japanese line under cover of dire aerial and artillery bombardments, our forces are holding fast to their first-line positions.

(2) A portion of the enemy forces, accompanied by tanks, attempted about 3 P. M. on May 2 to advance toward the airfield, but were repulsed by our troops. Numerous abandoned enemy dead bodies have been counted.

(3) Three enemy mine sweepers are known to have been sunk so far.

Annex 405

Lindesay Parrott, "Australians Widen Borneo Grip; Americans Crash Way into Davao", *New York Times* (4 May 1945)

Australians Widen Borneo Grip; Americans Crash Way Into Davao

By LINDESAY PARROTT

By Wireless to THE NEW YORK TIMES.

MANILA, Friday, May 4—Australian Imperials who on Tuesday landed on Tarakan Island, one of the richest of Netherland Borneo's oil fields, yesterday carved out a wedge-shaped beachhead approximately five square miles, drove within a few hundred yards of the airport and entered the outskirts of the main town, of Tarakan, about two miles inland.

Both thrusts, which were moving respectively northeast and east from the beaches at Lingkas, supported by tanks, were encountering pockets of the stubbornly fighting enemy.

On the outskirts of the central section of the sprawling town, whose buildings, oil tanks and warehouses spread down to the

seacoast, the Australians met mortar and machine-gun fire. Snipers fired from ruined houses and pillboxes and a road running from Lingkas to the center of Tarakan was found to be planted with small mines and booby traps.

Planes of the American Thirteenth Air Force soared overhead in close support of the Australians, and naval gunfire on the largest pockets of the enemy came from the ships of the Seventh Amphibious Force, commanded by Rear Admiral Forrest B. Royal, which put the Allies ashore.

Meanwhile patrol torpedo boats and search planes of the American Seventh Fleet found many targets

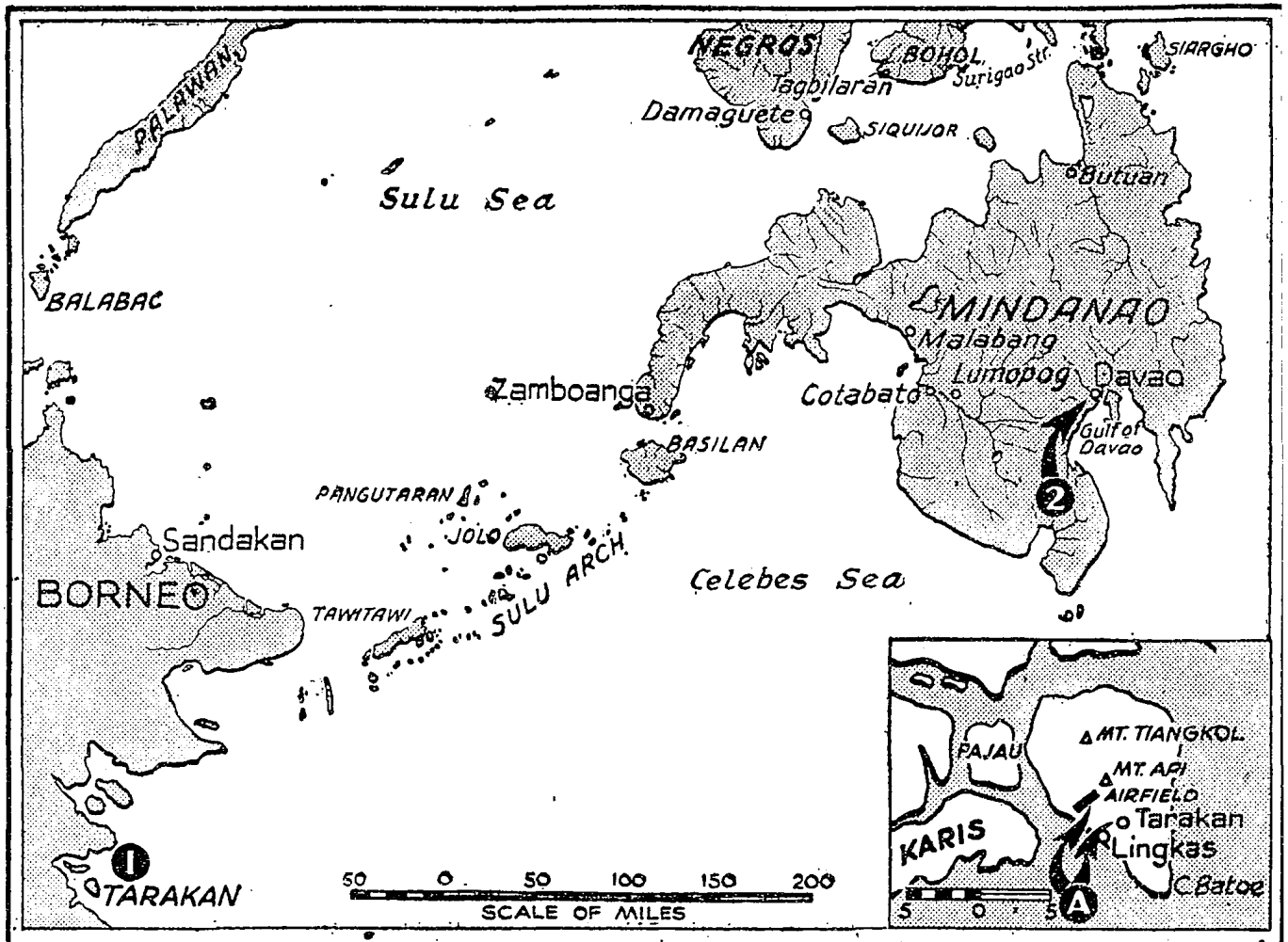
Continued on Page 10, Column 4

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M'ARTHUR'S MEN MAKE PROGRESS ON TWO ISLANDS



May 4, 1945

On Tarakan (1), just off the coast of Borneo, Australian troops carved out a wedge-shaped beachhead by advancing close to the airfield and to the outskirts of Tarakan town (A on inset). On Mindanao Island in the Philippines American units penetrated the large port of Davao (2).

Australians Widen Borneo Grip; Americans Crash Way Into Davao

Continued From Page 1

in the new hunting ground around the Borneo coast, opened by the invasion of Tarakan.

Sweeping into the wooded bays and muddy river estuaries of the flat Borneo coastline, planes and patrol boats, in the first day's operation, sank ten freighters, four coastal vessels and five barges loaded with supplies and many smaller craft.

Supplies Unhampered

On the Lingkas beaches the unloading of supplies for the Australians proceeded unhampered by Japanese planes as heavy and medium bombers struck the enemy-held airports of Borneo from which such raids might be staged.

Among them were Jesselton, Kudat, Sandakan and Tawao, where defense and camp areas also were hit.

Although, since the invasion of the Philippines, it has been the custom of General Douglas MacArthur's headquarters to identify American divisions taking part in invasion operations, Australian troops that hit Tarakan remained unnamed except as "veterans of North Africa and New Guinea."

In response to inquiries a spokesman at Allied headquarters said the identity of the Australian forces on Borneo were being withheld at the request of the Australian authorities.

Americans in Davao

In the Philippines the fast-moving invasion of Mindanao on Wednesday reached the city of Davao, which in peacetime was the largest Japanese settlement in the islands.

Strong units of the Twenty-fourth Division entered streets of the port area, meeting moderate resistance and capturing intact the coastal guns and ammunition dumps with which the enemy evidently originally intended to defend the port.

Front reports indicated that the plan had been abandoned and that the Japanese are following now the established defense pattern of retiring to the hills and fighting from prepared cave and tunnel po-

sitions from which they must be laboriously uprooted.

Gen. Douglas MacArthur's communiqué said the Americans controlled Matina airfield south of Davao City and were clearing small groups of Japanese from the vicinity of Libby airport. Both were fields much used by the Japanese during the early days of the Philippines invasion and both have facilities for the storage and servicing of heavy bombers as well as hard-surfaced strips, respectively 3,500 and 4,800 feet long.

Over the China Sea naval planes of the Seventh Fleet struck their first blow in a new area of the Japanese Empire, staging reconnaissance in force at Itu Aba island in the Spratly group. The island, 240 miles west of Palawan, lies approximately 650 miles north-east of Singapore.

The purpose of the attack was not officially disclosed, but the position of the island makes it a potential hide-out for shipping which the Japanese are still attempting to bring in under cover of darkness through the American blockade of the oil and rubber regions of the Netherlands Indies.

A score of Navy Venturas, it was announced, destroyed eighty-five of the island's installations, while planes running the daily China Sea patrols sank a coastal ship at Hong Kong, again hit the railroad at Hainan, French Indo-China, and attacked the Samah airdrome. Nearly a hundred planes on Monday resumed attacks on Formosa, bombing the industrial cities of Koshun and Koko, destroying many buildings and wreaking serious damage on the Haito sugar refinery.

British Hit Andamans Again

Continuing its bombardment of Japanese installations in the Andaman Islands in the Indian Ocean, south of Burma, a British task force shelled Great Coco Island, northernmost of the Andaman group, yesterday morning (Japanese time). The Japanese Domei agency reported.

In an English-language wireless dispatch to the United States, recorded by the Federal Communications Commission, Domei said that the bombardment, starting at 10 A. M., had lasted for about thirty minutes.

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Annex 406

[Untitled Article], *New York Times* (24 Mar. 1949)

mysterious presence of a 200-man Chinese Nationalist garrison on a tiny sandspit near the Philippines was disclosed today.

The island is Itu Aba, in the South China Sea, 325 miles west of the Philippine island of Samar and 350 miles east of French Indo-China. It is more than 800 miles south of China.

What purpose a garrison could serve there is not known.

The situation was brought to light by The China Mail of Hong Kong. The newspaper said that Chinese Communists held the island and had driven off a United States Graves Registration team.

Capt. Harlyn Lacy of Elizabethton, Tenn., said in Manila that he led a three-man team there late in January and left voluntarily after two days. He said the garrison evidently was Nationalist, not Communist. He said it flew the Nationalist flag and was in radio touch with Nanking.

• MANILA, March 24 (AP)—The

The New York Times

Published: March 25, 1949

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Annex 407

“Chinese Reds Said to Join Viet-Minh”, *New York Times* (25 Mar. 1949)

CHINESE REDS SAID TO JOIN VIET-MINH

French Charge Bands of 600
With Spurring Guerrillas'
Activity in Indo-China

SAIGON, Indo-China, March 24 (UP)—French Far Eastern Headquarters charged today that Chinese Communists were fighting with Viet-Minh guerrillas against French troops in Indo China.

A communiqué said the rebel activity was increasing along the Tongking frontier. Tongking is the northernmost Indo-Chinese province, bordering on China.

"Since March 15 there has been increased rebel activity, particularly along the Tongking frontier," the communiqué said. "Attacks against our posts are growing more numerous in the region north of Langson and east of Laokay.

"The number of troops employed also have been growing, among which Chinese Communist units

have been noted working with Viet-Minh units from Tongking."

ACTION IN INDO-CHINA



The New York Times

March 25, 1949

The French said that Chinese Communists were fighting at the side of Viet-Minh guerrillas in Tongking (1). Chinese Nationalist forces were reported to have occupied the tiny island of Itu Aba (2).

The New York Times

Published: March 25, 1949

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Annex 408

“South Vietnam Warned by Red China on Islands”, *New York Times* (31 Aug. 1956)

South Vietnam Warned By Red China on Islands

LONDON, Aug. 30 (AP)— Communist China warned South Vietnam today that the reported landing by a South Vietnamese naval force on the Spratly Islands was a “serious challenge to peace in Asia.”

The Spratly Islands are part of an archipelago in the South China Sea over which China and Vietnam claim sovereignty. In addition, a Filipino named Tomas Cloma recently claimed the islands for himself.

The reported action by South Vietnam several days ago already has brought inquiries from the Nationalist Chinese Government on Taiwan (Formosa).

The Peiping radio declared the Spratly Islands “have always been and will always remain Chinese territory.”

The New York Times

Published: August 31, 1956

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Annex 409

“Manila Asks Taiwan’s Troops to Quit South China Sea Island”, *New York Times* (11 July 1971)

Manila Asks Taiwan's Troops To Quit South China Sea Island

Special to The New York Times

MANILA, July 10—The Government of the Philippines announced today it had taken steps to protect its interests in a group of islands and coves in the South China Sea that the Filipino explorer, Tomas Cloma, claimed in the early nineteen-fifties and gave the name Freedomland.

In a communiqué the Government also said it considered the recent occupation by Chinese Nationalist forces of the island of Itu Aba in the Spratly group, adjacent to Freedomland, a serious threat to national security.

The Government's moves on the islands, situated midway between the Philippines and South Vietnam and some 900 miles south of Taiwan, were adopted this morning by the National Security Council.

The Council's action was prompted by an incident alleged to have happened earlier in which Chinese Nationalist artillery on Itu Aba fired on a fishing boat carrying a Filipino Congressman, the minority floor leader Ramon V. Mitra, who represents the district of Palawan, just east of the Spratly group.

In a news conference this afternoon, President Ferdinand E. Marcos said that the Filipino Government had sent a diplomatic note to Taipei asking that the Chinese garrison be withdrawn from Itu Aba.

Mr. Marcos said that the island now occupied by Chinese Nationalists belonged to the Spratly group, which became a de facto trusteeship of the World War II Allied powers when Japan renounced sovereignty in the San Francisco Treaty of 1951.

Mr. Marcos said that this trusteeship precluded the setting up of garrisons on any of the Spratly islands without the consent of the Allies and that Chinese occupation of Itu Aba was therefore illegal.



The New York Times July 11, 1971

The Philippines was concerned, Mr. Marcos said, because of the fast pace of developments in the region and the proximity of the Chinese Nationalist garrison to Filipino territory.

Mr. Marcos explained that Manila had supported the efforts by Mr. Cloma, the explorer, to occupy the Freedomland island group in 1950. Later Mr. Cloma turned the islands over to the Government.

Now in Control

The President said the Government was now in effective occupation and control of three of the bigger islands in Freedomland. Asked about prospects for oil in the area, Mr. Marcos said several applications for concessions had been received.

He said the Government was empowered to grant concessions because of its jurisdiction over natural resources on the continental shelf within its territorial waters.

The Philippines claims a territorial sea not restricted to three miles offshore but extending to her boundaries as an archipelago. Foreign Secretary Carlos P. Romulo, who also attended the news conference, said the Freedomland group was within the archipelagic territory claimed by the Philippines.

The New York Times

Published: July 11, 1971

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Annex 410

“Tiny Isles in Pacific Make Big Waves”, *New York Times* (12 July 1971)

Tiny Isles in Pacific Make Big Waves

Special to The New York Times

TAIPEI, Taiwan, July 11— People in this part of the world are showing extraordinary concern over a number of dots on the waters of the Western Pacific.

"It's like this," one source said. "The Chinese are mad at the Japanese over some islands in the East China Sea. Some Filipinos are unhappy about Chinese activities on some islands in the South China Sea and there has even been talk about the possibility of a confrontation between the Nationalist Chinese and the Communist Chinese over another group of islands."

Some newspapers here have seemed to be more preoccupied with ownership of these island clusters than with such land masses as the Chinese mainland and Taiwan.

"Maybe it's easier to argue over the sovereignty of a few islands than to find a solution to the major problems," a diplomat commented. "At least it takes people's minds off the immediate, unpleasant issues."

Clash in Hong Kong

Partisan agitation over these small islands has seemed more academic than explosive, but there has been a belligerent quality to some of the comment and in one city there was related bloodshed earlier this year.

In Hong Kong a number of students were injured in a clash with the police over a group of islands in which the British authorities have no in-



The New York Times July 12, 1971

terest. The students had staged an unauthorized demonstration protesting the projected transfer of the Senkaku Islands to Japan as part of the treaty by which the United States is relinquishing Okinawa and the other Ryukyus.

Chinese from Hong Kong, the Chinese mainland and Taiwan all maintain that these islands, which they call the Tiao Yu Tai, belong to China, although they disagree over whether the Chinese Government is in Taipei or Peking.

Peking's Hsinhua news agency denounced the treaty between the United States and Japan as a "farce" in which Japan was vainly attempting

to take over the Tiao Yu Tai as well as the Ryukyus.

"We warn the Japanese militarists outright that the Chinese people will never permit the Japanese gangsters to trample on our sacred territory again," Hsinhua said.

Taiwan's official news agency reported earlier this month that two Chinese Nationalist naval craft, an escort destroyer and a patrol transport, "policed the Chinese territorial waters" surrounding the Tiao Yu Tai during a two-month training cruise.

"The Tiao Yu Tai, the Government has made very clear belong to the Republic of China," it added.

Philippine Protest

Meanwhile, a group of islands several hundred miles south of Taiwan also was the subject of controversy. A Filipino congressman, Representative Ramon V. Mitra, said that Chinese Nationalist soldiers were manning gun emplacements on Itu Aba, one of the islands of the small Spratly group, which is situated in the South China Sea between South Vietnam and Palawan in the Philippines. He asserted that they had fired on a party he was accompanying to the area.

Mr. Mitra, who represents the Province of Palawan, has introduced a bill that would incorporate the Spratly group into his province.

Press reports from Manila said that air force and navy units had been ordered to investigate the situation.

Yesterday the Philippine Government said it had sent a diplomatic note to Taipei asking that the Nationalist garrison be withdrawn from Itu Aba. It also said it had taken steps to protect its interests in an adjacent group of Philippine islands called Freedomland.

In Taipei, a Defense Ministry spokesman said the Nationalists had stationed troops on the Spratly group, which he called Nan Sha Chun Tao, but he said that no shooting had taken place.

Paracel Group Disputed

Taipei newspapers described the Spratly as one of three clusters of islands in the South China Sea that have "long been included in the Chinese map." The others were identified as the Pratas and the Paracels.

A report from Washington this week said the Chinese Communists might be building a naval base in the Paracels, which are about 450 miles northwest of the Spratly Islands. American reconnaissance planes reportedly have spotted convoys carrying construction materials and have photographed the construction of a ship-berthing area, a jetty and more than 50 buildings.

Taking note of this report, one of Taipei's English-language newspapers, The China News, declared in an editorial that the "Red Chinese fortification of the Paracel group should not go unchallenged."

"Surely the naval strength of the Republic of China, South Vietnam and the U.S. Seventh Fleet is more than sufficient to deal with any Red Chinese flotillas which dare to venture far into international waters," the paper declared.

The New York Times

Published: July 12, 1971

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Annex 411

“Saigon Rejects Peking’s Claim to the Spratly Islands”, *New York Times* (6 Feb. 1974)



United Press International

Photograph made from a South Vietnamese destroyer last month off the Paracel Islands shows a heavy machine gun along the rail of a Chinese fishing trawler before the Chinese took control of the island group.

Saigon Rejects Peking's Claim to the Spratly Islands

SAIGON, South Vietnam, Feb. 5 (Reuters) — The South Vietnamese Government today rejected a Chinese claim to the Spratly Islands and reasserted its sovereignty over them.

The Saigon statement, issued by the Foreign Ministry, came a day after the Chinese Foreign Ministry said that China would not tolerate moves by the South Vietnamese to reinforce their presence on the islands, in the South China Sea about 425 miles southeast of Saigon.

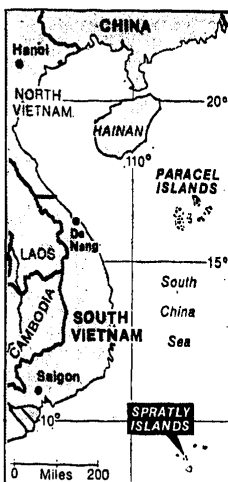
The South Vietnamese, who are believed to have about 300 men on the Spratlys, sent a task force to the islands last week after Chinese naval and air forces occupied the Paracel Islands, some 500 miles farther north.

Saigon's statement also reasserted sovereignty over the Paracels.

The statement said that South Vietnam had "maintained army units and an administration" on the Spratlys for a long time. It said that in view of "the recent armed aggression" by China in the Paracels, which the Chinese now control, Saigon must "naturally think of improving" the defense and administration of the Spratlys.

"Faced with the threatening character of Communist China's statements, the Government and the people of Vietnam do not intend to provoke any country, but they are determined to defend their sovereignty, independence and territorial integrity," the statement said.

The Chinese Nationalist Government in Taipei and the Philippine Government also claim the Spratlys. The Chinese Nationalists have about 500



The New York Times/Feb. 6, 1974

men stationed on one of the larger islands, Itu Aba, and the Filipinos occupy three smaller ones.

Naval sources here said South Vietnam had ordered its troops to land on all unoccupied islands in the Spratly group.

It is not known why China and South Vietnam have such strong interests now in the two groups of small, uninhabited islands. One theory is that they may be staking claims to any offshore oil around the islands.

Manila Protests

Special to The New York Times

MANILA, Feb. 5 — The Philippine Government today protested recent actions by South Vietnam and Taiwan in the Spratly Islands and urged that the question of who owns the islands be submitted to the

United Nations.

Information Secretary Francisco S. Tatad said that the Philippines had occupied at some time five of the seven islands. He would not say how many of these were now occupied by Philippine troops but said that some of them were.

Peking Reiterates Claims

Dispatch of The Times, London

PEKING, Feb. 5—The Foreign Ministry, in statements issued late last night and published in today's Peking newspapers, reiterated Chinese claims to the Spratly Islands and protested against the declaration by Japan and South Korea last area of the East China Sea as a joint development zone.

The Spratlys, lying some 800 miles from the Chinese mainland, present tactical problems if China decides to contest them by force, as she occupied the Paracel Islands farther north last month. The Peking statement specifically linked the defense of claims to the Spratlys with the measures taken in the Paracels.

In the separate dispute with Japan and South Korea over the continental shelf off the Island of Kyushu and the Korean peninsula, China is not specifically claiming territorial waters but rather the right to be included in negotiations on division of their resources, particularly oil and natural gas.

The New York Times

Published: February 6, 1974

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Annex 412

Fox Butterfield, "Spratly Islands Causing Concern: Analysts Believe Actions by 4 Asian Countries Could Lead to Confusion", *New York Times* (25 Jan. 1976)

SPRATLY ISLANDS CAUSING CONCERN

Analysts Believe Actions by
4 Asian Countries Could
Lead to Confrontation

By FOX BUTTERFIELD

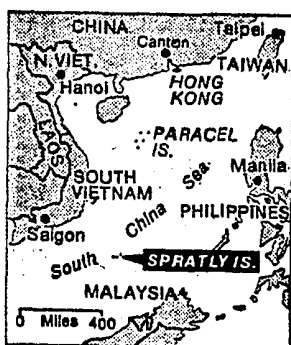
Special to The New York Times

HONG KONG, Jan. 24 — In a series of recent moves that concern analysts here, China, Taiwan, Vietnam and the Philippines have all taken actions apparently designed to reassert their claims to the disputed Spratly Islands in the South China Sea.

None of the moves yet suggests a confrontation over the tiny coral islands scattered over a wide area between the Philippines and South Vietnam. But analysts who are watching the developments closely fear that the recent actions could be a prelude to conflict.

Among the moves involving the islands, which lie in waters possibly rich in oil, are the following:

Chinese ships and planes conducted greatly expanded naval exercises in the South China Sea last fall, moving much farther south and showing more assertiveness than ever before, specialists here report. Then, at Christmas,



The New York Times/Jan. 25, 1976

The Spratly Islands are
the focus of a dispute.

when three foreign ships were wrecked off the disputed Paracel Islands, 400 miles north of the Spratlys, China ordered other vessels to stand clear and rescued the endangered sailors. China's prompt, efficient action indicated a much greater capacity to operate in the South China Sea than analysts believed Peking possessed.

The Philippines has reportedly built an airfield on one of the five islands it holds in the Spratly group. Two companies of marines make up the Filipino garrison.

In response to a long Chinese assertion of sovereignty over the Spratlys, the North Vietnamese army newspaper, Quan Doi Nhan Dan, recently warned that Hanoi's army was "ready to accept any mission anywhere," and to "go as far as the border areas and sea islands to maintain the security of the fatherland."

Taiwan is soon scheduled to send a small convoy, guarded by a destroyer, to resupply its garrison of 200 to 300 men on the one island it holds, Taiping, or Itu Aba, in the center of the archipelago.

To analysts here, the most troublesome action is the new evidence that Peking has a much greater naval strength in the South China Sea than earlier realized. China's navy has rapidly become one of the largest in the world, but it has usually stayed close to shore.

Military Action Unlikely

Most diplomats doubt that Peking would undertake military action at a time when it is emphasizing the themes of stability and economic growth. Peking's relations with Hanoi seem to have cooled since the Indochina war ended last spring and diplomats doubt that China has reached the point where it would risk an open break with the Vietnamese. Peking has also exchanged ambassadors with Manila, and an attack on the Philippines seems unlikely.

As for Taiwan, although the Spratlys are not covered by its security treaty with the United States, a seizure by Peking of the Taiwan-held island in the group could hurt Washington's move toward normal relations with Peking.

On the other hand, analysts recall, Peking gave no real advance warning before it seized the Paracels from South Vietnamese troops in January 1974.

China does not occupy any of the roughly 100 coral islands, reefs and cays in the Spratly group, known in Chinese as the Sisha Islands. But last April, shortly before the collapse of the old Saigon Government, Vietnamese Communist forces took over six of the Spratlys.

The Spratlys lie roughly 400 miles east of Saigon, within fighter-plane range of the Philippines, but are difficult for Vietnamese fighters to cover. Since Peking's nearest bases are over 600 miles away on Hainan Island, only Chinese TU-16 or IL-28 bombers could reach them, and not Chinese fighters. Taiwan is nearly 900 miles to the north, making the Nationalist position the most tenuous and exposed of all.

Before geological surveys in the late 1960's suggested that the South China Sea might be extraordinarily rich in oil, the only interest in the islands was as outposts for a few fishermen and as fertilizer depositories.

The New York Times

Published: January 25, 1976

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Annex 413

Fox Butterfield, "Philippines is Bolstering its Position in Islands that are also Claimed by Peking, Taipei and Hanoi", *New York Times* (16 Mar. 1978)

Philippines Is Bolstering Its Position in Islands That Are Also Claimed by Peking, Taipei and Hanoi

By **FOX BUTTERFIELD**

Special to The New York Times

MANILA, March 11—The Philippines is vigorously pushing efforts to strengthen its share of control over a group of potentially important islets in the South China Sea that are also claimed by Communist China, Nationalist China and Vietnam. The group, known as the Spratly islands, is widely believed to have large deposits of oil.

Last week Philippine marines occupied another of the coral islets, bringing the number under Manila's control to seven. The Peking Foreign Ministry promptly reaffirmed a warning it made in 1976 that all such foreign occupation infringed on China's territorial integrity.

Vietnam has about 350 soldiers and some artillery and antiaircraft guns on three of the islands, including Spratly Island itself. The Chinese Nationalists have about 600 soldiers on the largest of the islands, the 90-acre Itu Aba, which they have garrisoned since World War II.

Philippines Extending Airstrip

The Chinese Communists have not occupied any of the Spratlys, which lie about 650 miles south of their nearest territory, Hainan Island. But in 1974 they seized another cluster of islands in the South China Sea, the Paracel Islands, from South Vietnam.

The Philippines is extending an airstrip built two years ago on Pagasa Island. The runway is now used only by T-28 propeller-driven fighters and C-47 transports bringing in supplies for the 1,000 marines. Recently Manila purchased 23 F-8 Crusader naval fighters from the United States, and the local Philippine commander has said he wants to build a catapult and arresting gear on the new runway to accommodate the jets. The F-8 is a long-range jet interceptor designed for use on aircraft carriers.

In addition, the Philippine Air Force is transferring some of its F-5 Freedom fighters, its most advanced plane, to Puerto Princesa on the island of Palawan, the nearest territory in the Philippines proper.

There are about 100 Philippine civilians

in the Spratlys, mostly with the government fishery and weather departments, but there are plans to bring in fishermen and to build a harbor and fish-refrigeration plant. Regular commercial flights from Palawan to Pagasa may also be started.

Manila Claim Based on Proximity

Manila bases its claim to the islands on actual administrative control and on proximity. Pagasa is slightly closer to Palawan than to Vietnam. Since the continental shelf drops off sharply just west of Palawan, the Philippines has a more difficult time asserting that the Spratlys lie on its shelf.

Philippines-Cities Service, Inc., a subsidiary of the American company, has struck oil in two sites on the shelf off Palawan and is expected to begin commercial development next year. The Philippines now depends on imported oil, which costs \$800 million a year.

A consortium of Amoco of the United States, Salen of Sweden and a Philippine partner has also found traces of oil and gas in the Reed Bank area 200 miles northwest of Palawan.

The United States Embassy has cautioned Amoco that it will not offer any protection in disputed waters. But Philippine marines have been placed aboard drill ships in the area.

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microfilm.

The New York Times/March 16, 1978

The New York Times

Published: March 16, 1978

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Annex 414

“Spratlys a Haven for Illegal Poachers-Mercado”, *Philippines Headline News Online* (2 Dec. 1998)

NEWSFLASH

SPRATLYS A HAVEN FOR ILLEGAL POACHERS -- MERCADO

Manila, Dec. 2, 1998 - The Philippine government is filing a diplomatic protest over the case of 20 Chinese fishermen caught by the Philippine Navy while poaching in Philippine-claimed waters using cyanide, a fishing method declared illegal under Philippine laws.

Executive Secretary Ronaldo Zamora said yesterday that Malacanang has given the Department of Foreign Affairs (DFA) the go-signal to make the initiative through a note verbale "for the latest clear intrusion into the Philippines' 200-mile exclusive economic zone (EEZ)."

He added that the 20 Chinese fishermen will eventually be freed after a short detention and a lecture "on how to respect and not to blatantly violate the Philippines' (EEZ)."

"They will be detained for a short period. They will be lectured about not violating the exclusive economic zone of the Philippines and after, they will be let off," he said. "It is an ordinary incident. This has happened before and I'm sure this will happen again."

Foreign Affairs Undersecretary for Policy Lauro Baja Jr. said they expected China's demand for the release of the fishermen but said the "Philippine judicial process will have to be followed."

A Philippine Navy patrol arrested the 20 Chinese fishermen over the weekend aboard six small boats called on Alicia Annie Reef near Mischief Reef, a portion of the disputed Spratlys.

The government, which calls Mischief Reef Panganiban Reef, claims the reef is well within the country's 200-mile EEZ as it is only about 180 kilometers from Palawan.

Defense Secretary Orlando Mercado told reporters that "their (the fishermen) capture shows we can no longer bear Beijing's continued transgression of our exclusive economic zone."

Mercado also told reporters at Camp Aguinaldo that when the Philippine Navy patrol approached, the Chinese fishermen attempted to take refuge in Mischief Reef, where Beijing maintains garrison-like concrete structures.

"It appears that Mischief Reef is now becoming a haven for these illegal fishermen," he added.

Mercado also told reporters that the "mother vessel" -- which usually accompanies fishing boats -- escaped after the Navy tried to approach and seize the boat.

Mercado the Chinese fishermen had been taking endangered sea turtles called "pawikan" and were engaged in illegal fishing.

Navy officer Romulo Gualdrapa reported Monday that the Chinese were arrested for illegally fishing in Philippine territory and using sodium cyanide to catch fish in violation of Philippine laws that ban the practice.

Cyanide is added to sea water by some fishermen to stun fish so they can be caught and sold alive to restaurants. But the substance also kills many other fish and destroys coral reefs.

During their arrest Sunday, the Chinese had in possession several kilos of freshly-caught fish and two dead pawikan.

Mercado said he is turning the case over to the Department of Justice for the filing of appropriate charges against the Chinese fishermen, who are still detained at a Navy detachment in Ulugan Bay near Puerto Princesa City in Palawan.

Last October, the Philippines accused China of sending armed naval ships to the area to build what permanent structures for military use. Beijing refused to remove the facilities, saying they were merely fishermen's shelters which needed renovation. China has proposed the joint use of the structures and the Philippine government said it was studying the offer.

The Spratlys are believed to be rich in oil, gas and minerals. China, Vietnam and Taiwan claim all of the Spratlys, while the Philippines, Malaysia and Brunei claim parts of the island group.

Reported by: [Sol Jose Vanzi](#)

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Annex 415

“Green vegetables bring salty taste of the sea”, *Tuoitre* (21 Jan. 2008)

<http://tuoitre.vn/tin/chinh-tri-xa-hoi/phong-su-ky-su/20080121/rau-xanh-mang-vi-man-cua-bien/239663.html>

Green vegetables bring salty taste of the sea

21/01/2008 03:00 GMT+7

TT – “The sea at Trường Sa [Spratlys] has two distinct seasons, calm season and rough season. Out here, green vegetables are the most precious commodity. Every year, each person is provided with only 10kg of soil to grow vegetables,” explained Nguyễn Xuân Minh, political commissar on An Bang Island, about the presence of so many “mobile vegetable gardens” on the island beaten by waves all year round.



[enlarged](#)

Growing vegetables at Trường Sa is an art that requires an understanding of the sea - Photo: N.C.T.

TT – “The sea at Trường Sa [Spratlys] has two distinct seasons, calm season and rough season. Out here, green vegetables are the most precious commodity. Every year, each person is provided with only 10kg of soil to grow vegetables,” explained Nguyễn Xuân Minh, political commissar on An Bang Island, about the presence of so many “mobile vegetable gardens” on the island beaten by waves all year round.

Listen to the content of the whole article

Soil more expensive than gold

While on the elevated islands, soldiers can erect canvas, corrugated tin, and even grow a few halophytes to break the wind, on the submerged islands such as Thuyền Chài, Đá Đông, An Bang, and Đá Lát, growing vegetables is an art that requires an understanding of the sea and weather.

When the ship docked, the soldiers on the island caressed those bags of soil. “The soil here is even more expensive than the land in HCM City. It is worth its weight in diamonds,” said a soldier. An Bang Island

is one of those rare submerged cays where Fish Poison Trees can be grown. Soldiers will take care to pick up each falling leaf and put them in a bag. Upon receipt of the soil, people lay dry leaves on the bottom of the pot and cover it with soil and plant seeds. The soldiers take care of their vegetable patch as if they were handling an egg. They bring it out in the morning under the sun then find a shade with a wind barrier to lay down their “vegetable garden.” Sometimes, while they are training and a storm comes, they all run to “protect their vegetables” from the salty air.

A private carried a clam shell in which grew a chili tree and boasted: “Here comes a rare and precious product. I have protected it even during those nights that I was on guard duty. The sunshine is not lacking but there is too much salty air, making it look not as healthy as those on the mainland. Yet it gave a few ripe ones already. Sea chilies absorb the salty air and taste delicious.” The soldier has not yet finished speaking when others hurriedly carried vegetable containers (plastic container that has one side panel cut out to grow vegetables) to place alongside a wall to shield them from the wind. The political commissar explained, “That’s how things are done here. Growing vegetables requires shielding them from the wind at specific times. Sometimes the wind blows from this direction in the morning but will change direction in the afternoon. If you are not quick, your plant will be damaged.”

“Chick delivery”

If compared to the submerged cays in the south, An Bang is the most difficult one because it is covered by waves all year round. In this season, it is normal for waves to be rolling over the island and it is very difficult to catch fish and grow vegetables to supplement meals. Private Đặng Hoàng Phúc said, “Poor Mr. Hải in logistics. Because the island is always under big waves and thus there are not a lot of fish as on other islands. You have to dive under the water 7–8 meters deep to cast the net. Hải coughed up blood many times when he surfaced. Out here, we love each other as if we were blood brothers. Nobody catches fish but if Hải sees that we don’t have fish to eat, he will take it upon himself to go fishing.”

Lt. Colonel Nguyễn Tiến Dũng—commander of the Trường Sa Đông [East Spratly] Island with 20 years committed to almost half of the islands in the Trường Sa Archipelago—has extensive experience in increasing production. While only dogs and pigs can be raised on other islands, Dũng can raise poultry and cats on this island, and he even “delivers” chicks. Referring to this “trick,” he smiles, “Out here, hens cannot brood their eggs until chicks hatch by themselves. We have to count the days and monitor them. On the correct day, we have to look for their beaks under the light to crack the shells for them to breathe. We’ll then have to wait until they adapt to the environment before helping them break open the shells to come out.” Then he boasts, “Here, soldiers even raise earthworms in the vegetable trays to improve the soil. As a result, soldiers on the island can have nutritious balanced meals.”

Trường Sa Sleepless Night in Tokyo

In early 2008, more than 100 Vietnamese in Tokyo (Japan) have organized a special “sleepless night” seminar about Trường Sa - Hoàng Sa (Paracel-Spratly).

In the past few months, letters and news about Hoàng Sa - Trường Sa (Paracel-Spratly) have reached these expatriates. Understanding the hardships of the soldiers on remote islands, the Đông Du student organization has organized a “sleepless night” seminar.

At the seminar, from different perspectives, the embassy representative, Minister Counselor Nguyễn Minh Hà, Prof. Nguyễn Văn Chuyên (Nihonjoshi University Professor), Prof. Trần Văn Thọ (Waseda University) and a Japanese teacher, Masashi Kudo ... brought to participants news about Trường Sa - Hoàng Sa (Paracel - Spratly). They made the participants feel national pride and a love for the motherland, and they enjoyed congenial relations. The topic of Hoàng Sa, Trường Sa (Paracel-

Spratly) continued on the forum and questions from each Vietnamese expatriate were answered honestly.

Nguyễn Thái Tất Hoàn (student studying in Japan) said there would be many more “sleepless night” seminars organized in Japan. The federation of Vietnamese associations in Japan is also planning for Vietnamese students studying abroad to connect with soldiers on the islands. “Now is also the time for young friends on the islands and us to get to know each other better...,” said a Vietnamese student studying in Japan.

MINH THÙY

Thứ 3, Ngày 03.03.2015



Rau xanh mang vị mặn của biển

21/01/2008 03:00 GMT+7

TT - "Biển ở Trường Sa có hai mùa rõ rệt, mùa biển yên và mùa biển động. Ngoài này, rau xanh là thứ quý nhất. Hằng năm, mỗi người chỉ được cấp 10kg đất để trồng rau" - anh Nguyễn Xuân Minh, chính trị viên đảo An Bang, giải thích về sự có mặt của rất nhiều những "vườn rau di động" trên hòn đảo quanh năm sóng phủ.



Trồng rau ở Trường Sa là cả một nghệ thuật hiểu biển - Ảnh: N.C.T.

TT - "Biển ở Trường Sa có hai mùa rõ rệt, mùa biển yên và mùa biển động. Ngoài này, rau xanh là thứ quý nhất. Hằng năm, mỗi người chỉ được cấp 10kg đất để trồng rau" - anh Nguyễn Xuân Minh, chính trị viên đảo An Bang, giải thích về sự có mặt của rất nhiều những "vườn rau di động" trên hòn đảo quanh năm sóng phủ.

Nghe đọc nội dung toàn bài:



Đất đất hơn vàng

Nếu như ở những đảo nổi chiến sĩ có thể quây bạt, quây tôn, thậm chí trồng một số loại cây ưa mặn để chắn gió thì ở những đảo chìm như Thuyền Chài, Đá Đông, An Bang, Đá Lát, việc trồng rau là cả một nghệ thuật hiểu biển, hiểu thời tiết.

Khi tàu vào đảo, những bao đất được các chiến sĩ nâng niu. "Đất ở đây còn đất hơn ở TP.HCM. Nó được tính bằng kim cương" - một người lính nói như vậy. Đảo An Bang là một trong những đảo chìm hiếm hoi trồng được cây bàng vuông. Mỗi lá bàng rụng xuống đều được các chiến sĩ cẩn thận nhặt bỏ vào bao. Khi nhận đất về, mọi người lấy lá khô bỏ xuống dưới chậu rồi phủ đất lên và gieo giống. Các chiến sĩ nâng niu vườn rau của mình như nâng trứng. Sáng đem ra đón nắng mai rồi tìm chỗ râm, có vật chắn gió để đặt "vườn rau" ở đó. Có khi đang tập luyện, biển nổi dông, tất cả ù đi "chạy rau", tránh cho rau bị hơi mặn tấp vào.

Một binh nhì bê vỏ ngao có trồng cây ớt mỏng manh, khoe: "Sản phẩm quý hiếm đấy. Mình đã bảo vệ nó cả những đêm đứng gác. Năng biển không thiếu nhưng thừa hơi mặn nên trồng nó không được khỏe mạnh như cây trong đất liền. Thế mà nó cũng cho được vài trái chín rồi đấy. Ớt biển có cả vị mặn của gió nên ngon đáo để". Anh lính chưa dứt lời thì có mấy chiến sĩ bê những can rau (can nhựa cắt một mặt để đựng đất trồng rau) chạy vội vào xếp bên tường để tránh gió. Anh chính trị viên giải thích: "Ở đây là vậy. Trồng rau phải tránh gió theo giờ. Có khi buổi sáng gió hướng này nhưng đến chiều lại đổi hướng khác, không nhanh tay là hỏng ngay".

"Đờ đờ" cho gà

Nếu so trong số các đảo chìm phía nam thì An Bang là đảo khó khăn nhất vì quanh năm sóng phủ. Vào mùa này, sóng trùm qua đảo là chuyện bình thường, vì thế rất khó cải thiện bữa ăn bằng cách bắt cá cũng như trồng rau. Binh nhì Đặng Hoàng Phúc kể: "Tội nhất là anh Hải hậu cần. Vì đảo luôn có sóng lớn nên không có nhiều cá như những đảo khác. Muốn bắt cá phải lặn 7-8m nước để giăng lưới. Có nhiều khi ngoi lên Hải ho ra máu tươi. Ở ngoài đảo ai cũng yêu thương nhau như ruột thịt. Không ai bắt nhưng cứ thấy anh em ăn không có cá là anh Hải lại tự động đi câu".

Còn trung tá Nguyễn Tiến Dũng - đảo trưởng đảo Trường Sa Đông, người có 20 năm gắn bó với gần nửa số đảo trên quần đảo Trường Sa - thì đã có khá nhiều kinh nghiệm tăng gia sản xuất. Nếu những đảo khác chỉ nuôi được chó và heo thì anh Dũng còn nuôi được gà, vịt, mèo ngoài biển, thậm chí anh còn "đờ đờ" cho gà. Nhắc tới "bí quyết" này, anh cười: "Con gà ấp trứng ở ngoài này không đủ sức để trứng tự nở thành gà con, vì thế mình phải tính ngày và theo dõi trứng lộn. Khi đã đến ngày mình phải soi để tìm phần mỏ rồi khều vỏ trứng ra cho gà con thở và chờ nó thích nghi với môi trường thì phụ nó tách vỏ để giải thoát". Rồi anh khoe: "Ở đây bộ đội còn đem cả giun đất ra nuôi trong những khay rau để cải tạo đất. Vì thế bây giờ trên đảo bộ đội cũng được ăn không hề thiếu chất".

Đêm trắng Trường Sa ở Tokyo

Đầu năm 2008, hơn 100 người Việt xa quê ở thành phố Tokyo (Nhật) đã có cuộc tọa đàm đặc biệt với chủ đề "Đêm không ngủ" hướng về Trường Sa - Hoàng Sa.

Mấy tháng qua, những dòng thư, những dòng tin về Hoàng Sa - Trường Sa tới tấp đến với những người con xa quê. Thấu hiểu sự gian khổ của những chiến sĩ ở đảo xa, tập thể sinh viên Đông Du đã có một buổi tọa đàm "Đêm không ngủ".

Tại buổi tọa đàm, từ những góc nhìn khác nhau, đại diện đại sứ quán là tham tán công sứ Nguyễn Minh Hà, thầy Nguyễn Văn Chuyển (giáo sư Đại học Nihonjoshi), giáo sư Trần Văn Thọ (ĐH Waseda) và thầy giáo người Nhật Masashi Kudo... đã mang đến cho những người tham dự các thông tin về Trường Sa - Hoàng Sa, đồng thời gửi đến các bạn trẻ xa nhà những cảm xúc lớn về lòng tự hào dân tộc, tình cảm quê hương và cả những chia sẻ thân tình. Chủ đề về Hoàng Sa, Trường Sa cứ nổi mãi trên diễn đàn, những thắc mắc của mỗi một người Việt xa nhà luôn được đáp lại bằng những giải thích chân tình.

Nguyễn Thái Tất Hoàn (du học sinh tại Nhật) cho biết sẽ còn nhiều buổi tọa đàm "Đêm không ngủ" được tổ chức tại Nhật, Tổng hội người Việt Nam ở Nhật cũng đang xúc tiến những kế hoạch để kết nối giữa các bạn du học sinh với lính đảo. "Giờ cũng là lúc để những bạn trẻ ở đảo xa và những bạn trẻ xa nhà như chúng mình gần nhau hơn..." - một du học sinh Việt Nam tại Nhật tâm sự.

MINH THÙY

Annex 416

J. M. Glionna, "Squatters in paradise say it's job from hell", *Los Angeles Times* (26 July 2009)

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Squatters in paradise say it's job from hell

Staking a claim on isolated Pagasa Island for the Philippine government, inhabitants eventually 'go crazy.'

July 26, 2009 | John M. Glionna

PUERTO PRINCESA, PHILIPPINES — Roel Robles had been on Pagasa Island for less than a week when he found himself wondering, with something like despair: Is it possible for one white-beached, palm-studded place to be both heaven and hell, paradise and prison?

"When you first get there, you see this little island resort," said the 30-year-old sergeant in the Philippine National Police. "Then after about five days, something snaps. You begin telling yourself, 'I have to get out of here -- now, today.' "

Pagasa plays tricks with your mind.

Its few dozen inhabitants can walk around the pint-sized perimeter in 30 minutes. From its highest point, nine feet above sea level, they gaze out at turquoise seas all around.

It's a stunning view. But it's the same view, day after day.

For the government in Manila, however, all that matters is that it's a Philippine view.

Pagasa may be a 75-acre speck of sand and rock, but that hasn't stopped a swarm of countries from battling over the hundreds of specks of sand and rock that make up the Spratlys, which may be the most disputed island chain on Earth.

So, in 2002, the Philippines decided to establish a small colony of hardy civilian settlers on the island, augmenting the two dozen military workers who earn special "loneliness pay" to live on the far-off spot -- and bolstering its claim that possession is nine-tenths of the law.

The result is sort of "Cast Away" meets Plymouth Rock.

In a nation where half the 90 million residents endure grinding poverty, Pagasa volunteers get free food and housing and guaranteed work. But there's also guaranteed boredom. Many who inhabit Pagasa consider the calendar their worst enemy. Others mark off time on the wall like stir-crazy convicts.

With a main port named Loneliness Bay, the island can take such a psychological toll that one inhabitant stabbed himself just to escape it. Another hanged himself two days after he arrived.

"The happiest day on Pagasa is when the boat comes to take you off," said Robles, who after three months on the island last year has returned home here, only to dread his next Pagasa assignment. "Next is seeing the plane arrive with supplies. The sound of those engines means cigarettes and alcohol."

Claimed by many

Vietnam, China, the Philippines, Malaysia, Taiwan and Brunei all claim part of the Spratly archipelago, which spreads across a lonely stretch of the South China Sea west of the Philippines. Some have based military outposts there to safeguard their interests.

There's talk of a United Nations resolution to settle the turf battle over the island group, thought to be rich in oil and gas deposits as well as virgin fishing grounds.

Manila claims nine islands in the so-called Kalayaan group. Pagasa, which means "hope" in Tagalog, is the largest and the only one with a year-round population.

It's a sun-bleached settlement of 20 houses, a community center and a clinic run by a resident midwife. There are no stores and no roads, but a military landing strip knifes through the island's heart.

The population rises and falls. At its height, 300 lived there. Nowadays the total is 55 civilians, fewer than half a dozen of them women.

Pagasa even has its own mayor. Of course, gray-haired and garrulous Rosendo Mantis doesn't actually live on Pagasa; he keeps an office on the mainland and travels out to press the flesh and check on his constituency. Mantis is the island's chief promoter, but even he acknowledges that Pagasa is an acquired taste.

"Most people who have problems there just miss their families," he said. "Basically, they go crazy."

'Noah's Ark'

By his own account, Mantis first hatched the inspired idea to bring women and civilians to Pagasa Island. As a navy commander there years ago, he was, along with his men, driven to distraction by the celibate life.

"There was little communication with the mainland," Mantis, 56, recalled of the military stints, which can last for eight months or more. "When we heard a woman's voice on the line, all of our ears perked up. We were very happy."

Soon, Mantis brought his family for a visit. At first he worried for the safety of his daughters on an island populated by restless men.

Annex 416

The trip was a success, setting the stage for another brainstorm: "Why not found a community there?"

The Philippine government had sought to better secure its claim on Pagasa and the surrounding Islands. So, in 2002, officials staged visits for prospective new residents, like an island version of a time-share pitch weekend.

There were few takers. So officials did the next best thing: They ordered civil employees in Puerto Princesa to replace them for at least three months. Those who refused were fired.

In a boat that they dubbed Noah's Ark, 100 employees set sail with 200 chickens, 23 pigs, 20 goats, four turkeys and two puppies.

Island life was hard from the beginning, Mantis recalled. Residents ate and slept together, "communist style." Everyone was assigned a job, horticulture or fishing.

"You had to work to eat," Mantis said. "I didn't want to feed a bunch of lazy people."

In return, settlers received free food, housing, electricity and medical care. "Everything is free on Pagasa," Mantis said. "Still, people complained. I guess that's normal."

Eventually, volunteers took the place of the employees, all of whom left after their assignment. They were greeted by typhoons that drove them indoors for weeks, preventing them from catching the fish that soon became a staple of their diets.

In the toughest times, they slaughter a pig or goat, but when fish are scarce they live off canned corned beef and sardines.

Telephones and satellite TV are powered by generators that run only part time. Air-conditioning is nonexistent, and on the hottest days many wonder why they ever came in the first place.

"Sometimes, when the phones were down, I'd lie in bed and think about my girlfriend back home," said National Police Sgt. Hermar Medina, 27. "I'd get bored and let my mind wander. And then I'd get freaked out."

Army Lt. Ace Ronald Amongong kept a blog of his eight months on Pagasa in 2008 -- entries full of pain and wonder.

Amongong wrote of being "filled with serenity by the exquisiteness of silence and the noise of nature like waves, birds, breeze and even raindrops."

But nights, he wrote, were hard. Fellow soldiers "learned to compose lyrics in a melody of going home. One of them even cried because of loneliness, hoping that death would soon come."

Soldiers try to keep the mood light by staging a male beauty contest. In his office in Puerto Princesa, Mantis flipped through photos of the events. "Many are quite convincing," he said.

Alternative lifestyle

Mantis says he likes Pagasa's alternative lifestyle: He once oversaw a mass wedding of six island couples. (So far, one baby has been born on the island, but many more have been "assembled" there, he says.)

The mayor also screens new island volunteers, warily weeding out potential troublemakers who might view Pagasa as a way to escape creditors, the law or a bad marriage.

His first question: "Why do you want to live there?"

When he leaves office next year, Mantis plans to live on Pagasa full time to pursue establishing a year-round tourist resort.

Roel Robles questions the sanity of that decision: "I wouldn't live there if you paid me a million dollars."

--

john.glionna@latimes.com

Annex 417

David Jude Sta Ana, "Vietnam beefs up military garrisons in Spratlys", *The Philippine Star* (26 May 2011)

Lila Shahani



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Vietnam beefs up military garrisons in Spratlys

By David Jude Sta Ana, News 5 | Updated May 26, 2011 - 12:00am

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Photo shows Amboyna Cay, one of several Vietnamese-occupied areas in the Kalayaan Island Group.

MANILA, Philippines - Like China, Vietnam has also built and gradually strengthened its military garrisons and outposts well within Philippine territory in the Spratly Islands in the South China Sea.

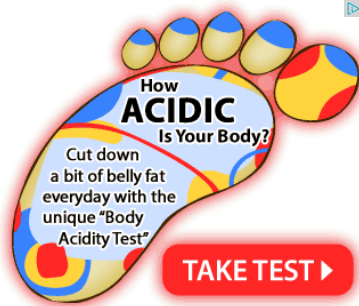
Documents and photographs obtained by News5 showed that, along with China, Vietnam has been very active in building up its fortifications on the islands and reefs it occupies.

The disputed islands cover 200,000 square miles and are made up of some 200 islands, reefs and shoals.

Brunei, China, Malaysia, the Philippines, Taiwan and Vietnam are claiming the Spratlys either in part or in whole.

The area is widely believed to have massive deposits of oil, gas, minerals and has prime, untapped fishing areas.

The Philippines is claiming only a portion of the Spratlys, known as the Kalayaan Island Group, which covers a 64,000-square mile area and is made up of 53 islands, reefs and shoals.



▶ The Kalayaan Island Group is a municipality of Palawan and located within the 200 nautical mile Exclusive Economic Zone.

Vietnam has occupied 23 territories in the Spratlys; China and Malaysia have seven each, the Philippines nine, and Taiwan only one.

Of the 23 Vietnamese occupied territories, seven are located in the Kalayaan Island Group. These are located in the Binago (or Namyt) Island, Sincowe East Island, Lagos (or Spratly) Island, Kalantiyaw (or Amboyna) Cay, Gitna (or Central) Reef and Hizon (or Pearson) Reef.

A Philippine government briefing paper said that "Vietnam is at the forefront of construction activities, having built the most number of additional structures at its occupied territories since 1998."

The Vietnamese construction activities cover renovation, remodeling and addition of single story buildings in the seven areas.

The documents noted the increase in the number of solar panels and piers, "indicative of an increased activity in its territories."

The Vietnamese have given particular focus on stemming soil erosion by building seawalls at Namyt Island, Sincowe Island and Gitna (or Central) Reef.

The documents also noted that Vietnam has been "the most active" in strengthening the defensive capabilities of its outposts.

Gun emplacements and gun shelters are located on Kalantiyaw Cay, Gitna Reef, Binago Island, Hizon Reef, Sincowe East and Pugad Cay.

It is widely believed that troops are stationed in the Vietnamese-held areas.

Documents also showed that Vietnam has built or is planning to build extended gun emplacements in Collins Reef, Paredes (or Great Discovery) Reef, Ladd Reef and Len Dao Reef.

It is also planning to rehabilitate an airstrip on Lagos (or Spratly) Island.

Apart from Vietnam, the Philippines is the other country known to maintain an airstrip in its territory. The document indicated that "China has not attempted" to build an airstrip in any of the territories it occupies.

The document also said Hanoi is using tourism to bolster its claim on the Spratlys. Since 2004, Vietnam has increased the number of ship travels to the area. In April 2004, Vietnam sent a boatload of tourists to Kalantiyaw (or Amboyna) Cay as part of tourism promotions.

A Google search shows several Vietnamese websites that promote visits to the Spratlys, which features photos of the Vietnamese held areas within the Kalayaan Island Group. – **With Pia Lee-Brago**

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Annex 418

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Philippines behind other Spratlys claimants in building defensive structures

Cynthia D. Balana
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Philippine Daily Inquirer 7:37 PM | Thursday, June 16th, 2011

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MANILA, Philippines—The House of Representatives will investigate reports that the Armed Forces of the Philippines has not fully developed fortifications to protect the Philippines' claims to the Spratly Islands in the West Philippine Sea (South China Sea).

House Resolution No, 1249, filed by Cagayan de Oro Representative Rufus Rodriguez and his brother, Abante Rep. Maximo Rodriguez, quoted the AFP as having said that other claimant countries such as China, Vietnam and Malaysia have strengthened fortifications on the islets and shoals in the Spratlys, leaving behind the Philippine military in terms of developing such structures in the disputed islands.



Aerial photo of the Philippine occupied Kalayaan island in the contested Spratlys group of islands.
INQUIRER/Ernie U. Sarmiento



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“There is a need to look into this issue in order to ensure that the claims of the Philippines over the Spratlys be respected and our jurisdiction over said islands is not ignored and trampled upon by our neighbors in Asia,” Rufus Rodriguez said.

Two other claimants – Brunei and Taiwan – have not established structures there.

Spratlys are small and remote islands with rich fishing grounds and significant reserves of oil and natural gas.

Rodriguez said that from one islet it began occupying in 1984, Malaysia now has troops on five islets, including the Swallow Reef, where there is now a 1,200-meter runway that can accommodate heavy civilian and military transport planes as well as a naval station.

He said that surveillance photos taken during routine patrols over the Philippine-occupied Kalayaan Group showed Beijing’s steady military build-up in the area, which included different machine gun emplacement as well as additional communications antennae and naval vessels anchored on Chigua Reef.

Also, China’s military developments were also monitored in Cuarteron Reef, while Fiery Cross is serving as communications and oceanographic research center and it has also intensified its military activities indicating improving military capabilities.

On the other hand, Vietnam has made impressive improvements on their occupied islands, with new communication equipment in Sin Cow (Rurok Island) installed in 2010, the presence of single story buildings in Allison Reef and in other sites such as Barque Canada Reef, Discovery Great Reef, Petley Reef, Pigeon Reef, and East Reef. New buildings have also sprouted on the Namyt Island and numerous structures, including bunkers, were being detected in Central London Reef, Rodriguez said.

Rodriguez said the Philippines’ makeshift structures, with depleted personnel and soldiers to defend the Philippine-held territories, stood no chance against the firepower of other claimants in the event of a shooting war.

He also said the AFP Western Command (Wescom) based in Palawan, which has operational jurisdiction over the Spratlys, had requested urgent repairs of the runway on Pagasa Island, the biggest of several islands with Filipino troops, since the airfield had not undergone repairs since its establishment in 1970.

Quoting Wescom officials, Rodriguez said the repair and rehabilitation of Rancudo Air Field must be done as soon as possible so as not to allow soil erosion to inflict further damage on the runway.



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“Repairs should be configured in such a way that it can accommodate heavy transport aircraft as well as fighter planes comparable to that in Lagos Island of the Vietnamese and Swallow Reef of Malaysia,” Rodriguez said.

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Annex 419

“New generation birth on uninhabitable islands”, *Saigon-GP Daily* (21 June 2011)

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New generation birth on uninhabitable islands

JUNE 21, 2011 BY SAIGON-GPDAILY

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Vietnam's naval forces have successfully fostered mainland plants, [animals](#) and a future generation on the uninhabitable Spratly Islands under conditions of pelting rain, chilling winds and scorching sun, with sheer will power and zeal.

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A naval soldier takes pride in his [vegetable garden](#) on Ladd Reef, Spratly Islands (Photo: [sggp.org.vn](#))

The field research by former Saigon Geosciences Department of the [Agriculture](#) Research Institute in the Ministry of Rural Development revealed that the soil on Namyit Island of Spratly Islands was suitable for cultivating plants like coconut, longan and custard-apple.

Realistically though this was not possible due to the harsh weather conditions on the Island.

According to Colonel Cao Anh Dang, the problem was [resolved](#) with many ships bringing in rich fertile soil from the mainland to Spratly Islands. The soil once merged became highly cultivable for growing vegetables.

Colonel Bien Xuan Khuong, who has experienced Spratly Islands for 19 years, believes it is necessary to protect the rich soil from salination by seawater if people want to cultivate on the islands.

Plant cultivation is a great art on Spratly Islands, especially on the sinking islands. Soldiers living on floating islands can make use of canvas covering to protect their "mobile vegetable gardens" while those on sinking islands need to be extremely alert to sea waves.

Rough sea can cause sudden unexpected devastation and soldiers have to hurriedly move their mobile gardens to higher ground levels.

The purification method was proposed to rejuvenate the salt-affected soil. The soldiers' trial and error attempts finally led to a satisfactory result. On Sin Cowe Island, for example, more than 10 kinds of vegetables like cucumber, pumpkin and lots of fruit trees were grown with surprisingly good result.

On seeing naval soldiers work so hard on their plants with negligible amounts of freshwater, many felt strong affection and pride towards the soldiers.

Besides plants, domestic animals, like pigs, chickens, ducks and pet dogs also followed the naval soldiers to the Spratly Islands. Dogs brought the soldiers solace and helped them catch fish, mice and guard the islands.

Both plants and animals brought life to these deserted and uninhabitable islands.

A native generation of people also grew up on Spratly Islands. Two years ago, a group of young doctors from Army Central Hospital 108 undertook professional work on Southwest Cay. Despite their lack of experience in midwifery, these doctors still managed to prepare for childbirths on the cay.

They decided to rehearse for child delivery. Doctor Mai An Giang, the group leader, first contacted the Obstetrics Department of Army Central Hospital 108 for advice. All the best equipment was then gathered. A male physician was employed for the rehearsal and with determination the group was able to deal with every conceivable situation.

On May 16th, 2009, the first citizen, Ho Song Tan Minh was born on Southwest Cay, Spratly Islands. On April 4th, 2011, people on Spratly Islands welcomed another baby.

These babies and others in the future will be convincing evidence of miraculous births under harsh conditions on these remote islands.

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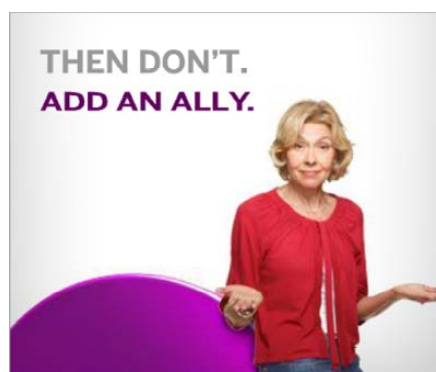
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Annex 420

Rommel C. Banlaoi, "Clash of sovereignties in the Spratlys", *The Philippine Star* (30 June 2011)

Lila Shahani

Wed | 02/11/2015 09:56pm | Forex: \$1:43.310



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Clash of sovereignties in the Spratlys

By Rommel C. Banlaoi | Updated June 30, 2011 - 1:28pm

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MANILA, Philippines – When the United States assured its friends and allies in Southeast Asia that it is committed to defend and assist them on rising tensions in the Spratlys, China just warned the US to back off and stay out of the South China Sea disputes.

China's Vice foreign minister, Cui Tiankai, even stressed that "the United States is not a claimant state to the dispute. So, it is better for the United States to leave the dispute to be sorted out between the claimant states."

With exemption of Taiwan, all claimants in the Spratlys are all sovereign states with a defined territory in which they should exercise full control. However, they have clash of sovereignties over some territories in the South China Sea called by Vietnam as East Sea and by the Philippines as West Philippine Sea.

China's Indisputable Sovereignty

China claims "indisputable sovereignty" of all the waters and features in the South China covered within its so-called "nine-dashed lines" map submitted to the United Nations. However, China only occupies seven features in the Spratlys – Chigua Reef, Cuarteron Reef, Fiery Cross Reef, Gaven Reef, Johnson Reef, Mischief Reef, and Subi Reef.

All these reefs occupied by China have highly cemented structures. China maintains very impressive helipad facilities in Chigua Reef, Gaven Reef, and Johnson Reef. It has three-storey concrete building in Mischief Reef. All its facilities in the nine occupied features have dipole and parabolic disc antenna, search lights, solar panels, various types of radars and gun emplacements.

Taiwan's Identical Sovereignty Claims with China

Taiwan has identical claims to sovereignty with China. Countries adopting a one-China policy regards Taiwan as a mere province of China. Thus, Taiwan's sovereign claim in the South China Sea disputes is complicated. But it occupies the largest island in the Spratlys: the Itu Aba or Taiping Island that has an excellent helipad and a very long and highly cemented runway.

Vietnam's Incontestable Sovereignty

Vietnam claims "incontestable sovereignty" of two island-groups in the South China Sea: the Paracels and the Spratlys. Clash of sovereignties in the Paracels only involved China and Vietnam (and to a certain extent Taiwan). In Spratlys, it involved Brunei, China, Malaysia, the Philippines and Vietnam.

Vietnam presently occupies 21 islands, reefs and cay in the Spratlys with impressive facilities. Its largest occupied island, Lagos (or Spratly Island), is the most heavily fortified with a solid runway, a pier, at least 35 building structures, around 20 storage tanks, at least 20 gun emplacements, at least 5 battle tanks and some parabolic disk antennas and a spoon rest radar.

Aside from Lagos Island, Vietnam also maintains facilities at Pugad Island (Southwest Cay), which is just less than two nautical miles away from the Philippine occupied island of Parola (Northeast Cay). Pugad Island has several gun emplacements, gun shelters, civilian buildings, military barracks, parabolic disc antennas, concrete bunkers, a light house, a football field, a helipad, and many light posts.

Other facilities of Vietnam in at least 14 occupied reefs seem to follow a standard pattern of construction. South Reef, Pentley Reef, Discovery Great Reef, Collins Reef, Pearson Reef, Lendao Reef, West Reef, Ladd Reef, Central London Reef, East Reef, Cornwallis Reef, Pigeon Reef, Allison Reef, and Barque Canada Reef have identical structures featuring a golden-painted three-storey concrete building with built-in light house on top, gun emplacements on both sides, T-type pier, solar panels, parabolic disc antennas, and garden plots.

The Philippines' Sovereignty Claim Based on "dominium maris" and "la terre domine la mer"

The Philippines claims sovereignty and jurisdiction in the Spratlys within its Kalayaan Island Group (KIG). It regards KIG as an "integral part of the Philippines."

The Philippines strengthens its sovereignty claim using the Roman principle of "dominium maris" and the international law principle of "la terre domine la mer," which means that land dominates the sea.

Under this principle, the Philippines argues that it is exercising sovereignty and jurisdiction over the waters around the KIG or adjacent to each relevant geological features of the Kalayaan Island, which is under the local government control of the Municipality of Kalayaan. The Philippines contends that this position is provided for under the United Nations Convention on the Law of the Sea (UNCLOS).

The Philippines ranks second in the most number of occupied areas in the Spratlys. It is presently in control of nine facilities that are considered parts of the Municipality of Kalayaan: Ayungin (Second Thomas) Shoal, Kota (Loaita) Island, Lawak (Nanshan) Island, Likas (West York) Island, Pag-Asa (Thitu) Island, Panata Island (Lankiam) Cay, Parola Island (Northeast Cay) Patag (Flat) Reef, and Rizal (Commodore) Reef.

Its largest occupied facility is the Pag-Asa Island, the closest island to the Chinese occupied Subi Reef. Pag-Asa Island has an already deteriorating run-way maintained by the 570th Composite Tactical Wing of the Philippine Air Force. It also has a naval detachment maintained by the Naval Forces West of the Philippine Navy. Pag-Asa island has municipal hall called Kalayaan Hall, a village hall called Barangay Pag-Asa, a police station maintained by the Philippine National Police (PNP), sports facilities, observation tower, a commercial mobile phone station, and several civilian houses and military barracks.

The Philippines also maintains makeshift naval detachment facilities in five other islands, one reef and one shoal. Its facilities in the Rizal Reef are just wooden structures and two small single-storey hexagonal concrete buildings manned by four personnel of the Philippine Navy.

The Philippines also maintains a naval detachment in Ayungin Shoal established out of a dilapidated Landing Ship Tank called LST 57. Ayungin Shoal is the closest structure of the Philippines to the controversial Mischief Reef occupied by China.

Malaysia's Sovereignty Claim Based on Continental Reef Principle

Malaysia's claim to sovereignty in the Spratly is based on the continental reef principle outlined by UNCLOS. As such, Malaysia claims 12 features in the Spratlys. But it only presently occupies six features: Ardasier Reef, Dallas Reef, Erica Reef, Investigator Shoal, Mariveles Reef, and Swallow Reef.

Malaysia has well-maintained facilities in the Swallow Reef. This reef has a diving center called "Layang-Layang". Swallow Reef has a resort-type hotel, swimming pool, windmills, communication antennas, control communication tower, civilian houses, military barracks and a helipad.

Malaysia also has a very good facility in the Ardasier Reef with an excellent helipad, sepak takraw court, gun emplacements and control tower. The facilities in the Ardasier Reef are almost identical with the Malaysian facilities in Erica Reef, Mariveles Reef and Investigator Shoal. Malaysia also maintains a symbolic obelisk marker in the Louisa Reef being claimed by Brunei.

Brunei Sovereignty Claim Based on EEZ

Brunei's claim to sovereignty in the Spratlys is based on the principle of Exclusive Economic Zone (EEZ) provided for by UNCLOS. It provides coastal states 200 nautical miles EEZ in which coastal states have sovereign right to exploit resources of the area.

Brunei does not occupy any feature in the Spratlys. But it asserts that the Louisa Reef being claimed by Malaysia is part of Brunei's EEZ.

Managing Contested Sovereignty Claims in the Spratlys

The Spratly dispute is a complex case of contested sovereignty claims. Because of the strategic value of the Spratlys, which is proven to have enormous oil and natural gas resources not to mention its very rich marine resources, it is very unlikely for all claimants to surrender their sovereignty claims.

All claimants rule out the use of force to resolve their maritime disputes in the Spratlys. But they continue to upgrade their military capabilities to assert their respective claims.

They also use UNCLOS as the basis of their claims. But they seldom use UNCLOS to manage their differences. China prefers to manage the Spratly disputes bilaterally. But other claimants want to internationalize the issue.

With the Spratly disputes now upped the ante, tensions can further escalate if claimants remains intransigent in their sovereignty claims.

To manage disputes in the Spratlys peacefully, claimants may consider anew the shelving of sovereignty issues and be more pragmatic in exploring the possibilities of joint development. This is an option that can put claimants in a win-win situation.

(Rommel Banlaoi is the chairman of the board and executive director of the Philippine Institute for Peace, Violence and Terrorism Research. He also heads the group's Center for Intelligence and National Security Studies. He was a professor in the National Defense College of the Philippines from 1999-2008.)

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“Mindanao lawmakers propose Spratlys task force”, *Sun Star* (19 July 2011)

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Mindanao lawmakers propose Spratlys task force

Tuesday, July 19, 2011

THE creation of a task force that will "exclusively handle the protection and security" over the Spratly group of Islands is being proposed by two lawmakers from Mindanao despite the Philippine government's position for a peaceful resolution of the dispute in the West Philippine Sea.

Representatives Rufus (Cagayan de Oro) and Maximo Rodriguez (Abante Mindanao party-list) filed House Bill 4891, which shall create a group to be referred to as the "Spratly Island Task Force".

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The task force shall be under the Armed Forces of the Philippines (AFP) with an appropriation of P1 billion. It shall be headed by the AFP chief of staff and shall be composed of members of the AFP, which have been trained to handle the security situation in the Spratly group of Islands.

In the previous months, the military has monitored new intrusions by China at a Philippine-claimed island, where the Chinese put up buoys and posts that were subsequently dismantled by Filipino fishermen, the measure stated.

Chinese vessels also reportedly harassed an oil exploration ship of the Department of Energy at the Reed Bank. The Philippine military also reported sighting of two foreign jets flying over the area, which were reportedly Chinese.

The Spratlys are one of three archipelagos of the South China Sea that comprise more than 30,000 islands and reefs. Initial surveys indicate the islands may contain significant reserves of oil and natural gas.

Aside from the Philippines and China, other claimants to the West Philippine Sea, where the Spratly group of Islands is located, are Brunei, Malaysia, Taiwan and Vietnam.

According to the lawmakers, Malaysia now has troops on five islets with one having a 1,200-meter runway, which can reportedly accommodate heavy civilian and military transport planes, as well as a naval station in an island known as Layang-Layang.

China also was seen to have a steady military buildup in the area despite its being a signatory to the 2002 Declaration on the Conduct of Parties in the South China Sea, the Rodriguez brothers noted.

Vietnam, meanwhile, has made improvements in its occupied islands, with new communication equipment in Sin Cow (Rurok Island) installed last year. There are also single storey buildings in Allison Reef and in other sites such as Barque Canada Reef, Discovery Great Reef, Petley Reef, Pigeon Reef, and in East Reef.

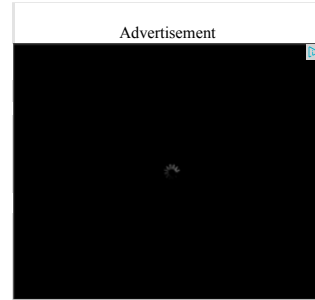
"In order to protect our sovereignty and strengthen our claim over the (Spratlys) Islands, we should intensify our military presence in the area and provide our military with the equipment necessary to defend our territory when the need arises," the legislators stressed.

The Rodriguez brothers have also filed a measure asking for an allocation of P1 billion for fortifications and the construction of docks and berthing facilities in the Kalayaan group of islands. **(Kathrina Alvarez/Sunnex)**

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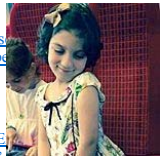
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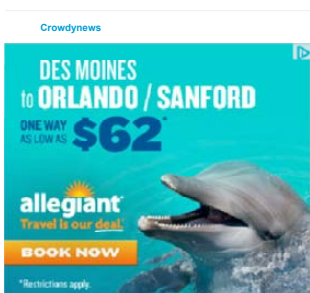
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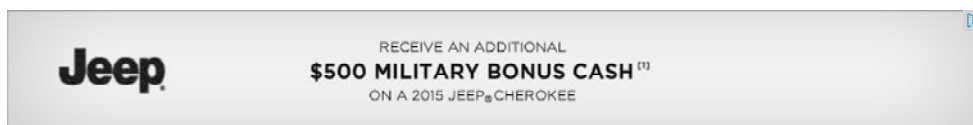
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Navy Seabeas constructing 'starshell' on Patag Island

By Jaime Laude | Updated July 31, 2011 - 12:00am

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MANILA, Philippines - The Philippine Navy (PN) is about to finish construction of a second star shell-like structure on Patag Island in the Spratlys, which is intended to shelter and protect troops guarding and securing the country's maritime domain in the hotly-contested West Philippine Sea from inclement weather.

The Armed Forces of the Philippines, in the meantime, is eagerly awaiting the US Hamilton-class ship acquired by the PN, which stopped in Hawaii yesterday for refueling before continuing its voyage to Manila.

The Navy's 3rd Naval Mobile Construction Battalion is now nearing completion of the "Star Shell," construction of which was started in late May, according to the the PN's Naval Construction Brigade.

Once completed, Patag Island, the sixth largest among the nine islands being occupied by Filipino troops in the West Philippine Sea, will complement another star shell facility constructed by the Navy for the troops deployed in the area.

The islet has a land area of 5,700 square meters and is also being claimed by China, Vietnam and Taiwan.

The construction is aimed at improving the living conditions of the troops and was done way ahead of the brewing tensions among Spratlys claimant-countries.

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The island is considered highly strategic, as it is located within the vicinity of Recto Bank where local and foreign partners have been conducting oil drilling exploration operations.

Recto Bank, which is within the country's 200-nautical mile exclusive economic zone (EEZ), is believed to be sitting on huge natural gas and oil deposits.

At present, a 25-man strong Seabeas groups headed by Lt. Armelito Alcazar are still in Patag Island building the structure, using pre-fabricated materials brought in by the Navy's BRP Laguna (LT 501) from Cavite.

The AFP has also programmed the repair and rehabilitation of the Rancudo Airfield in the Pag-Asa Island, the biggest island in the Kalaayan Island Group (KIG), to be able to accommodate C-130 military planes and other civilian aircraft.

AFP spokesman Commodore Miguel Rodriguez said the US Hamilton-class ship will proceed to another port in Guam before proceeding to the Philippines.

"According to the Filipino community in the area, they are giving BRP Gregorio del Pilar a warm reception. We are excited about this," Rodriguez said in a press briefing in Camp Aguinaldo, Quezon City.

"It is not a voyage per se so there are a lot of trainings. Even the crew members want to familiarize themselves with the ship," he added.

Rodriguez said the ship would complement the skills of Navy personnel, whom he described as "among the best in the world."

A total of 95 Navy personnel are manning the US Hamilton-class cutter that will arrive in Manila in three weeks.

The ship would be used to secure the natural resources and the Malampaya energy projects in the West Philippine Sea. The transfer cost has been pegged at P450 million while the operational cost for two years is estimated at P120 million. A cutter is a high-speed vessel that can cut through waves.

The newly acquired ship is the Navy's first Hamilton-class cutter and would become its largest vessel.

AFP unfazed by China's modernization efforts

The AFP is also unfazed by reports that China is building two aircraft carriers to enhance the capabilities of its military.

Rodriguez said China's move would not affect stability in the West Philippine Sea.

"I think it will not make that much difference because we understand that these disputes or any dispute for that matter is best resolved in the negotiating table," he said.

Rodriguez said they knew about China's plan to beef up its military as early as four years ago.

"It's part of the confidence-building measures among navies of the world, that they are acquiring these and there is no cause for alarm," he said.

A Reuters report said on Wednesday that China is building two aircraft carriers at the Jiangnan shipyard in Shanghai.

The report quoted sources as saying that the ship may be based in Hainan Island.

Phi firm against bilateral talks

Meanwhile, maritime legal experts from the Association of Southeast Asian Nations (ASEAN) will meet in Manila this September to discuss the West Philippine Sea dispute and to evaluate the Philippines' proposal to transform the contested waters to a Zone of Peace, Freedom, Friendship and Cooperation (ZoPFF/C).

"We have been receiving a lot of support from the ASEAN foreign ministers and this can be shown in their welcoming of our proposal for a Zone of Peace, Freedom, Friendship and Cooperation," Department of Foreign Affairs (DFA) spokesman Raul Hernandez said at a press briefing yesterday.

"We will be giving them our concept paper on the ZoPFF/C and let them discuss it, asses it – hopefully they would be able to support it. With their support we can present it to the ASEAN Senior Officials' Meeting and later to the ASEAN Foreign Ministers' Meeting," he said.

Hernandez also said ASEAN-member countries have expressed their support for the Philippines' suggestion for a multilateral settlement of the dispute in the West Philippine Sea.

"In general, the support is on the proposal for peaceful resolution and for a rules-based approach under international law. I hope China would listen to the voice of the ASEAN and even the voice of the international community," Hernandez said.

China has been firm on its stand to talk with claimant-countries the Philippines, Taiwan, Vietnam, Malaysia and Brunei Darussalam on a bilateral level rather than a multilateral one as proposed by the United States and the ASEAN. – **With Alexis Romero, Helen Flores**

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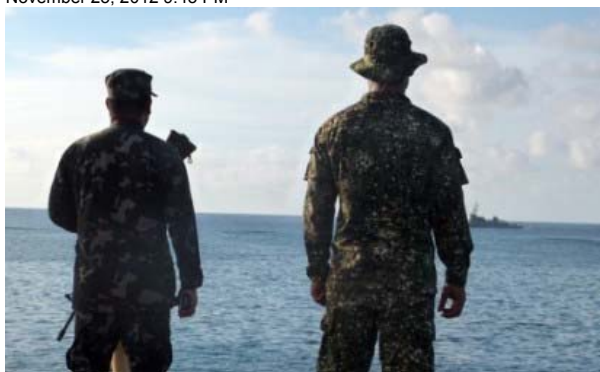
Annex 423

Abigail Kwok, "LAST OUTPOST: Soldiers endure loneliness, spartan living to guard remote islands in Spratlys", *Interaksyon* (25 Nov. 2012)



LAST OUTPOST | Soldiers endure loneliness, spartan living to guard remote islands in Spratlys

By: **TEXT AND PHOTOS BY ABIGAIL KWOK, INTERAKSYON.COM**
November 25, 2012 9:45 PM



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AYUNGIN REEF, Kalayaan Island Group, Philippines â This place is probably the loneliest place a soldier can be assigned to. There is no land, only limitless water, like living in your very own water world.

The seven-man team stationed here on one of the Philippine-occupied areas in what is more popularly known as the Spratlys face a unique set-up: their entire military detachment is a broken warship.

Back in the 1990s, the Armed Forces of the Philippines intentionally ran its Landing Transport Ship 57 (BRP Sierra Madre) aground on this reef, located 176 nautical miles from mainland Palawan, so the country can claim it as its own territory.

Now, the ship is rusty, full of holes and is a very dangerous place for anyone to live in.

âMedyo mahirap ang buhay dito dahil walang puno, walang lupa, pero nakakapag-adjust naman kami [Lifeâs quite hard here because here are no trees, no ground, but we are adjusting somehow],â says Petty Officer 3rd Class Benedicto de Castro, one of the soldiers stationed here.

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The soldiers—five Marines and two Navy personnel—spend most of their days fishing, listening to the transistor radio or just patrolling the ship. There are no cellphone signals, no cable TV.

That's why it came as a surprise to the soldiers when their commanding officer, Lt. Gen. Juancho Sabban, arrived at their detachment Thursday afternoon with a tub of ice cream.

Marooned for months with nothing to eat but fish, the soldiers' faces light up like little children when the tub of ice cream was placed before their ocean-weary eyes.

Soldiers had the same reaction in other Philippine-claimed islands that Sabban visited.

“Masayang masaya kami na nakakita kami ng ice cream, high morale ito sa amin,” says 2nd Lt. Christopher Maguensay, commanding officer of the Lawak Island detachment.

Soldiers of Lawak Island (international name: Nanshan Island, located some 180 nautical miles from Ulugan Bay) crowd around a tub of ice cream personally delivered to them by their commanding officer, Lt. General Sabban. Within seconds, the ice cream is reduced to nothing.

“Malungkot dito. Miss na miss ko na ang anak ko. [We are lonely. I miss my child badly],” admits Staff Sergeant Rufino Flores, 49, amid a big spoonful of ice cream.

Unknown to many, the military's Western Command has deployed teams of Marines and Navy personnel to nine of the Philippine-claimed islands and reefs to ensure that no foreign country will encroach on them.

While the soldiers face no immediate threat of attack, they still have to brave the unpredictable weather, the extreme loneliness and boredom all in the name of duty.

Lawak Island has a small detachment of 12 soldiers. They live by fishing and spend most of their days doing so. The island spans almost 5 square hectares surrounded by lush trees and a white sandy beach.

Manguensay says he tries to boost his men's morale by encouraging them to engage in sports and discussions.

“Dapat busy kami lagi para di kami ma-bore. Tapos pinapatawag ko sila sa family nila minsan, tig-iisang minute [We always need to be busy to avoid boredom. Every now and then I let them call their families also; each one gets one minute on the phone],” he adds.

Vietnamese and Filipino fishermen who pass by the island often give vegetables and fish to the soldiers, all in good faith.

Sabban says Lawak Island would make for a great tourist destination.

“They intended to have an airstrip here—for commuter planes—so from Puerto (Princesa City), it only takes one hour by air. So if there's an air strip here, many hotels, cold storage for the fishing industry—that's a very big deal,” he says.

Another nearby Philippine-occupied island, Patag Island (Flat Island, very near Lawak Island), which spans only about a square hectare, would also make for a great island-hopping destination.

Parola Island (Northeast Cay, located 240 nautical miles from Ulugan Bay), the farthest Philippine-occupied island, is largely undeveloped, its resources untapped. Just a few kilometers across the island is the Vietnamese-occupied Pugad Island. From a distance at night, one can see the stark difference as the Vietnamese island is filled with concrete structures, while Parola Island is dark; the light from the lighthouse flickers and then it's gone. Locals say the Vietnamese island houses that country's naval academy.

âThirty-one years ago I was the commander of this island and when I was here I would say that our island was much better than theirs simply because there were more troops here and the surroundings well-maintained. It seems that we are lagging very far behind,â Sabban says.

Sadly, the proposal to develop the islands still remains as it is â a mere proposal. A rusty bulldozer sits idle outside the soldiersâ detachment in Lawak, wasted away by years, with nothing to contribute to progress.

Staff Sergeant Engelbert Madrid, detachment commander of Parola Island security detachment, admits feeling a little envious of the Vietnamese on Pugad Island.

âThis place is really sad because our neighbor is Vietnam, but we canât go over there for a visit; all we can do is stare and be envious,â he says, speaking in Filipino.

The soldiers, however, remain unfazed by their situation. They spend most of their days fishing and planting trees and vegetables, engaging in leisure activities and developing the island in their own little way.

Sabban says that the presence of Marines in the disputed islands is significant: it is meant to let other countries know that these are Philippine-occupied areas.

âWe are not confrontational; what weâd like to do is to let others know that this is Philippine territory. We have to warn them that this is Philippine territory and they should respect our sovereignty,â he says.

Petty Officer 2nd Class John Kenneth Atchina, 42, stationed at Likas Island (West York Island, 240 nautical miles from Ulugan Bay), is on his sixth tour of duty in the Spratlys. He has been deployed to many of the disputed islands since 2005. He admits itâs no easy feat but sees it an honor to be one of the soldiers to defend the countryâs territories at this raw frontier.

âMasarap yung pakiramdam,â he says. âKaya kahit siguro palagi kami dito mag duty okay lang [The feeling is great. Maybe even if weâre deployed here often itâs still okay].â

Sabban says that while the government has yet to tap the rich resources on these islands, the Marines will continue to stay there not only to protect the territory but also to enjoy the many islandsâ rich resources.â

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We Salute the AFP for defending and guarding our Territories., If there's a will there's a WAY, kayang-kaya yan Dapat idevelop ng Gobyerno natin ito at bring more soldiers., magdala ng mga gulay seeds, maraming manok sisiw at baboy para paramihin, gawing agricultural land yong ibang part. ng Pag-asa is. Likas, Lawak, Parola islands. Pwedeng maglagay or magkarga ng paunti-unting BAKAL, at gamit pang welding, mga Tabla to construct houses at mga pintura laban sa kalawang sa mga maliliit na Bangka or speed boat para mabilis malusutan tong coastguard ng tsinoy., para marepair at maconstruct ang Brp sierra madre. pwede naman diba? eh kung malaking barko natural mabagal. maaabutan ng China Coast Guard. bring more provisions. Kabitan ng mga bagong MK110 naval gun, bushmaster machine gun. SAM.

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Suggestion lamang, kung papayag ang gobyerno natin kailangan maglagay ng mga civilian population, mga volunteers with their families on rotation like the soldiers para tuluyan nang parang Pinas Territories. Kung ako tatanungin, gusto kong tumira dyan, tahimik,patanim tanim ka lang ng gulay, etc. . . .pwede akong mag volunteer dyan, basta nakakauwi every 3 months for 2 weeks vacation in the main islands.

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Bullying is the right term I would rather suggest that China is currently doing to its neighbouring countries laying claim to the islands in the western philippine seas and as a matter of protest by the DEA why

Annex 424

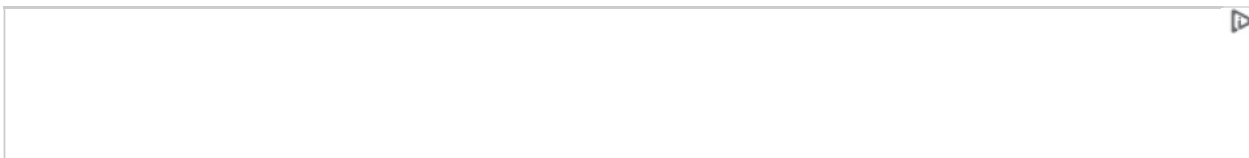
“Families of Vietnamese martyrs to visit Truong Sa for memorial”, *Thanh Nien News* (26 Jan. 2013)

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Families of Vietnamese martyrs to visit Truong Sa for memorial

JANUARY 26, 2013 BY [THANHNIENNEWS](#)

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Vietnamese naval forces will organize a trip to the Truong Sa (Spratly) Archipelago for the families of three soldiers who were killed during a Chinese attack on its reef in 1988.





**Thanh Nien Editor-in-chief
Nguyen Quang Thong (1st, L)
grants [financial aid](#) to the
families of martyrs who died
protecting the DK1 oil platform
in the northern province of
Quang Binh in 1991**

The trip was proposed the Ho Chi Minh City-based Bien Dao Doan Tau Khong So Company after the family of soldier Doan Dac Hoach told *Thanh Nien* in an [interview](#) in May that they wanted to visit the place where their son died.

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They plan to place flowers in the sea and burn incense to honor their son and his comrades.

The families of Hoach and the two other soldiers – Nguyen Thanh Hai and Bui Ba Kien – will attend the trip, but [more details](#) have yet to be released.

The three soldiers died with 61 others on March 14, 1988 when Chinese soldiers launched a military assault against Gac Ma (Johnson South Reef or Chigua Reef), Len Dao (Lansdowne Reef) and Co Lin (Johnson North/Collins Reef) in a flagrant effort to seize the Spratly Islands and gain control over the entire East Sea.

Thanks to their brave resistance, Vietnam maintained its sovereignty over Len Dao and Co Lin, while China began its occupation of Gac Ma.

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Thanh Nien meets families of East Sea martyrs in central Vietnam

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Thanh Nien newspaper, which has organized several meetings with the families of the martyrs nationwide to commemorate their sacrifice, is calling on contributions from local philanthropists to help the families of other slain soldiers have the same opportunity.

Earlier on July 2, *Thanh Nien* organized a ceremony to commemorate the sacrifice of two martyrs who died while protecting the DK1 oil platform from a typhoon in January of 1991.

At the ceremony held in the central province of Quang Binh, the newspaper, in collaboration with the Asia [Foods](#) Corporation, gave VND20 million (US\$945) to each of the families of martyrs Pham Tao and Ho Cong Hien.

Tao and Hien were among nine naval sailors who died as the result of typhoons since the oil platform was built in July 1989 as a base designed to both provide support to fishermen and play a role in national defense.

Thanh Nien has recently also organized ceremonies for other soldiers throughout Vietnam, pledging money to their families.

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“Deadly fight against Chinese for Gac Ma Reef remembered”, *Thanh Nien News* (17 Mar. 2013)

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Deadly fight against Chinese for Gac Ma Reef remembered

MARCH 17, 2013 BY [HAIDUONGNEWS](#)

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The 46-year-old constantly thinks about his comrades who sacrificed themselves to defend the reef, especially with the approach of the 25th anniversary of the event.



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Phan Van Duc burns incense for his fellow soldiers who died in the Gac Ma skirmish in 1988

Phan Van Duc's shoulder hurts whenever a cold spell hits his hometown Da Nang. It was a gift from the Chinese 25 years ago – he survived a bullet from a Chinese soldier when his unit was defending the Gac Ma (Johnson South) Reef in Vietnam's Truong Sa (Spratly) Archipelago in 1988.

The 46-year-old constantly thinks about his comrades who sacrificed themselves to defend the reef, especially with the approach of the 25th anniversary of the event (March 14).

Early in the morning every day he walks to the shore near his [house](#) to look at the sea, recalling the skirmish when 64 Vietnamese soldiers were killed and many others were injured.

After joining the army in 1987, Duc was assigned to the Navy Zone 3's Artillery Regiment 83 based in Da Nang.

In March 1988 they were sent to Khanh Hoa Province where they boarded the transport vessel HQ 604 headed for Truong Sa. It carried personnel from the Engineering Corps, 22 soldiers, and construction materials.

They reached the place at around 3:00 p.m. on March 13 and began to carry the construction materials to Gac Ma Reef.

About an hour later a Chinese ship arrived and sent boats to stop their work and order them to leave.

But the Vietnamese carried on with their task, and at around 3 a.m. on March 14 planted a flag on the reef.

"That night we did not think about survival if a fight broke out because the Chinese had a modern ship," Duc says.

At around 4 a.m. he and more than 20 others swam to the reef but with just two AK 47 guns.

"We did not bring many weapons because we wanted to defend peacefully."

But the Chinese began to fire at them.

"Many Chinese soldiers surrounded us. Second Lieutenant Tran Van Phuong, deputy chief of the island was protecting the flag when a Chinese soldier gunned him down.

"We fought with our hands because we thought losing the flag meant losing the reef."

Duc asked the others about the two guns and was told they were hidden to avoid giving [the impression](#) the Vietnamese wanted to fight.

"I think we would have killed at least a few dozen Chinese soldiers if we had the guns."

The Chinese began heavy firing and dozens were killed. Duc took a bullet in his shoulder but swam to the ship. However, it had been sunk by the Chinese vessel.

Duc was later rescued by his fellow soldiers while nine others were arrested by the Chinese and taken to Guangdong and held for more than three years.

The Chinese managed to occupy Gac Ma Reef.

But two other Vietnamese ships protecting the Len Dao (Lansdowne) and Co Lin (Collins) reefs that were also attacked by Chinese ships managed to hold out.

No surrender

Among the Vietnamese soldiers surviving the clash was Tran Thien Phung of the north-central province of Quang Tri. He was one of the nine arrested by the Chinese.

"I was on the deck of the HQ 604 and was injured in the arm when the Chinese ship began to fire at us," Phung said, adding that the Vietnamese ship sank quickly following heavy firing.

Phung managed to hold on to a log but was taken by the Chinese later that day.

"The Chinese soldiers pointed guns at me and asked me to surrender, but I just shook my head.

"Later, during interrogation, they asked me why I didn't surrender. I told them a Vietnamese soldier does not know how to do so."

Truong Van Hien of Ha Tinh Province, who was also arrested, said they were tortured by the Chinese.

"In the first three months the Chinese often tortured us and asked us about military bases and weapons... I told them I was a new soldier and knew nothing about that."

More than three years later, the Red Cross was allowed to visit them and they were able to write to their relatives in Vietnam. It was only then that their families knew about their survival.

Phung's wife Le Thi Thien said she would never forget the evening when she received his letter from China.

"A local official ran into my house and shouted that it was a letter from Phung. I cried in happiness."

On September 2, 1991, China released the nine Vietnamese soldiers.

By then, Phung had been declared as missing and his family had set up an altar for him.

Unforgotten deaths

Hien said people would never forget his fellow soldiers who died to defend Gac Ma.

"I was luckier than others to survive and come home. I hope that surviving soldiers would visit Truong Sa to burn incense and offer flowers to our deceased comrades."

Duong Van Dung of Da Nang, one of the soldiers arrested by the Chinese, said the first thing he did upon returning home was to burn incense for Pham Van Loi, a neighbor and childhood friend who was killed in the Gac Ma clash.

"My greatest wish is to return to Gac Ma to burn incense for my comrades. If I have another chance to be assigned to build a facility on the reef again like 25 years ago, I will not hesitate to go."

Vietweek staff (*Thanh Nien News*)

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Veteran recalls Truong Sa battle amidst tension in East Vietnam Sea

Annex 426

“Efforts to develop Trường Sa [Spratly Islands]”, *Bao Tin Tuc* (27 Apr. 2013)

Efforts to develop Trường Sa [Spratly Islands]

Báo Tin tức - 04/27/2013 09:42

Few people know that for more than 10 years, generations of craftsmen of Bình Di Village, Giao Thịnh Ward, Giao Thủy District (Nam Định) have successively contributed their efforts to develop the Trường Sa Archipelago for their motherland. The gentle, honest people here are putting in their labor, contributing each brick routinely to protect the homeland's sovereignty over its sea and islands.

People who develop the island

Bình Di Village consists of three neighborhoods with about 2,000 people. The villagers make their living mainly on rice cultivation. During fallow time, men in the village travel elsewhere to work as bricklayers and carpenters because these are longstanding occupations in Bình Di Village. Women stay home to look after children and make crochets for export.



The soldiers are laying stones to build embankment to expand Son Ca Island (Sand Cay)
Photo: Le Son

In 1991, Major General Hoàng Kiên, who was then commander of engineer regiment 83, went to the village to mobilize those who were skilled in construction and carpentry work and

in good health with a suitable family background to join forces to develop Spratly islands. This was not only about the villagers' way of making a living, but it also was a significant mission to the homeland for preserving sovereignty over its sea and islands. Realizing the mission's significance, Mr. Lê Văn Biền (born in 1950) of Neighborhood 6, one of the first villagers of Bình Di to go to the island, gathered many other fellow villagers to join him in development of the islands.

Mr. Biền said, "Major General Hoàng Kiền is a native of Bình Di Village. In 1991, the major general was tasked to develop the Nam Yết Island (Namyit) (located south of the Nam Yet group in the Spratly Islands). After talking with Major General Hoàng Kiền, Nguyễn Hoàn and I (from Neighborhood 5) gathered the villagers into three groups. Of these, I led the bricklaying group of 7 people. The carpentry group consists of more than 10 people under the leadership of Mr. Đỗ Phương (born in 1952) of Neighborhood 6. The porters and iron-galvanizing group consists of about 4 people under the leadership of Mr. Đỗ Đoàn (from Giao Tân Ward).

We were the first groups going to the island to do construction work. At the time, we had to transport to the island every single stone, every single bag of cement, construction materials to build dwellings, temples, sea walls, trenches, embankments on the island so that people could go there to live, to perform military service. These dwellings also serve as shelters for fishermen during stormy weather. After 3 months of work, we returned home." There was no resident on the island at the time and only soldiers were on it. Things were very difficult. We had to save each bowl of freshwater and shared each bucket of water to bathe and do laundry. Nourishments were mostly dry food or instant noodle," said Mr. Biền.

Continuing the tradition

In the village nowadays, older people who are no longer healthy enough to work on the island are staying inland to work as bricklayers and carpenters in and around their homes. Most young men from the village follow their older brothers and their uncles to the island to do construction work. Neighborhood 6 has the greatest number of people going to develop the Trường Sa Archipelago [Spratlys]. After Bình Di Village, people from surrounding wards such as Giao Phong, Giao Yến, Giao Tân, Giao Lâm... also went to the island to join many others in the construction work.

Those who are selected to go to the island are usually between 18-40 years of age and in good health. Before leaving the village, they have to go through complete physical examinations and background checks. Only if they meet the requirements may they go to the island. However, not all workers who passed the health check would be able to stay and work for long on the island. Perhaps because of the weather, of being long at sea, many workers could not adapt to the weather upon arrival on the island and thus would not be able to work. Those workers had to wait to be transported back to the mainland and replaced by others.

Mr. Nguyễn Ngọc Phong, chief of Neighborhood 6, said, "Because the construction is done on an island, the work plan would depend on the tides. Subject to weather conditions, groups of workers usually leave for the island in two stages: the first stage is at the beginning of the year, from lunar January to August, and the second stage is from lunar October to the Lunar New Year. On average, bricklayers and carpenters from the village would be gone for 6-8

months and return when their work is complete or when adverse weather persists. Currently, village workers engaged in the construction work on the Trường Sa Archipelago [the Spratlys] are divided into four teams, of which two come from Neighborhood 6: Team one is led by Mr. Lương Thanh (born in 1960) and Mr. Nguyễn Hoàn (born in 1962). Team two is led by Mr. Đỗ Hương (born in 1972) and his wife, Nguyễn Cúc. Team three is from Neighborhood 5 and led by Mr. Phan Bốn (born in 1962). Team four is from Neighborhood 4 and led by Mr. Nguyễn Cần (born in 1962). These four teams consist of nearly 200 workers or about 50 in each team. Last year, the entire team, led by Mr. Phan Bốn, with more than 30 craftsmen stayed to work and celebrate their Tet right on the island.

Through generations of craftsmen from Bình Di Village going to work on the island, gifts from Trường Sa [Spratlys] have always been just sea shells, clam shells of all sizes, and these are testaments to the days and months of tireless labor of the people here because of their love for the motherland, its sea and islands. To the Bình Di villagers, going to the island to do construction work for a living is just one reason but what is more important for them is that Trường Sa [Spratlys] are their country's islands. For that reason, to contribute a small effort to protect and develop the island as well as to preserve the sovereignty of the motherland over its sea and islands is sacred and noble work and is the responsibility of every citizen in general and of the Bình Di villagers in particular.

Thùy Dung

25/2/2015

Góp sức xây đảo Trường Sa - Báo Tin tức

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Xã hội



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In ra

Chia sẻ

Góp sức xây đảo Trường Sa

Báo Tin tức - 27/04/2013 09:42

0

0

Tin gốc

Thích Chia sẻ

Ít ai biết được hơn 10 năm nay, các thế hệ thợ làng Bình Di, xã Giao Thịnh, huyện Giao Thủy (Nam Định) đã nối tiếp nhau góp phần công sức nhỏ bé của mình xây dựng những công trình nơi quần đảo Trường Sa của Tổ quốc. Những người dân hiền lành, chất phác nơi đây đang ngày ngày lao động, góp từng viên gạch để giữ vững chủ quyền biển đảo quê hương.

Những người đi xây đảo

Làng Bình Di có ba xóm với khoảng 2.000 dân. Người dân nơi đây sống chủ yếu bằng nghề trồng lúa nước. Vào thời gian nông nhàn, đàn ông trong làng thường tỏa đi khắp nơi làm thợ nề, thợ mộc vì đây là nghề có từ lâu đời của làng Bình Di, còn phụ nữ thì ở nhà chăm sóc con cái và làm thêm nghề móc sợi làm hàng xuất khẩu.



Các chiến sĩ đang đắp đá xây kè mở rộng đảo Sơn Ca. Ảnh: Lê Sơn

Nổi bật trong tuần

Độc nhiều Bình chọn nhiều

- | | |
|---|----------|
| Nhân sự mới | 1 |
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| Chỉ định thầu xây dựng cảng hành khách quốc tế Phú Quốc | 3 |
| 2 giờ ra khơi, một tàu cá trúng đậm thu gần 400 triệu đồng | 4 |
| Bộ trưởng Quốc phòng Ma-lai-xi-a thăm Việt Nam | 5 |

Năm 1991, Thiếu tướng Hoàng Kiển khi đó là Trung đoàn trưởng Trung đoàn công binh 83 đã về làng vận động anh em trong làng ai biết nghề xây, làm mộc giỏi và có đủ sức khỏe, lý lịch tốt thì cùng nhau ra xây dựng đảo Trường Sa. Đây không chỉ là công việc lao động kiếm sống đơn thuần cho người dân trong làng mà nó còn là công việc có ý nghĩa rất lớn đối với quê hương, đất nước trong sự nghiệp giữ gìn chủ quyền biển đảo. Thấy được ý nghĩa lớn lao của công việc, ông Lê Văn Biền (sinh năm 1950), xóm 6 - một trong những người làng Bình Di ra đảo đầu tiên đã tập hợp nhiều anh em trong làng ra xây dựng đảo.

Ông Biền cho biết: "Thiếu tướng Hoàng Kiển là người gốc làng Bình Di. Năm 1991, Thiếu tướng được giao nhiệm vụ xây dựng đảo Nam Yết (nằm ở phía nam cụm Nam Yết của quần đảo Trường Sa). Sau khi nói chuyện với Thiếu tướng Hoàng Kiển, tôi và anh Nguyễn Hoàn (xóm 5) đã về tập hợp anh em trong làng thành ba tổ. Trong đó, tổ thợ nề có 7 người do tôi làm đội trưởng, tổ thợ mộc có hơn 10 người do ông Đỗ Phương (sinh năm 1952) ở xóm 6 làm đội trưởng và thêm tổ bốc vác, mạ sắt gồm khoảng 4 người do ông Đỗ Đoàn (xã Giao Tân) làm đội trưởng.

Chúng tôi là những tổ ra xây dựng đảo đầu tiên. Khi đó, chúng tôi phải vận chuyển ra đảo từng hùn đá, từng bao xi măng, bao đá, bao cát, nguyên vật liệu ra kiến thiết xây dựng nhà ở, nhà chùa, tường bao, hầm hào, kê bờ ở ngoài đảo để người dân ra đó sinh sống, phục vụ quân sự và cũng là chỗ để người dân đánh bắt cá chờ trú chân nếu gặp mưa bão. Sau 3 tháng xây dựng xong, chúng tôi về". Khi đó, ngoài đảo chưa có người dân ở, chỉ có bộ đội sinh sống, mọi thứ rất khó khăn, nước ngọt phải tiết kiệm từng bát một và chia nhau từng xô nước để tắm giặt. Ăn uống chủ yếu là đồ khô, lương khô hoặc mì tôm, ông Biền chia sẻ thêm.

Nội tiếp truyền thống

Hiện trong làng, những người lớn tuổi không còn đủ sức khỏe để ra xây đảo thì ở lại quê hương đi làm thợ nề, thợ mộc quanh vùng, còn lại phần lớn thanh niên trong làng đều theo các anh, các chú đi xây đảo. Xóm 6 là nơi có số lượng người đi xây dựng quần đảo Trường Sa đông nhất. Ngoài làng Bình Di ra, các xã quanh vùng sau này cũng có nhiều người tham gia đi xây dựng đảo như xã Giao Phong, Giao Yên, Giao Tân, Giao Lâm...

Những người được chọn ra xây đảo thường ở độ tuổi từ 18 - 40 tuổi, có sức khỏe tốt. Trước khi đi những người thợ làng đều được khám sức khỏe đầy đủ, kiểm tra hồ sơ lý lịch nếu đủ điều kiện mới được đi. Tuy nhiên, không phải người thợ nào vượt qua được vòng kiểm tra sức khỏe ở đất liền cũng có thể trụ vững và lao động được khi ở ngoài đảo. Có thể do thời tiết, do quá trình lênh đênh trên biển để tới đảo mà nhiều người thợ ra ngoài đảo không thích nghi được với thời tiết nên không thể lao động được. Những người thợ ấy phải chờ tàu quay trở lại đất liền và đổi thợ khác ra làm.

Ông Nguyễn Ngọc Phong, xóm trưởng xóm 6 cho biết: Vì xây dựng ngoài đảo nên công việc cũng phải phụ thuộc vào con nước. Tùy thuộc vào điều kiện thời tiết nên một năm các tổ thợ thường đi vào hai đợt là đầu năm từ tháng 1 âm lịch đến tháng 8, đợt hai từ tháng 10 âm lịch đến Tết. Trung bình những người thợ nề, thợ mộc trong làng đi khoảng từ 8 - 8 tháng khi hết việc hoặc thời tiết không thuận lợi lại về, có nhiều năm mọi người phải ăn Tết ngoài đảo. Hiện nay, lao động trong làng tham gia xây dựng quần đảo Trường Sa được chia làm bốn đội; trong đó, xóm 6 có hai đội là đội một do ông Lương Thanh (sinh năm 1960) và ông Nguyễn Hoàn (sinh năm 1982) làm đội trưởng; đội hai do ông Đỗ Hương (sinh năm 1972) và vợ là Nguyễn Cúc làm đội trưởng; đội ba ở xóm 5 do ông Phan Bốn (sinh năm 1982) làm đội trưởng; đội bốn ở xóm 4 do ông Nguyễn Căn (sinh năm 1982) làm đội trưởng. Bốn đội có gần 200 người thợ, trung bình mỗi đội có trên dưới 50 người. Năm vừa rồi, toàn bộ đội do ông Phan Bốn làm đội trưởng với hơn 30 thợ đã làm việc và ăn Tết luôn ngoài đảo.

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Góp sức xây đảo Trường Sa - Báo Tin tức

Qua bao thế hệ thợ làng Bình Di ra xây đảo, quà về từ Trường Sa bao giờ cũng chỉ là những vỏ ốc, vỏ ngao đủ kích cỡ là minh chứng cho những ngày tháng lao động không mệt mỏi của người dân nơi đây vì tình yêu quê hương, biển đảo đất nước. Với người làng Bình Di đi xây đảo, lý do làm kinh tế chỉ là một phần mà quan trọng hơn của việc ra xây dựng đảo là vì Trường Sa là biển đảo của Tổ quốc. Chính vì vậy, góp một phần công sức nhỏ bé vào việc bảo vệ, kiến thiết đảo thêm vững mạnh, giữ vững chủ quyền biển đảo thiêng liêng là việc làm cao cả và là trách nhiệm của mỗi người dân nói chung và của người dân làng Bình Di nói riêng.

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Annex 427

Marc Jason Cayabyab, "PHL neglected its territories in West PHL sea - national security analyst", *GMA News*
(28 May 2013)



News» Nation

PHL neglected its territories in West PHL sea - national security analyst

By **MARC JAYSON CAYABYAB**, GMA NEWS May 28, 2013 12:03am

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Vietnam has surpassed the Philippines in the number of structures built on islands in the West Philippine Sea, where the Philippines has territorial disputes with neighboring countries, according to a national security analyst.

The "structure gap" supports the assertion made by Rommel Banlaoi, head of think tank Philippine Institute for Peace, Violence and Terrorism Research's Center for Intelligence and National Security Studies, that the country has neglected its territories in the West Philippine Sea.

"While others have fortified their facilities, we remained modest in our facility development. We also have to develop our same type of deterrent capability," he said in a GMA 7 "24 Oras" report by Maki Pulido.



Vietnam has the most number of establishments in the area with 21 buildings, followed by the Philippines with nine, China with seven, Malaysia with five and Taiwan with one.

Vietnam has no less than three buildings in Pugad Island, while it has built wind mills and solar panels in Namyt Island, which is part of the disputed Spratlys Islands, Banlaoi said. The Vietnamese have also built three-story buildings in Collin Reef, Petley Reef and West London Reef, while it has a satellite dish in Pigeon Reef.

Meanwhile, Taiwan has a concrete runway in Itu Aba Island, while Malaysia has built a helipad in

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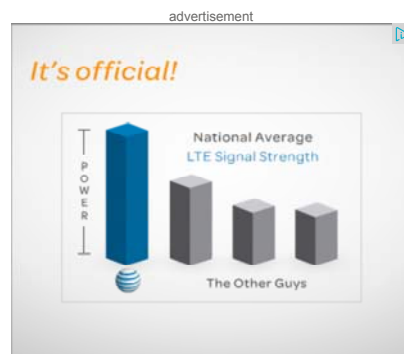
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Ardashia Reef.

An [earlier report](#) by Pulido said that the Philippines only has huts in the disputed area, where the Navy takes shelter.

"Nung panahon ni Marcos, walang ginawa ang navy natin kundi magpasabog ng magpasabog ng mga structures 'dun. After 1986... naging abala tayo sa ating internal politics... nakalimutan natin 'yan," Banlaoi added in the report.

Lt. Commander Gregory Pavic of the Philippine Navy refused to comment, saying that it was the Department of Foreign Affairs which has a say on the matter.

DFA spokesperson Raul Hernandez meanwhile said they would issue a statement on Tuesday.

Meanwhile, Armed Forces of the Philippines spokesperson Brig. Gen. Domingo Tutaan said Banlaoi is entitled to his opinion.

He, however, countered that the AFP has not neglected the area. "His opinion is not what we're doing... We have monitored the developments there, that's why there's a protest filed before the United Nations body, so we can have a peaceful ending to this issue," Tutaan told GMA News Online in a phone interview. — **DVM, GMA News**

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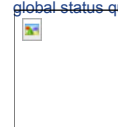
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Annex 428

Le Quang Minh, "Spratly Islands lighthouse job no sinecure", *Viet Nam News* (11 June 2013)

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Spratly Islands lighthouse job no sinecure



Nguyen Van Thu has been guarding lighthouses in Spratly Islands' nine lighthouses for more than half his life. – VNS File Photo

by **Le Quang Minh**

TRUONG SA (VNS) — For more than half his life, Nguyen Van Thu has been manning lighthouses. In his late 50s, with a loose ponytail and bohemian style, the guard could easily be mistaken for an artist.

For two decades, he's watched over the lighthouse on Sinh Ton Island, a land mass of about eight hectares belonging to the Spratly Islands.

As one of the first people to work at Spratly Islands' nine lighthouses, Thu said the job was not as easy as it sounds.

"When there's a system breakdown, we only have minutes to fix it. If there are interruptions in maritime signals, vessels could lose direction, hitting hidden rocks or coral reefs," Thu said.

The job involves a lot of waiting.

Everyday at exactly 5:30pm, the nine lighthouses in the Spratly Islands are turned on. Their glow lasts until 6:30am the following morning.

The lighthouses here are managed under the Southern Viet Nam Maritime Safety Corporation. Unlike other soldiers stationed in the islands, the lighthouse staff must pay for their own food and personal items. They can place their orders within the company, which sends a ship to the island once every few months.

In 2006, when Thu was the head of the An Bang Island lighthouse, he and other staff members tried catching fish to improve their meals. Unfortunately, their vessel broke down at sea.

"We decided to swim to shore, which was five kilometers away. I told others that if I couldn't make it, they should switch direction to save time and didn't need to rescue me," he recalled.

But they made it.

When the weather turns bad, the job gets more difficult. During the season when the sea is rough, staff members always have canoes and life buoys ready.

Ngo Van Thanh, head of the lighthouse at Da Tay Island, said when the wind was so harsh that the waves neared the top of the lighthouse, they had to relocate further into the island.

However, they don't even think of leaving their posts.

"A lighthouse guard leaving his post is like a soldier leaving his fighting post," Thanh said. "We are not just helping the fishermen; we help mark the sovereignty of the nation. Even during stormy nights, we keep the light shining."

As a native of the northern port city of Hai Phong, Thanh has more than 20 years of experience guarding lighthouses in the Spratly Islands. When he was young, Thanh guarded the stations on Long Chau and Hon Dau islands before moving to An Bang, Song Tu Tay and Da Lat islands. He's now stationed at Da Tay Island.

Inside the lighthouse, about four to five people live in an area of about 15-20 square meters.

Other rooms are used for storing equipment. Even at the biggest lighthouse in the islands, Truong Sa Lon, there is little space. Vu Sy Luu, a guard there, said he wanted to raise a dog or some chickens – but the living space was just too limited.

Every year, each staff member gets about three months off. And during the Lunar New Year, some get to go home. However, the trip is fraught with peril. Thu missed his son's wedding because a storm struck while the ship was going ashore.

Colonel Nguyen Ba Ngoc, deputy head of the Viet Nam People's Navy Region 4, which manages the Spratly Islands maritime force, said the nine lighthouses are located throughout the 21 islands of Truong Sa District, central Khanh Hoa Province. "They help the fishermen feel reassured and continue to get their livelihood from the sea," he said.

Some of the men here are already in their late 50s. They miss their family members back on shore, whom they talk to occasionally through maritime communication technology.

"We just have to wait until retirement to repay our family members for the days we're gone," Thanh said.

Sometimes fishermen pass by the islands to say hello or bring gifts.

During the night, besides the eye of the lighthouse, the eyes of the staff look back at the deep sea."For us, no matter where you guard, it's always close to the sea," Thanh said. "We feel happy and relieved seeing just a flash of light reflecting back from out there."

When asked why he'd chosen such a difficult and remote job, he only laughed.

"If we didn't do it, who would?" — VNS

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Annex 429

“Sinh Ton dong Island - Vietnam’s watchtower”, *Voice of Vietnam* (11 July 2013)



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Sinh Ton Dong Island- Vietnam's watchtower

Thursday, July 11, 2013 - 18:31:09

(VOVworld)- 300 km from the mainland, Sinh Ton Dong island in Sinh Ton Dong commune, Truong Sa district of Khanh Hoa province has a strategic position and one of Vietnam's frontier outposts. Today, Discovery Vietnam takes you on a tour of the island.

Sinh Ton Dong island lies in the north of the Truong Sa archipelago. From afar, it is a green island dotted with red roofed houses. The sand beaches along two sides of the island look like the wings of a swallow, a common bird on the island. To reach the island, we have to cross a field of stakes, which were there decades ago to help the island withstand strong winds and waves. These poles support trays of sand in which swallows can build their nests. Today, Sinh Ton Dong Island is a symbol of vitality and courage of the Truong Sa archipelago. Colonel Nguyen Duc Du, Deputy Chief of the island, says: *"This island belongs to the second group of islands in the Truong Sa archipelago. It is a bulwark defending national sea sovereignty. The soldiers on the island are always ready to defend peace and stability on Truong Sa Thanks to assistance from the Party, State and people, living conditions on the island have improved noticeably. Each year we welcome many groups of visitors from the mainland."*



Du says that with solar and wind power, the lives of the inhabitants and soldiers stationed here have improved: *"It's easy for us to receive daily news reports from the mainland. This helps us fulfill our tasks and deal with any situation on the island. We now have TVs, radios, and computers. A library was also built to enable us to acquire new knowledge."*

Sinh Ton Dong is a coral island, so it is difficult to grow vegetables due to lack of soil and fresh water. But, the soldiers on the island to the impossible. Today, one can find on the island "gardens" full of vegetables, ducks and chickens. Captain Doan Van Cong, Head of the Logistics Department, says: *"We utilize all available water resources to grow vegetables. We have built ponds on the island. We are responsible for supplying 80% of the island's vegetables- about 5 tons. We produce two tons of poultry and pigs per year. We currently have about 200 chickens, ducks and geese and 10 pigs."*

Despite the harsh climate, the island is vital with a large green area covered with trees. Colonel Du says everyone on the island tries to make Sinh Ton Dong a green, clean, beautiful island: *"We are very interested in planting trees on the island. We call on each child to plant two or three trees on every special occasion. Sinh Ton Dong island has become a green island"*.

The soldiers stationed on the island provide fishermen operating throughout the archipelagos of Hoang Sa and Truong Sa shelter during the frequent typhoons. Colonel Du says: *"Last year, we managed to save a fisherman suffering from appendicitis. He had a stomachache for 20 hours before being brought to the island. The doctor have performed emergency surgery and saved him. That is a beautiful memory we will never forget."*

We leave the island at dusk nurturing in our hearts the soldiers' warm sentiments.

Vinh Phong

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Annex 430

Jeff Himmelman, "A Game of Shark And Minnow", *New York Times* (17 Oct. 2013)

A Game of Shark And Minnow

By **JEFF HIMMELMAN**

Photographs and video by **ASHLEY GILBERTSON**

Produced by **MIKE BOSTOCK, CLINTON CARGILL, SHAN CARTER, NANCY DONALDSON, TOM GIRATIKANON, XAQUÍN G.V., STEVE MAING and DEREK WATKINS**

Ayungin Shoal lies 105 nautical miles from the Philippines. There's little to commend the spot, apart from its plentiful fish and safe harbor — except that Ayungin sits at the southwestern edge of an area called Reed Bank, which is rumored to contain vast reserves of oil and natural gas. And also that it is home to a World War II-era ship called the Sierra Madre, which the Philippine government ran aground on the reef in 1999 and has since maintained as a kind of post-apocalyptic military garrison, the small detachment of Filipino troops stationed there struggling to survive extreme mental and physical desolation. Of all places, the scorched shell of the Sierra Madre has become an unlikely battleground in a geopolitical struggle that will shape the future of the South China Sea and, to some extent, the rest of the world.

In early August, after an overnight journey in a fishing boat that had seen better days, we approached Ayungin from the south and came upon two Chinese Coast Guard cutters stationed at either side of the reef. We were a small group: two Westerners and a few Filipinos, led by Mayor Eugenio Bito-onon Jr., whose territory includes most of the Philippine land claims in the South China Sea. The Chinese presence at Ayungin had spooked the Philippine Navy out of undertaking its regular run to resupply the troops there, but the Chinese were still letting some fishing boats through. We were to behave as any regular fishing vessel with engine trouble or a need for shelter in the shoal would, which meant no radio contact. As we throttled down a few miles out and waited to see what the Chinese Coast Guard might do, there was only an eerie quiet.

Bito-onon stood at the prow, nervously eyeing the cutters. Visits to his constituents on the island of Pag-asa, farther northwest, take him past Ayungin fairly frequently, and the mayor has had his share of run-ins. Last October, he said, a Chinese warship crossed through his convoy twice, at very high speed, nearly severing a towline connecting two boats. This past May, as the mayor's boat neared Ayungin in the middle of the night, a Chinese patrol trained its spotlight on the boat and tailed it for an hour, until it became clear that it wasn't headed to Ayungin. "They are becoming more aggressive," the mayor said. "We didn't know if they would ram us."

We didn't know if they would ram us, either. As we approached, we watched through binoculars and a camera viewfinder to see if the Chinese boats would try to head us off. After a few tense moments, it became clear that they were going to stay put and let us pass. Soon we were inside the reef, the Sierra Madre directly in front of us. As we chugged around to the starboard side, two marines peered down uncertainly from the top of the long boarding ladder. The ship's ancient communications and radar equipment loomed above them, looking as if it could topple over at any time. After a series of rapid exchanges with the mayor, the marines motioned for us to throw up our boat's ropes. Within a minute or two the fishing boat was moored and we were handing up our bags, along with cases of Coca-Cola and Dunkin' Donuts that naval command had sent along as *pasalubong*, gifts for the hungry men on board.

But before we had much time to think about that, someone pointed out that the Chinese boats had started to move. They left their positions to the east and west of the reef and began to converge just off the starboard side, where the reef came closest to the ship.



ase Coast Guard cutters patrol within sight of the Sierra Madre.

The mayor and several others stood quietly on deck, watching them as they came. The message from the Chinese was unmistakable: We see you, we've got our eye on you, we are here.

As the Chinese boats made their half-circle in front of the Sierra Madre, the mayor mimed the act of them filming us. "Wave," he said. "We're going to be big on YouTube."

| A GAME OF SHARK AND MINNOW

To understand how Ayungin (known to the Western world as Second Thomas Shoal) could become contested ground is to confront, in miniature, both the rise of China and the potential future of U.S. foreign policy. It is also to enter into a morass of competing

historical, territorial and even moral claims in an area where defining what is true or fair may be no easier than it has proved to be in the Middle East.

The Spratly Islands sprawl over roughly 160,000 square miles in the waters of the coasts of the Philippines, Malaysia, Brunei, Taiwan and China — all of whom claim part of the islands.

The Cabbage Strategy

China is currently in disputes with several of its neighbors, and the Chinese have become decidedly more willing to wield a heavy stick. There is a growing sense that they have been waiting a long time to flex their muscles and that that time has finally arrived. “Nothing in China happens overnight,” Stephanie Kleine-Ahlbrandt, the director of Asia-Pacific programs at the United States Institute of Peace, said. “Any move you see was planned and prepared for years, if not more. So obviously this maritime issue is very important to China.”

It is also very important to the United States, as Secretary of State Hillary Rodham Clinton made clear at a gathering of the Association of Southeast Nations (Asean) in Hanoi in July 2010. Clinton declared that freedom of navigation in the South China Sea was a “national interest” of the United States, and that “legitimate claims to maritime space in the South China Sea should be derived solely from legitimate claims to land features,” which could be taken to mean that China’s nine-dash line was illegitimate. The Chinese foreign minister, Yang Jiechi, chafed visibly, left the meeting for an hour and returned only to launch into a long, vituperative speech about the danger of cooperation with outside powers.

President Obama and his representatives have reiterated America’s interest in the region ever since. The Americans pointedly refuse to take sides in the sovereignty disputes. But China’s behavior as it becomes more powerful, along with freedom of

navigation and control over South China Sea shipping lanes, will be among the major global political issues of the 21st century. According to the Council on Foreign Relations, of the \$5.3 trillion in global trade that transits the South China Sea each year, \$1.2 trillion of it touches U.S. ports — and so American foreign policy has begun to shift accordingly.

In a major speech in Singapore last year, Leon Panetta, then the secretary of defense, described the coming pivot in U.S. strategy in precise terms: “While the U.S. will remain a global force for security and stability, we will of necessity rebalance toward the Asia-Pacific region.” He referred to the United States as a “Pacific nation,” with a capital “P” and no irony, and then announced a series of changes — most notably that the roughly 50-50 balance of U.S. naval forces between the Pacific and the Atlantic would become 60-40 Pacific by 2020. Given the size of the U.S. Navy, this is enormously significant.

In June of last year, the United States helped broker an agreement for both China’s and the Philippines’s ships to leave Scarborough Shoal peacefully, but China never left. They eventually blocked access to the shoal and filled in a nest of boats around it to ward off foreign fishermen.

“Since [the standoff], we have begun to take measures to seal and control the areas around the Huangyan Island,” Maj. Gen. Zhang Zhaozhong, of China’s People’s Liberation Army, said in a television interview in May, using the Chinese term for Scarborough. (That there are three different names for the same set of uninhabitable rocks tells you much of what you need to know about the region.) He described a “cabbage strategy,” which entails surrounding a contested area with so many boats — fishermen, fishing administration ships, marine surveillance ships, navy warships — that “the island is thus wrapped layer by layer like a cabbage.”

There can be no question that the cabbage strategy is in effect now at Ayungin and has been at least since May. General Zhang, in his interview several months ago, listed Ren’ai Shoal (the Chinese name for Ayungin) in the P.L.A.’s “series of achievements” in the South China Sea. He had already put it in the win column, even though eight Filipino marines still live there. He also seemed to take some pleasure in the strategy. Of taking territory from the Philippines, he said: “We should do more such things in

the future. For those small islands, only a few troopers are able to station on each of them, but there is no food or even drinking water there. If we carry out the cabbage strategy, you will not be able to send food and drinking water onto the islands.

Without the supply for one or two weeks, the troopers stationed there will leave the islands on their own. Once they have left, they will never be able to come back.”

‘If You Want to Live, Eat’

On the deck of the Sierra Madre, with morning sun slanting off the bright blue water and the crowing of a rooster for a soundtrack, Staff Sgt. Joey Loresto and Sgt. Roy Yanto were improvising. Yanto, a soft-spoken 31-year-old, had lost an arrow spearfishing on the shoal the day before. Now he had pulled the handle off an old bucket and was banging it straight with a rusty mallet in an attempt to make it into a spear. Everything on the Sierra Madre was this way — improvised, repurposed.

“Others came prepared,” Loresto said of previous detachments that had been briefed about life on the boat before they arrived and knew they would need to fish to supplement their diet. “But we were not prepared.”

Yanto lived alone at the stern of the boat, in a room with a bed, a mosquito net, an M-16 propped against the wall and nothing but a tarp wrapped around a steel bar to separate him from the sea. He also took care of the three fighting cocks on the boat. They were lashed to various perches at the stern and took great pleasure in crowing at anybody who tried to use the “toilet,” a seatless ceramic bowl suspended over the water by iron pipes and plywood.

Yanto has a wife and a 6-year-old son back in Zamboanga City. Like the others, he is able to talk to his family once a week or so, when they call in to one of the two satellite phones that the men take care to keep dry and charged. “It’s enough for me,” he said, of the 5 or 10 minutes he gets on the phone with his family. “What’s important is that I

heard their voice.”

Like Yanto, Loresto was wearing a sleeveless jersey with “MARINES” printed across the front and a section of mesh between the chest and waistline, uniforms for the world’s most exotic basketball team. “It’s a lonely place,” Loresto said. “But we make ourselves busy, always busy.”

When his arrow was complete, Yanto turned to two tubs covered in plastic, which were filled with fish that he had picked off his line the previous night. Fishing lines descended at regular intervals from the port side of the boat, with each soldier responsible for his own; they spend hours tending to them. Yanto split the fish open, covered them with salt, then laid them out to dry on a plank hanging above the deck. “Good for breakfast,” he said, gesturing to the fish he was putting up.



men depend on fish as their main means of physical survival.

The men depend on fish — fresh, fried, dried — as their main means of physical survival. They were all undernourished and losing weight, even though eating and meal prep were the main activities on board, after fishing. Asked what meal he missed most from the mainland, Yanto said, “Vegetables,” without hesitation. “That’s more important than meat or any other kind of dish.” The motto of the boat, spray-painted on the wall near the kitchen, was “*Kumain ang gustong mabuhay*” — basically: “If you want to live, eat.”

In the long hours between lunch and dinner, most of the men would disappear into their quarters to pass the time. Aside from Yanto and the one Navy seaman on board, who occupied an aerie above everybody else, the marines lived in the old officer’s quarters and on the boat’s bridge. When the Sierra Madre was first driven up on the shoal in 1999, it was apparently a desired posting: there was less rust, you could sleep wherever you wanted and people played basketball in the vast tank space below deck. (Now that space was filled with standing water and whatever trash the men threw into it.) Aside from the quarters, which were themselves full of leaks and rust, there was hardly any place inside the boat to congregate that wasn’t either a health hazard, full of water or open to the elements. In bad weather, they gathered in the communications room on the second floor, where Loresto’s DVD player and computer were kept, to watch movies or sing karaoke. (They were all pretty good, but Yanto stood out. He nailed George Michael’s “Careless Whisper,” down to the vividly emotional hand gestures.) If they weren’t at the computer, they were just off to the side, in a small, dark workout area that held an exercise bike (extra resistance supplied by pulling a strap with your hands), an ancient bench press and a bunch of Vietnam-era American communications equipment.



cemen Roel Sarucam, Joey Loresto, Charlie Claro, Lionel Pepito, Israel Briguera and Antonio Olayra on the deck of the Sierra Madre.

The Sierra Madre at one time was the U.S.S. Harnett County, built as a tank-landing ship for World War II and then repurposed as a floating helicopter and speedboat hub in the rivers of Vietnam. In 1970 the U.S. gave the ship to the South Vietnamese, and in 1976 it was passed on to the Philippines. But nobody had ever taken the time to strip all of the communications gear or even old U.S. logbooks and a fleet guide from 1970.

In good weather, the men socialized outside, under the corrugated-tin roof that sheltered the boat's small kitchen and living area. The "walls" were tarps, repurposed doors, old metal sheets and the backs of storage lockers. The "floor" consisted of two large canted metal plates that met in the middle of the boat, suspended above a large void in the deck. The plates popped and echoed with deep thuds whenever anybody walked over them. Everything was on an incline, so the legs of the peeling-leather

couches and tables were sawed to various lengths to square their surfaces. A locker at the center, the driest spot on deck, held mostly inoperable electronic equipment and a small television that had a satellite connection but stayed on for only five minutes at a time. The men got together in the evenings to watch the Philippine squad make a surprising run in the FIBA Asia basketball tournament, only to be interrupted as the television repeatedly went dark. To fix it they had to insert a thin metal wire into a hole in the set and then power the machine off and back on again. “Defective,” one of marines said, by way of explanation. Loresto smiled and shook his head. “Overuse,” he said.

Loresto was the life of the boat. When the men played *pusoy dos*, a variation of poker, he displayed an impressive and sustained level of exuberance, often plastering the winning card to his forehead, face out, and shouting with laughter. He comes from Ipilan, on the island of Palawan. He’s 35, with a wife and three children, ages 2, 10 and 12. Before this posting, he spent 10 years fighting Islamic extremists in Mindanao, the southernmost island group in the Philippine archipelago. Asked whether he preferred combat or the Sierra Madre, Loresto thought for a second and then said, “Combat.”

He also had one of the only real military jobs on the boat, manning the radio and reporting the number and behavior of the boats outside the shoal. He was also the one to note and record that a U.S. intelligence plane, a P-3C Orion, tended to fly over the shoal whenever the Chinese made a significant tactical shift.

One morning, as a Chinese boat circled slowly off the Sierra Madre’s starboard side, Mayor Bito-onon pulled out his computer to deliver a PowerPoint presentation about the various Philippine-held islands in the Spratlys. Most of the men had never seen anything like it before, and they gathered eagerly behind the mayor as he sat on a bench and walked them through it. Bito-onon was surprised at how little they knew about the struggle that was playing out around them. “They are blank, blank,” he told me after the presentation. “They don’t even know what’s on the nightly news.”

Other than a couple of jokes about “visiting China without a passport” (i.e., being captured), life at the tip of the gun didn’t feel much like life at the tip of a gun. It felt more like the world’s most surreal fishing camp. The Chinese boats were always there, but they were a source more of mystery than fear. “We don’t know why they’re out there,” Yanto said at one point. “Are they looking for us? What is their intention?”

To Bito-onon, the Chinese intentions were clear. At breakfast he had said, “They could come take this at any time, and everybody knows it.” What would these guys do if that happened? He raised both hands, smiled and said, “Surrender.”



Mr Eugenio Bito-onon Jr. has 288 voting constituents across a domain called the Kalayaan Island Group.

Later, as he sat on the bamboo bench that was his workplace, television-viewing station and bed for five days and nights on the deck of the Sierra Madre, he talked about Ayungin as the staging ground for China’s domination of the Pacific. “The

Chinese want both the fisheries and the gas. They're using their fisheries to dominate the area, but the oil is the target." Almost as if on cue, one of the Chinese Coast Guard cutters chased off a fishing boat north of the shoal. As the mayor watched, he said that he hoped they wouldn't do the same to our boat when we tried to leave. "What does that mean for me if they do?" he asked. "I can't even come here or to Pag-asa?" Earlier he joked about the headline if the Chinese stopped him: "A Mayor Was Caught in His Own Territory!"

Threadbare Settlements

The official name of the mayor's domain is the Kalayaan Island Group, which technically encompasses most of the Spratlys but in reality amounts to five islands, two sandbars and two reefs that the Philippines currently controls. He has 288 voting constituents, of which about 120 live at any one time on Pag-asa, the only island with a civilian population.





t 120 people live at any one time on Pag-asa, including civilians.

He is a slender, spry man of 57, with a quirky sense of humor that enables him to leaven his criticisms of graft and corruption at the higher levels of the Philippine government with friendly jokes and oblique asides. But his frustration with the lack of resources and the lack of political will is obvious. The Philippines, he says, has done very little to develop the islands they hold, while Vietnam and Malaysia have turned some of the reefs and islands they occupy into resorts that the Chinese would find much more difficult to justify taking as their own. Except for Pag-asa, the Philippines has mustered only the most threadbare of settlements, some even more desolate than Ayungin.

Three days later, we would ride in a small dinghy over the break and up onto the sloped beach of Lawak, 60 nautical miles to the north of the Sierra Madre. Like Ayungin, Lawak serves as a strategic gateway to the rich oil and gas reserves of the

Reed Bank. Unlike Ayungin, Lawak also happens to look like a postcard picture of a deserted-island paradise — a circle of crushed-coral beach enclosing nearly 20 acres of scrub grass, palm trees, a bird sanctuary and a sea-turtle nesting ground.

Second Lt. Robinson Retoriano runs the detachment of 11 worn Filipino troops there. Most of the men under his command wear shorts, flip-flops and tank tops, but he led us on a tour of the island in full camouflage, pointing out with pride their recently constructed barracks and a basketball court with a spectator swing made of “drifted things.”





ik is a circle of crushed-coral beach enclosing scrub grass, palm trees, 11 worn Filipino troops and one basketball court.

As we sat down in the courtyard, Pfc. Juan Colot, an M-16 slung low off his bony shoulders, whistled to the camp's domesticated gull, which flew directly into his hands and chirped complacently. Retoriano is from Manila, and when we asked what a city boy like him was doing on an island in the middle of the South China Sea, he said, "I'm still wondering myself."

In some ways, the guys on Lawak were even more isolated than Loresto and Yanto and the others on Ayungin. They were not allowed any use of the satellite phones whatsoever, not even for calls from loved ones. "It doubles the distance," Retoriano said. To combat the loneliness, Retoriano sometimes gave the marines jobs to do, just to keep them busy. In the mornings they got up at 6 to sweep the camp. In the afternoons they fixed their hammocks outside, to sleep in the fresh air.

Over the course of a few hours, Retoriano referred to the island as "paradise" several

times — which it was, if you focused on its physical beauty and didn't think of how hard it would be to actually live there. And in truth these guys had it better than some of the other detachments — Kota, Parola, Likas, Rizal Reef, Patag — because at least they had ground to live and sleep on.



The settlements on Rizal Reef, Patag and Panata are mostly crude stilted structures over shallow water or small sandbars, with very little room to maneuver and fishing as the sole activity and consolation. According to Bito-onon, the troops on Rizal Reef used to tie themselves to empty oil drums when there was particularly bad weather at night, so that if a high sea or an errant piece of ocean debris wiped out the stilts, they'd at least be able to float.

“A lot of Filipino people might not know why we're fighting for these islands,”

Retoriano said as we prepared to leave Lawak. “But once you see it, and you’ve stepped on it, you understand. It’s ours.” He accompanied us into the water and out to our launch boat, still in full fatigues and big black combat boots, getting drenched up to his chest. As he helped me swing up and over the lip of our boat, he said, “I’m glad we didn’t talk much about the sensitive political situation. But if you ask me, I think China is just a big bully.”

‘I’ve Never Seen More White Knuckles’

The Philippines’ best hope for resisting China currently resides inside a set of glassy offices in the heart of the K Street power corridor in Washington. There, Paul Reichler, a lawyer at Foley Hoag who specializes in international territorial disputes, serves as the lead attorney for the Philippines in its arbitration case over their claims in the South China Sea. Initiated in January, the case seeks to invalidate China’s nine-dash line and establish that the territorial rights be governed by the United Nations Convention on the Law of the Sea, which both China and the Philippines have signed and ratified. The subtleties of the case revolve around E.E.Z.’s and continental shelves, without expressly resolving sovereignty issues. China has refused to participate, but the Philippines has proceeded anyway.

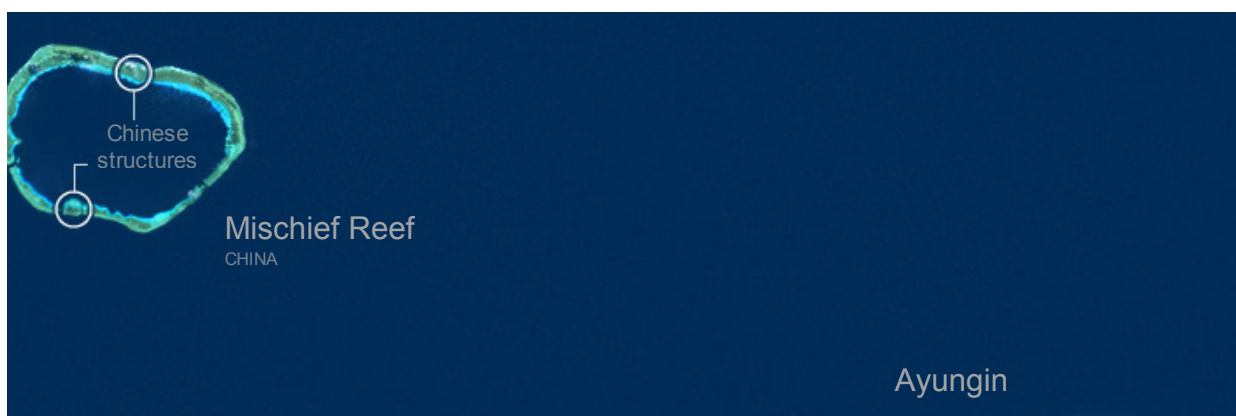
The key element, as far as the Sierra Madre is concerned, is that the case is growing to reflect the new reality on the water. “Ayungin will be part of the case now, now that the Chinese have virtually occupied it,” Reichler told me. He was hoping that the tribunal would define Ayungin as a “submerged feature.” A submerged feature, he explained, is considered part of the seabed and belongs to whoever owns the continental shelf underneath it, not to whoever happens to be occupying it. “The fact that somebody physically occupies it doesn’t give them any rights,” he said.

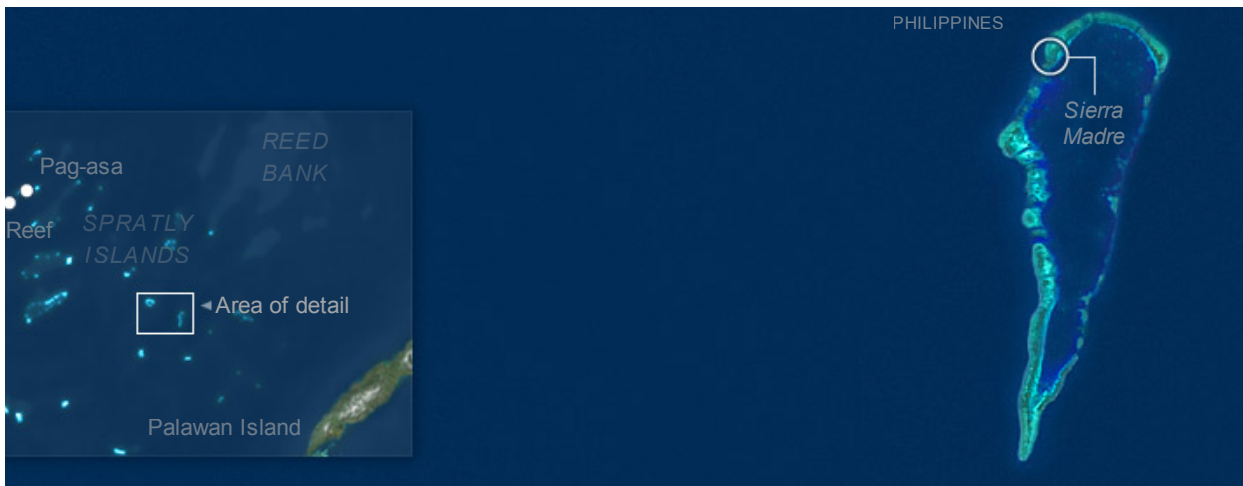
This took a second to sink in. Historically, the physical presence of troops on the Sierra Madre had been a vital part of the Filipino strategy; currently their presence was the only thing stopping a complete Chinese takeover there. Wasn’t that against the Philippines’ own interests? “No,” Reichler said. “Not if we’re not occupying it.” What he meant was that the Philippines wants to nullify any claim to a submerged feature based on who has control above the water — which applies beyond Ayungin to

Mischief Reef and others, which the Chinese currently occupy. Surely this is a strong legal strategy, calibrated for an international tribunal. But if this is the strategy, you couldn't help wondering what those guys were still doing out there, getting choked off a little bit more each day, while the legal process sought to make them irrelevant.

Mischief, a submerged reef similar to Ayungin and roughly 20 miles to its west, makes for an instructive example. It used to belong to the Philippines, but in 1994 the Chinese took advantage of a lull in Filipino maritime patrols caused by a passing typhoon and rapidly erected a stilted structure that they then made clear they were not going to leave. Slowly they turned it into a military outpost, over the repeated protests of the Filipinos, and now it serves as a safe harbor for the Chinese ships that patrol Ayungin and other areas.

What China has done with Mischief, Scarborough and now with Ayungin is what the journalist Robert Haddick described, writing in *Foreign Policy*, as “salami slicing” or “the slow accumulation of actions, none of which is a *casus belli*, but which add up over time to a major strategic change.” Huang Jing, the director of the Center on Asia and Globalization at the Lee Kuan Yew School of Public Policy in Singapore, noted that in all of these conflicts — Scarborough, Ayungin — China insists on sending its civilian maritime force, which is theoretically unarmed. This has a powerful double significance: first, that the Chinese don't want to start a war, even though in many ways they are playing the aggressor; and second, that they view any matter in the South China Sea as an internal affair. As Huang put it: “What China is doing is putting both hands behind its back and using its big belly to push you out, to dare you to hit first. And this has been quite effective.”





Satellite imagery: NASA; DigitalGlobe via Google Earth

In bringing their complaints to arbitration, the Philippines has used the only real lever it has: to try to occupy the moral high ground and focus international attention on the issue. In response, China has tried to isolate the Philippines — discouraging President Benigno S. Aquino III from attending the China-Asean Expo in Nanning last month and continuing to steer the Asean agenda away from a final agreement on a legally binding code of conduct in the South China Sea. (One former U.S. official told me, “So far, China has been able to split Asean the way you would split a cord of wood.”) China has stated that they view the overlapping claims as bilateral issues, to be negotiated between China and each individual claimant one at a time, a strategy that maximizes what China can extract from each party.

While an arbitration outcome unfavorable to the Chinese — which could be decided as early as March 2015 — would create some public-perception problems for them, China is unlikely to be deterred, in part because there is no enforcement mechanism. “Let’s be honest,” Stephanie Kleine-Ahlbrandt says, “China has essentially studied how the U.S. has conducted its hegemony, and they’re saying, ‘We have to respect some court case?’ They say that the United States blatantly violates international law when it’s in its interest. China sees this as what first-class powers do.” (Multiple requests for comment from the Chinese government went unanswered.)

The official U.S. position, articulated by Secretaries Clinton and Kerry, has been that the U.S. will not take sides in disputes over sovereignty. As the assistant secretary of

state for East Asian and Pacific Affairs, Daniel R. Russel, told me, “Our primary interest is in maintaining peace, security and stability that allows for economic growth and avoids tension or conflict.” Basically, we’re staying out of it. But the U.S. has stepped up its joint operations with the Philippines, including a recent mock amphibious landing not far from Scarborough Shoal. There has also been talk of increasing U.S. troop rotations into some of its former bases.

“I think we want to find a way to restrain China and reassure the Philippines without getting ourselves into a shooting war,” James Steinberg, the former deputy secretary of state under Hillary Clinton, told me. “We have a broad interest in China behaving responsibly. But sovereignty over the Spratly Islands is not our dispute. We need to find a way to be engaged without being in the middle.” Kurt Campbell, a former assistant secretary of state with the Obama administration, put it more bluntly: “Maritime territorial disputes are the hardest problem, bar none, that diplomats are currently facing in Asia. On all of these issues, no country has any flexibility. I’ve never seen more white knuckles.”

According to Huang Jing: “Everyone in this region is playing a double game. Ten years ago, the United States was absolutely dominant in the region — economically, politically, militarily. People only had one yardstick to measure their national interest and their foreign policy, and the name of that yardstick was U.S.A. Now there are two yardsticks. On the political one, it’s still the U.S., but on the economic one, it is China.”

The United States does not have the unlimited leverage that it once did, and so for the time being it is allowing the Chinese to slice their salami all the way up onto the shallows of Ayungin.

Beneath a Ceiling of Clouds

The first rains of the typhoon came after dark, howling sideways across the deck of the Sierra Madre. We’d been hearing about the storm for a couple of days over the radio, tracking its course as it made landfall on Luzon and then turned west toward the South China Sea.

Under the supervision of Second Lt. Charlie Claro, the 29-year-old commander of the

outpost, the men drilled holes in the boards with hand-cranks and pulled old, bent, rusted nails out of stray pieces of wood, hammered them straight, then reused them.

By nightfall, the wind had intensified into a gale. We gathered in the living area to listen to it, more awed than scared. Lieutenant Claro surfaced every so often to make sure that his improvements were holding. The rest of the marines stayed inside, singing karaoke. Later, they watched the FIBA Asia finals, the Philippines vs. Iran. Miraculously, the satellite held for most of the game. It felt as if the wind might rip the roof off from above our heads, but the marines were in good cheer. A victory for the underdog Philippine squad would have made for a nice David and Goliath moment in a David and Goliath kind of story, but the Iranians appeared to be about nine inches taller at every position and were just too much for the Filipinos. At halftime the marines went out to check on whether their fishing lines were surviving the storm, then straggled off to bed.

The next two days passed with wind and rain and long hours with nothing to do. Yanto and Loresto led a tour of the cavernous, foul tank space below decks, where old fluorescent light bays hung overhead on dangerously rusted cables.

We started to be able to identify individual marines by their footfalls. Jokes that weren't funny doubled us over. At one point, Pfc. Michael Navata walked in from checking his fishing line and said: "Cards. To pass the time." We played hours of *pusoy dos*, making fun of one another, volume levels rising every time Loresto stuck the two of diamonds on his forehead. The slow, steady backbeat of bad weather and desolation fell away for a while, and it felt as if we could have been in Loresto's living room in Ipilan. Yanto sat to my left, coaching me out of charity, his nonverbal instruction registering levels of depth and intelligence that language hadn't made available to us. For a moment we could see them as they really were, these marines: men who were serving their country in an extreme and unrelenting and even somewhat humiliating situation and trying bravely to make the best of it.

On the afternoon of the second bad day, the sun came out. Yanto promptly went spearfishing. One by one, the other marines stripped down and jumped in. This turned into most of us taking turns leaping off the high starboard side of the Sierra Madre, about halfway up the deck, down into the light blue water below. You had to pick your way barefoot up to the rusted lip and then, with everybody watching, try to forget that you were on a devastated ancient boat run aground on a reef in the shark-infested South China Sea and just jump. It was maybe a 30-foot drop, which took a half-second longer than you expected it to, but the water was warm and clear. We splashed around on our backs like otters. The storm had passed, and we were safe. Lieutenant Claro led a small group in a swim around our fishing boat, which he pronounced seaworthy, but then proceeded to chuckle about for several minutes. It was so woeful looking. After five days on the Sierra Madre, it was also a reminder of the real world, of how we had gotten there, and of the fact that we'd be leaving soon while these guys had to stay behind and eat to live.

Flying Past the Death Star

A month or so later, I spoke with a U.S. pilot with extensive combat experience and knowledge of Special Forces operations. I wanted to know what the American foreign-policy pivot looked like from the inside, and he was willing to tell me only if I didn't name him. "The Chinese are more aggressive because we're not around," he said. His most recent training would seem to reflect the American rebalancing to the Pacific theater: more counter-Chinese-technology operations, more engagement over water, island-hopping campaigns. He said that the joint operations with the Philippines were "a show of presence: Hey, we're [expletive] sailing through the South China Sea, look at us. And you can't do a thing about it." But then he paused. "It's funny, because China's not that far from doing that off the California coast."

Whatever America's pivot might be, there's no denying that Southeast Asia, and the South Pacific, is historically where United States foreign policy — and too many young men sent out to enforce it — has gone to die. For now, the course is a diplomatic one: the Philippines pursues its arbitration, the Asean states apply pressure for a binding code of conduct in the South China Sea, and the United States counsels patience (within reason) and the peaceful resolution of disputes. As it turns out, this somewhat

scattershot approach may actually be starting to work. The Chinese leadership has undertaken a new charm offensive of late, visiting the capitals of some Asean countries (notably not the Philippines) and signaling that it might be willing to soften its positions on adopting a code of conduct and multilateral negotiations.

At the East Asia Summit meetings in Brunei two weeks ago (which John Kerry attended in place of President Obama because of the government shutdown), Kerry pushed for a quick implementation of a binding code of conduct. “That’s sort of a new thing,” Ricky Carandang, the secretary of communications for the Philippines, told me when we spoke after the meetings. “He said, ‘We welcome a code of conduct, we welcome legal processes and we think these things should happen faster.’ That’s different from saying, ‘Hey, let’s do what we can to avoid tension, and we’re not picking sides here.’” But Carandang also noted that Obama’s absence in Brunei had allowed the Chinese to loom larger. If he fails to show up to the next meeting, or the administration fails to follow up on some of its promises, the Southeast Asian nations will have cause to wonder about our resolve. (Obama is said to be mulling a trip to Asia in the spring.)

Nobody is questioning China’s resolve. The day after we left Ayungin, we arrived at the island of Pag-asa, the mayor’s home base and the place for which he has the grandest plans — a resort, a commercial fishery, a sheltered port. As we pulled in, we saw several large Chinese fishing boats a couple of miles off the island. Aerial photos would later confirm that they were cutting coral from the reef, which is often done to harvest giant clams and other rare species. Nobody on Pag-asa, with its broken boats, low-slung civilian buildings and quiet Air Force base, could do anything about it. There was recently a food shortage because the last two Filipino naval resupply vessels haven’t been able to make the trip because of inclement weather. After a night there, rather than getting back on our fishing boat for a 30-hour journey, we were happy to board a Philippine naval plane and begin the trip home.

It's easy to make China out as the villain in all of this. Most Western narratives do, even though several U.S. government officials assured me that there weren't truly any "good guys" in these territorial disputes. One benefit of China's political system, whatever its problems, is its farsightedness, its ability to stomach intense upheaval in the present in order to achieve a long-term goal.

Subi was a result of this commitment. After spending a few days on Pag-asa, where everything is free but nothing works quite like it's supposed to, it was hard not to see Subi reef as the Death Star.

An hour later, we flew over Lawak, where we'd met Lieutenant Retoriano. Soon after, the pilot asked Ashley Gilbertson, the photographer on our trip, to put his headset on. We were due north of Ayungin, and our pilot had radioed the guys on the Sierra Madre to see how they were doing. Loresto answered the call, and when he heard that we were on the plane, he asked to speak with us. Gilbertson put on the headset and smiled as broadly as he'd smiled since the night Loresto fleeced us at *pusoy dos* during the typhoon. The weather was good, Loresto said; they were going spearfishing that afternoon. Didn't we want to come down and join them? There was animated talk about karaoke, and then Loresto signed off. It was obviously the last time that we would ever talk to him, or maybe that any Filipino would ever be at that radio post to talk to anybody like us.

The entire world has an interest in the South China Sea, but China has nearly 1.4 billion mouths and a growing appetite for nationalism to feed, which is a kind of pressure that no other country can understand. What will happen will happen, whatever the letter of the Asean code of conduct or however the arbitration turns out. Loresto and Yanto, meanwhile, still abide on the Sierra Madre, fishing for their subsistence and watching the surf to see what wave the Chinese will choose to ride in on.

"You've got the wrong science-fiction movie," one former highly placed U.S. official later told me, when I described what we saw at Subi, and what it might mean for the guys on Ayungin. "It's not the Death Star. It's actually the Borg from 'Star Trek': 'You will be assimilated. Resistance is futile.'" The scholar Huang Jing put it another, more organic way. "The Chinese expand like a forest, very slowly," he said. "But once they

get there, they never leave.”

Editor: Joel Lovell

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Annex 431

C. Thayer, "What If China Did Invade Pag-asa Island?", *The Diplomat* (16 Jan. 2014)

What If China Did Invade Pag-asa Island?

An invasion of Pag-asa Island by Chinese forces would certainly be a tragic mistake for China.

By **Carl Thayer**
 January 16, 2014



Image Credit: Wikimedia Commons

In the midst of the furor over Hainan province's new fishing regulations covering nearly sixty percent of the South China Sea, an unnamed Chinese writer penned an article in the **Chinese-language publication *Qianzhan*** (Prospects) arguing that China would recover Zhongye Island by force during 2014 as part of a long-term naval expansion plan.

The article likely would have attracted little attention outside China until a summary was translated into English by Chan Kai Yee (who is now often mistakenly listed as the original piece's author). The summary was published by the *China Daily Mail* on January 13 **under the headline**, "China and the Philippines: The reason why a battle for Zhongye (Pag-asa) Island seems unavoidable."

It is common for retired Chinese military officers and civilian ultranationalists to write about the South China Sea and threaten the Philippines and Vietnam with military action for "stealing" Chinese territory. The *Qianzhan* article cites unnamed "experts" that the People's Liberation Army Navy has drawn up a detailed combat plan to seize Zhongye Island this year because of its strategic significance.

Zhongye is better known as Thitu Island or Pag-asa in Tagalog. It is the second largest island in the Spratlys, estimated to cover an area of 37.2 hectares (or 0.14 square miles/0.36 square kilometers). Itu Aba is the largest of the islands in the archipelago and covers an area of 46 hectares in size. It is occupied by Taiwan.

Pag-asa Island lies exposed in the upper northwest quadrant of the Spratlys at the outer boundary of islands and features forming the archipelago. To its west lies the open South China Sea.

Pag-asa Island is designated a town belonging to the Philippine municipality of Kalayaan. It boasts a civilian population of nearly two hundred. Pag-asa contains a number of

structures including a municipal building, a community hall, health center, nursery school, water plant, communications tower and an airstrip.

The airstrip, known as Rancudo Airfield, is 1,400 meters in length and services both civilian and military aircraft, including the Philippine Air Force's C-130 cargo plane. In March 2011, the Chief of Staff of the Armed Forces of the Philippines (AFP) Eduardo Oban announced plans to upgrade the airfield and repair army barracks. About fifty AFP soldiers are stationed on Pag-asa.

As the article noted, control over Zhongye Island would enable China to exert control over a vast expanse of the South China Sea if it constructed naval and air bases there. The author argued, "the world's largest aircraft carrier, the [USS] *Ford*, costs \$12.8 billion to build but only has a deck area of 0.026 square km. An air base established on Zhongye Island will be a dozen times larger and cost much less, but it is unsinkable and has a very long service life."

How plausible is the *Qianzhan*'s scenario?

China could easily achieve strategic surprise and seize Pag-asa Island. China could disguise an invasion force as a flotilla engaged in routine naval exercises in the South China Sea. In March-April last year, for example, China assembled a small flotilla to conduct combat training exercises in the South China Sea.

The flotilla comprised the modern amphibious assault ship *Jinggangshan*, two guided missile frigates and a guided missile destroyer. When the flotilla reached the waters surrounding Mischief Reef, Chinese state television showed pictures of People's Liberation Army marines in hovercraft storming the beach of a Chinese-occupied islet supported by armed helicopters.

A similar flotilla could set sail ostensibly to undertake normal combat training exercises. It could achieve strategic surprise by veering off suddenly and invading Pag-asa. The Philippines would have little or no warning time to prepare to its defense. The island would probably be taken in a few hours or less.

This scenario assumes that U.S. intelligence and its associated national technical means failed to detect signs of China's preparations in advance, thus providing no warning time to take action to deter China. China's seizure of Pag-asa could be expected to follow some signs of deteriorating relations between China and the Philippines or a worsening security situation in the region. These developments might signal a change in China's intent. This would normally trigger a closer look at Chinese naval and air activities by U.S. intelligence.

China's seizure of Pag-asa Island would be an act of war. Currently, the Armed Forces of the Philippines would be unable to mount any meaningful response. Chinese destroyers and frigates would provide air defense if the Philippines scrambled jet fighters from the nearest air base on Palawan Island, over 480 km distant. The Philippine Navy would be woefully outgunned.

he Philippines would immediately seek consultations with the United States under their Mutual Defense Treaty to work out a response.

he political fallout from seizing Pag-asa would be a huge set back for Chinese diplomacy. SEAN would likely adopt an uncompromising political position and demand the immediate withdrawal of Chinese forces. ASEAN would receive political backing from the international community. Chinese aggression could even be raised at the United Nation,; it China would veto any discussion by the Security Council.

ina's actions in seizing Pag-asa Island would set off a race by claimant states to beef up the defense of their islands. This would likely include increased combat air patrols, anti-sipping exercises, and the deployment of conventional submarines. Several of the larger lands could be expected to house anti-ship cruise missiles.

is regrettable that *Qianzhan's* conflict scenario, like so much commentary churned out by retired Chinese military officers and ultranationalists, does not go beyond the bravado of acclaiming a swift Chinese victory to consider the costs of such action to China's international standing, damage to its economy, and the risks of escalating military conflict.

any other Chinese writers and analysts argue in support of China's peaceful rise and support President Xi Jinping's initiative for a China-ASEAN Treaty of Good Neighborliness, Friendship and Cooperation. These writers and analysts should criticize the hawkish views by retired military commentators and ultranationalist writers for being unproductive to China's longer-term interests.

he Philippines is to be congratulated for not rising to the bait. Official spokesmen declined to comment on an article they claimed was unofficial and unverified. **Chinese media** have already denied the veracity of the report.

Annex 432

E. Campbell, "Reef Madness", *Australian Broadcasting Corporation* (20 May 2014)



Reef Madness

Broadcast: 20/05/2014

Reporter: Eric Campbell



Eric Campbell takes us on a journey to a place few outsiders ever get to experience – the place some say could be the trigger for the world’s next major conflict – the Spratly Islands, smack bang in the middle of the oil-rich South China Sea.

In an Australian television exclusive, he catches a series of boats to reach the remote chain of islands and coral reefs that are claimed by no fewer than six countries – China, the Philippines, Vietnam, Malaysia, Taiwan and Brunei.

Many of the so called “islets” are simply specks of submerged rock in the middle of nowhere, but have been built up by competing nations over the years in order to bolster their claims of ownership.

There are military forces from different countries living on different islands, often within shouting distance of each other.

They’re probably the most contested islands in the world. It’s believed the undersea bed in the region is rich in oil and gas, it’s an important shipping lane, and there are vast fishing grounds to be exploited.

“We call our island group the submerged Saudi Arabia of the Philippines”, the mayor of one island tells Foreign Correspondent. Mayor Eugenio Bito-onon runs a municipality with just 150 residents – Kalayaan, which means

Freedomland in the local language.

Posing as fishermen, Campbell and his crew go to Ayungin Shoal, where besieged marines live on a rusting, scuttled ship on the submerged reef.

Chinese maritime forces attempt to stop them in a high-speed chase.

The crew managed to reach the shallow coral before the vessels could block them.

They found a group of hungry marines living on fish they catch on the reef as Chinese ships circle the reef 24 hours a day.

Transcript

CAMPBELL: I've been to plenty of conflict zones but never on a boat full of chickens. It's taking supplies to a small village in the Spratly Islands. That's the centre of one of Asia's most volatile disputes, with six countries fighting over undersea oil fields. We've been allowed to come along for the ride.

"We have really lucked out here. I have been trying to get to the Spratly Islands for 20 years. It is such a sensitive area and it's normally completely off limits to Western media and that's one of the remarkable things about this conflict. It has simmered for decades, it's regularly put the region on the brink of war, but outside of Asia few people have even heard of the islands and almost nobody's seen them. This is going to be quite a trip".

The Spratly Islands are a smattering of islets, reefs and sandbars in the South China Sea. They have no value in themselves but they're believed to be surrounded by vast oil and gas beds. We're heading to the main Philippine controlled island, Pagasa, and we'll be sailing through hostile waters.

Vietnam, Malaysia, Taiwan and Brunei also claim some of the islands and China reckons it owns the lot – right up to its neighbours' shores.

MAYOR EUGENIO BITO-ONON: "That's where this conflict is really getting serious, because China claims the whole of the South China Sea - probably because the name is South China Sea" (laughs).

CAMPBELL: Eugenio Bito-Onon is mayor of the land claimed by the Philippines. His municipality called Kalayaan has just 150 residents - but he believes the oil could transform his impoverished nation.

MAYOR EUGENIO BITO-ONON: "We call our Kalayaan Island group, the submerged Saudi Arabia of the Philippines".

CAMPBELL: "The Spratly Islands have only ever had one outing in popular culture and that was back in the 90s when the great thriller writer Tom Clancy penned this book, SSN, the code for nuclear-powered attack submarines. Just to quote the back cover: 'China has invaded the oil-rich Spratly Islands. The American response has been swift and deadly and the Third World War has begun'. Clancy was so taken with the idea of it, he even turned it into a CD ROM video game".

VIDEO GAME: This is Greg Haze of the Pentagon. In a shock move China has launched an all-out assault on the Spratly Island chain in the South China Sea. We have reports that Chinese forces have overrun positions

maintained by other nations who claim the islands as their own.

CAMPBELL: The game lets computer nerds command US submarines to sink the Chinese fleet. In real life the only serious fighting has been between China and Vietnam. In 1988 they fought a brief but bloody skirmish on a disputed reef. More than 60 Vietnamese died in what China hailed as a great victory.

CHINESE COMMENTARY: "History will remember this moment forever".

CAMPBELL: Diplomacy stopped further bloodshed but this year relations have deteriorated dramatically. On May 7, Chinese maritime forces rammed a Vietnamese ship in disputed islands north of the Spratlys. Vietnam was trying to stop China installing an oil rig. Both sides fired on each other with water cannon.

MAYOR EUGENIO BITO-ONON: "By all kinds of assertiveness, China is doing a lot of things, maybe not just by bullying around our fishermen or small navies".

CAMPBELL: China has been trying to squeeze the Philippines out of the Spratly's and seize every unoccupied land mass. It's built a huge installation on Mischief Reef, an underwater shoal it took from the Philippines in 1994.

MAYOR EUGENIO BITO-ONON: "This is Mischief Reef and it's an atoll. It's not even an island. The Chinese constructed first this fishermen's shelter - later on, a three-storey high garrison with a basketball court. There's already a wind generator".

CAMPBELL: "So they've been just built above the sea line".

MAYOR EUGENIO BITO-ONION: "The reef".

CAMPBELL: "Yeah, above the reef".

Malaysia and Vietnam have followed China's lead, building reef bases that would look at home in a James Bond film.

MAYOR EUGENIO BITO-ONON: "You see the premises of the hotel and you see the swimming pool and a jetty port".

CAMPBELL: "You don't have that on your islands do you?"

MAYOR EUGENIO BITO-ONON: "We just envy".

CAMPBELL: To the mayor's despair the only country building hardly anything is the cash strapped Philippines.

MAYOR EUGENIO BITO-ONON: "This is Pagasa, our pristine, beautiful island waiting for development".

CAMPBELL: After two days at sea we stop off at one of the Philippines' islands, called Lewak. Rather than no expense being spared, it looks like no expense has been spent. There are just a few marines living rough on a ration of six glasses of water a day. But this is luxury compared to conditions at a neighbouring marine base seven nautical miles away. It's on a sand bar.

MAYOR EUGENIO BITO-ONON: "There's a structure... a concrete structure where they are accommodated".

CAMPBELL: "Wow".

MAYOR EUGENIO BITO-ONON: "That's where they... their sleeping quarters".

CAMPBELL: "On a sand bar".

MAYOR EUGENIO BITO-ONON: "Yeah".

CAMPBELL: Back on the boat, conditions aren't much better. Jacqueline Morales is the village school teacher on Pagasa. With three tired children of her own, the trip home is anything but restful.

JACQUELINE MORALES: "It's very difficult for me to stay on this ship, because of the conditions – it's very hot".

CAMPBELL: It takes a dose of patriotism to move to a speck of disputed land in the middle of the ocean.

JACQUELINE MORALES: "As a teacher, it is a big thing that I am living there and the school stays. It will deter the Chinese, because they do not like that there is a school there and that people live in that place".

CAMPBELL: By the morning of day three we're in the middle of disputed territory. A Filipino navy frigate shadows us as we approach land occupied by Vietnam and China. Sometimes they're literally side by side.

This is the islet of Parola. There's a small detachment of Filipino marines drilling against Chinese attacks. The Philippines used to also have marines on the neighbouring island of Pugad less than 3 kilometres away, but in 1975 Vietnam seized it.

"Now the way this side tells it is that one day the Filipino marines left the island to go on patrol and the Vietnamese who'd been watching and waiting offshore, took the chance to sweep in and claim possession and they have been there ever since. And the lesson drawn from that is that no matter what you argue about law or sovereignty, if you want to control the Spratly Islands, you have to occupy them".

Mayor Eugenio has watched sadly as Vietnam builds multi-story structures and a harbour on Pugad while Parola remains a collection of beach huts. He says money earmarked for his islands has disappeared into politician's pockets.

MAYOR EUGENIO BITO-ONON: "We belong to the poorest municipality. I'm not a national government chief executive. I believe that the national government should exist to support the local government. That's what I'm doing now, just really asking them to help me because my vision for Kalayaan is to develop this for marine fisheries, a special zone for marine fisheries and tourism".

CAMPBELL: Four hours later we finally catch sight of Pagasa. The passengers are a mixture of council workers and returning residents. At 37 hectares it's the largest Philippine controlled island with a dirt airstrip for the adjoining military base. But surrounded by rusting wrecks, it looks almost as neglected as Parola.

"I think you need a jetty".

MAYOR EUGENIO BITO-ONON: "There's supposed to be a jetty, where you see here there's a causeway. Never finished".

CAMPBELL: "Oh dear".

MAYOR EUGENIO BITO-ONON: "Since 1997".

CAMPBELL: Even a smaller boat can't dock in the shallow water so everything has to be carried the last thirty metres.

"This is not an easy place to get to".

Unlike on some of the other countries' islands, there's no luxury hotel here – in fact there are no facilities for visitors at all. Not that it really matters. After four days on the boat, this feels like luxury.

The mayor's enthusiastic council workers start early. They have a host of new projects to get up over the next two weeks, including the first mobile phone tower. The arrival of the supply boat has temporarily doubled the population.

Before the 1950s these islands were completely uninhabited. The Philippines only began settling civilians here in the late 70s to push its case for sovereignty. The village is only now starting to look like a real community.

MAYOR EUGENIO BITO-ONON: [addressing island's population] "We have a visitor here with us - a doctor doing a medical mission for all in the village". [applause]

CAMPBELL: Mayor Eugenio has stretched his meagre budget to build some new houses, but it's a shadow of what he'd like to do.

MAYOR EUGENIO BITO-ONON: "If I compare our development to the rest of the islands in the South China Sea I think the site for the West Philippines here is all the least developed and sometimes you know that gives us frustration".

CAMPBELL: "Great frustration".

MAYOR EUGENIO BITO-ONON: "Yeah".

CAMPBELL: After more than three decades, there are just a few dozen houses on sandy tracks. The only power comes from generators and there's no running water. We caught up with Jacqueline Morales and her husband catching up on laundry from the four days at sea.

JACQUELINE MORALES: "I'm so glad we are here in our home today. We can do what we want to do, unlike on the ship. It's so hard, you get dizzy".

CAMPBELL: The family has quickly settled back into island life.... the kids catching the evening meal. But she's all too aware of how precarious the community's future is if China continues to squeeze.

JACQUELINE MORALES: "I worry about what might happen. We know how interested they are in this island. Of course they can do whatever they want to do and even if there are still people here, well, I'll leave it in

God's hands".

CAMPBELL: None of that worries her daughters of course. For them, Pagasa is close to paradise. The concrete bunkers at the end of the beach are a testament to the long-running hostilities. They were built in the early 70s a few years after the military base was established.

MAYOR EUGENIO BITO-ONON: "If you have one like this and you get hit by an M-16, you will not be hurt, because it's so thick".

CAMPBELL: Unable to match China's growing military, the Philippines has asked the UN to arbitrate. Beijing has refused to take part in the case and is already exploiting the disputed resources.

MAYOR EUGENIO BITO-ONON: "That's the boats used for hauling clams and coral".

CAMPBELL: There's a constant rumble of Chinese dredges on the outer reef. They run 24 hours a day crushing the coral.

MAYOR EUGENIO BITO-ONON: "Mainly they're using that... turning that into powder and then they use that as fillers for boat building".

CAMPBELL: Mayor Eugenio wants to turn the reef into a protected marine park. Now he's worried there'll be no coral or fish left.

MAYOR EUGENIO BITO-ONO: "If you go there, there's no more rocks, it's just become turned into sand".

CAMPBELL: [boarding a boat in the night] "Okay well it's just an hour before high tide and we're about to head over the reef overnight to the most important part of where we want to get to and that's Ayungin Shoal. That is a Filipino marine base on a scuttled ship on a submerged reef and it's been very highly contested by China. Now if indications of the last few months are anything to go by, it seems Chinese coastguard vessels will try to stop us. So now comes the hard part".

The Chinese Coast Guard has blocked the last three supply boats trying to make this journey. We'll be taking a smaller faster boat to try to evade them.

"What's going to happen if they do chase us? What will the captain do?"

CREWMAN: "They will not hurt us, if we keep going... we don't stop".

[crew then prays]

CAMPBELL: By late morning we're in sight of the disputed reef, which the Filipinos call Ayungin Shoal. Our one advantage is that the Chinese ships are stationed on the other side of the reef, ready to block supply boats coming from the mainland. By the time their radar spots us, they have to move right around the reef to stop us.

"We have just seen two Chinese vessels bearing down on us so the Captain's asked us to stay out of view and we'll try just to pass ourselves off as a fishing boat and pass on through... we'll see".

We can now see our destination, a scuttled ship called the Sierra Madre. The Coast Guard vessel continues to race towards us, billowing exhaust as it tries to close the gap. But it's too late.

"Well it looks like we've made it because while the Coast Guard vessel is still coming towards us at speed, the reef here now is so shallow that I don't think they can follow us".

[Cheers from crew having made it]

At first glance Sierra Madre looks like it belongs in a wrecking yard. On closer inspection, it looks even worse. The US built ship carried tanks in World War II and last saw service in Vietnam. It was in bad shape when the Philippines scuttled it here in 1999, now it's literally falling apart.

The marines are making the best of it. They've caught enough reef fish that morning to welcome us with a banquet, but a military unit can't survive on fish. It needs generator fuel, maintenance equipment, medicine and above all else, water.

Second Lieutenant Earl Pama is the detachment commander. After lunch, he shows me what happened when they tried to come here with supplies a month earlier. It took two attempts to break through.

SECOND LIEUTENANT EARL PAMA: "They moved close to us, about 20 metres, 20 metres so we couldn't get in. They stop us by fronting the bow of our boat. The problem was, if we got hit, probably our boat would be damaged and the lives of my men would be in danger".

CAMPBELL: The Chinese ships circle the reef like sharks, coming to within 200 metres of the Sierra Madre. China claims it's the Philippines breaking the law, occupying the reef it calls Ren'ai in the islands it calls Nan'sha.

SECOND LIEUTENANT EARL PAMA: "They want to move the ship out and they want to claim that the Ayungin Shoal belongs to the People's Republic of China. But the truth is, Ayungin Shoal is the territory of the Philippines".

CAMPBELL: Lt Pama and his men are combat veterans from the war against Islamic insurgents in Mindanao. Their main operation now is finding food. Every morning they head out to spear fish under the watchful eyes of the Chinese. Their other battle is keeping busy. There's not much to do on the ship and you have watch where you walk. Injuries from falling through the deck are common.

SECOND LIEUTENANT EARL PAMA: "The Government has plans to repair the ship. They sent supplies and equipment for repair but were unable to get through because they were stopped by the Chinese Coast Guards. So it's not been repaired".

CAMPBELL: Once a month there's a small relief mission that China hasn't worked out how to block. The parcels are dropped as close as possible to the ship – sometimes even on it. Staff Sergeant Alan Sisneros heads out on a small raft to collect the strays.

"So are you getting a bit sick of fish?"

STAFF SERGEANT ALAN SISNEROS: "No. By and by.... ah... every day we eat fish, so I need another...ah... to have on my tongue.

CAMPBELL: "Fish for breakfast, fish for lunch, fish for dinner".

STAFF SERGEANT ALAN SISNEROS: "All fish, all fish".

CAMPBELL: "Got to love those fish".

STAFF SERGEANT ALAN SISNEROS: Yes. Maybe inside this box there's meat or beef...

Moments like this are a rare break in the monotony of life on a ship that never moves.

"Do you ever wish the Philippines would give you a slightly better ship to live on?"

STAFF SERGEANT ALAN SISNEROS: "I cannot answer you, Sir".

CAMPBELL: Up in the mess room, the parcels are opened greedily. The contents appear aimed more at morale than blockade busting. It's telling what passes for luxury.

STAFF SERGEANT ALAN SISNEROS: "Spam bacon! This Spam bacon... good."

CAMPBELL: There's even Jolibee Fried Chicken from the Philippines' very own junk food chain. One small package provokes the most intense reaction, it has letters and drawings from school children on the mainland.

FILIPINO MARINE: "I feel sad, lonely, but I'm proud to be here to defend our territory".

[reading letter from school child] *"My Dear Soldiers, Thank you for heroically guarding our territory. You are our inspiration. We love you all, Jun Louis Garcia"*.

CAMPBELL: This is on so many levels an absurd dispute. The reef could be a marine park and a diving magnet. Or if all the nations could agree, it could be a properly managed oil field that didn't destroy the environment. Instead, it's closed to outsiders with a small band of marines stuck on a ghost ship surrounded by Chinese ships patrolling day and night. In the meantime, the reefs are being destroyed on an industrial scale.

We left the next morning before dawn hoping to again escape unscathed. The Coast Guard let us pass but in the days that followed the dispute over the South China Sea worsened, with anti-Chinese riots breaking out across Vietnam. This conflict has been lying dormant and unseen for a generation. Now it threatens to erupt as a rising China turns its power to the sea.

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Annex 433

“As Taiwan Beefs up Prized South China Sea outpost, Barely a Peep from China”, *New York Times* (25 May 2014)

U.S.

As Taiwan Beefs Up Prized South China Sea Outpost, Barely a Peep From China

By REUTERS MAY 25, 2014, 5:19 P.M. E.D.T.

TAIPEI/HONG KONG — Taiwan is building a \$100 million port next to an airstrip on the lone island it occupies in the disputed South China Sea, a move that is drawing hardly any flak from the most assertive player in the bitterly contested waters - China.

The reason, say military strategists, is that Itu Aba could one day be in China's hands should it ever take over Taiwan, which it regards as a renegade province.

While Itu Aba, also called Tai Ping, is small, no other disputed island has such sophisticated facilities. Its runway is the biggest of only two in the Spratly archipelago that straddles the South China Sea, and the island has its own fresh water source.

"Taipei knows it is the only claimant that (China) will not bother, so it is free to upgrade its facilities on Tai Ping without fear of criticism from China," said Denny Roy, a senior fellow at the Hawaii-based East-West Center think tank.

"China would protect Taiwan's garrisons if necessary."

The upgraded facilities on Itu Aba should be finished late next year or earlier, officials from Taiwan's defense and transport ministries said, replacing an existing wharf that can only handle small vessels.

That would give Taiwan a port able to accommodate 3,000-tonne naval frigates and coastguard cutters while improvements are being made to the 1,200-metre (3,940-foot) long runway for its Hercules C-130 transport planes,

they told Reuters.

Officials said the new port was not just a demonstration of sovereignty but also a way to support a trade dependent economy while helping Taiwanese deep-sea fishermen and marine and mineral research in the area. About \$5 trillion in ship-borne goods pass through the South China Sea every year.

LONG HISTORY

China and Taiwan share claims to virtually the entire South China Sea, a legacy of the Chinese civil war when the Communists split from the Nationalists and eventually took control of the Chinese mainland in 1949. The Nationalists settled on Taiwan, and still claim to be the legitimate rulers of greater China.

Vietnam, the Philippines, Malaysia and Brunei also claim parts of the potentially oil-rich South China Sea.

While China-Taiwan ties have warmed since Ma Ying-jeou was elected Taiwan president in 2008, there has been no political reconciliation or a lessening of military distrust. China has never ruled out force to bring Taiwan under its control.

But if conflict ever broke out in the Spratlys, analysts and military attaches believe China would seek to protect Itu Aba as its own, strongly aware of its strategic value.

The Spratlys are one of the main flashpoints in the South China Sea, where military fortifications belonging to all claimants but Brunei are dotted across some of the world's busiest shipping lanes.

China for example occupies eight shoals and reefs but its strategists have long bristled at Vietnam's two dozen holdings. Manila occupies eight reefs and islands and Malaysia seven. Incidents at sea in recent years, such as ships getting rammed or attempted blockades, have usually involved China against the Philippines or Vietnam.

Zhang Zhexin, a research fellow on Taiwan issues at the Shanghai Institute for International Studies, said Beijing would not have a problem with Taiwan developing Itu Aba.

"Taiwan itself is Chinese territory anyway," he said.

"How can we have a territorial dispute within our own country? Of course Taiwan is part of China, so that includes all parts of China, including Tai Ping Island."

FAR FROM TAIWAN

Chinese Nationalist forces took over Itu Aba in 1946 after Japan used it as a submarine base during World War Two. France had occupied the island before the war as part of its colonial rule over then-Indochina.

The island, administered by Taiwan's coastguard, is some 1,600 km (1,000 miles) southwest of Taiwan, out of range of its U.S.-made F-16 warplanes. It lies between the Philippines, Vietnam and Malaysia.

Taiwanese coastguard personnel and soldiers are routinely stationed on Itu Aba, served by regular military transport flights and protected by coastal defense weapons.

Unlike Beijing, Taipei is low-key about asserting its claims in the South China Sea and does not deploy naval or civilian fleets to the outer limits of the so-called nine-dash line that Beijing displays on its official maps and which reaches deep into maritime Southeast Asia.

Taiwan has not trumpeted its upgrade to Itu Aba.

"We would never invade islands occupied by other nations, but we will actively defend our claims," said a spokesman for Lin Yu-fang, a legislator from Ma's ruling Kuomintang Party and a key backer of the port project.

The facility would provide services to any Taiwanese ships in the region, said Chen I-piao, acting chief engineer at the Taiwan Area National Expressway Administration Bureau, the unit responsible for building the wharf.

"Previously our vessels in the area had to liaise with other ships if they needed assistance. After the port is finished they'll be able to directly call at port."

Diplomatically isolated, Taiwan found itself in the international spotlight earlier this month when mobs attacked mostly Taiwanese factories in Vietnam, enraged by China's deployment of a giant oil rig in waters further north that are claimed by Hanoi. Many of the rioters mistook Taiwanese companies to be

owned by mainland Chinese.

Scores of Vietnamese and Chinese ships continue to square off around the rig, placed between the Paracel islands occupied by China and the Vietnamese coast.

CHINA THE FOCUS OF REGIONAL PROTESTS

While Vietnam and the Philippines have protested plans by Taiwan to upgrade the wharf, the construction is generating much less heat than Beijing's muscle-flexing in the South China Sea.

Days after China deployed the oil rig to the Paracel chain, the Philippines accused Beijing of reclaiming land on a disputed reef in the Spratlys to build what would be its first airstrip in the South China Sea.

China has rejected a Philippine protest over the work on Johnson South Reef, saying it had the right to develop its territory.

Experts say any airstrip there would unlikely be a strategic game-changer because of the difficulty in building a workable runway on an atoll, unlike an island like Itu Aba.

And as Itu Aba is the largest island in the Spratlys and the only one with natural water supplies, legal experts say this could help any future formal claim to a 200-nautical mile exclusive economic zone and any fish and oil within it.

Taiwan has not cooperated with China on the South China Sea despite the historical ties to each other's claims given the political mistrust between them, but also because of its need to maintain good relations with the United States, a vocal critic of Beijing's policies in the disputed waters.

For the most part, Taiwan has kept its head down, not wanting to upset China or claimants in Southeast Asia given its economic links to both.

At various times Taiwan has pushed to be involved in regional mechanisms to easing tensions but resistance from China means it plays no part in any efforts through the Association of South East Asian Nations (ASEAN).

"I think the major concern is U.S.-Taiwan relations. The U.S. government asked Taiwan not to move close to China on the South China Sea," said Song

Yann-Huei, a South China Sea expert at Academia Sinica, a study center sponsored by the Taiwanese government.

(Additional reporting by Adam Rose and James Pomfret in HONG KONG, Megha Rajagopalan in BEIJING; Editing by Dean Yates)

Annex 434

“Greening Trường Sa [Spratly Islands]”, *Tuoi Tre Online* (4 June 2014)

Greening Trường Sa [Spratly Islands]

06/04/2014 08:04 GMT+7

TT - “The Greening Trường Sa program is designed to mobilize public resources including technology, knowledge, moral support to develop the Spratlys in various aspects such as growing trees and flowers, and vegetables, building beach groins etc. thereby making the islands greener and more beautiful.



Đặng Quốc Toàn, Secretary of the Communist Youth Union of Ho Chi Minh (left cover) and delegates are planting trees during the inauguration of the Green Trường Sa program –

Photo: DU HẢI

As said by Mr. Bùi Thanh at the launch of “Green Trường Sa” – the program jointly launched by *Tuổi Trẻ* newspaper and the Navy on the Trường Sa Archipelago [Spratly Islands] on June 3.

Efforts to improve the environment

In the afternoon of June 3, Working Group No. 14, “Youth Journey for the Motherland’s Sea and Islands,” visited and worked on the Spratly Island [Storm Island], “capital” of Trường Sa Archipelago [Spratly Islands] District, Khánh Hòa Province. The group performed a ceremony to honor fallen heroes who had sacrificed their lives to protect the country’s sovereignty over its sea and islands; burned incense at the memorial house of President Ho Chi Minh; visited Trường Sa Temple, and delivered gifts to the soldiers and residents on the island. After that, the 198 members of the group joined the soldiers and residents on Trường Sa Island in the inaugural ceremony of “Green Trường Sa” program to improve the environment and ecology of the islands in the stormy Trường Sa Archipelago.

Lieutenant Trần Quốc Huyền, an officer on the island, said that Trường Sa Island used to have mostly these three types of trees: velvet soldierbush, sea lettuce, and beach barringtonia. Military and civilian efforts in the greening program of the island include planting other species such as java almond, coconut, and sea hibiscus. These plants have improved the island, keeping it always green. According to Trần Nhật Trường (31, a resident of Spratly Island, [Storm Island]), upon arrival each household is responsible for planting and looking after two trees. However, due to inclement weather, trees are growing slowly. Ms. Đoàn Thị Trinh (45, of a household on Spratly Island) said that green trees, especially coconut and sea hibiscus, hold water very well. Previously, eight wells on the island were very brackish, green trees on the island helped desalinate some freshwater wells for 2-3 months a year.

Not all islands are as green as Spratly Island. Group 14 visited many other islands and the general condition is that the officers and soldiers are still exposed to the sun, wind, and stormy sea. There have been efforts to plant trees on many islands but it seems the sun, wind and salty air of the sea hinder those efforts. There are islands where no protected space can be found to plant trees and they are still lying bare and exposed to the harsh sun and wind of the Spratlys.

Connecting mainland with islands

According to Bùi Thanh, a journalist, since 2011 *Tuổi Trẻ* has launched the “Stone contribution to build Trường Sa” movement and received great support from our readers and people both in the country and abroad. The program has built two permanent dwellings for soldiers on West Reef A and West Reef C, provided some CQ canoes and other equipment in the “Lighting Up Platform DK1” program. However, *Tuổi Trẻ* newspaper’s staff has found that these are not enough since much still remains to be done for Trường Sa.

“Green Trường Sa” was launched as part of “Stone contribution to build Trường Sa” Initiative. At the inaugural ceremony, 80 coconut and 200 sea hibiscus trees were planted on Spratly Island. In the future, the newspaper will continue to coordinate with the navy to plant more green trees, fruit trees, windbreaking trees, and especially green vegetables on the islands. To do that, *Tuổi Trẻ* newspaper will coordinate with businesses, research scientists to improve soil conditions on the islands, to invest in planting trees capable of retaining water and promoting a healthy environment.

Colonel Nguyễn Phong Cảnh, deputy chief of the Political Department of the Navy, complimented *Tuổi Trẻ* newspaper’s initiative for soldiers and people on the Trường Sa Archipelago. Colonel Cảnh said that the Green Trường Sa program is actually a big and meaningful movement helping to improve the soil and environment, to strengthen the defensive posture and enhance military and civilian lives on the islands. Mr. Cảnh believes that *Tuổi Trẻ* newspaper’s experience and reputation will help in effectively coordinating and implementing the Green Trường Sa program.

Delivering garbage bins to the island

Every morning, on the deck of HQ571, he painstakingly picks up each piece of garbage and cleans the ship deck. He is Đinh Trọng Cảnh, Director of Huy Hoàng Corporation, Lạng Sơn City, Lạng Sơn Province.

Mr. Cảnh said that his company is the first private enterprise specializing in garbage collection and recycling in the province of Lạng Sơn. Visiting Trường Sa Archipelago this time, Mr. Cảnh brought with him a special gift: 70 garbage bins. “Donating the garbage bins, I want to help keep the islands even greener, cleaner and prettier while raising awareness about environmental protection among officers, soldiers and visitors to the islands,” said Mr. Cảnh.

On behalf of the soldiers and people on the Spratly Island, Lt. Col. Lương Xuân Giáp—political commissar on the island—appreciated Tuổi Trẻ’s initiative. The movement shows that soldiers and people on the mainland always have the islands in their heart, which will help officers and soldiers on the island to keep their morale high and be ready to fight to defend the motherland’s sovereignty. “In implementing Green Trường Sa program, soldiers and people on Spratly Island are determined to keep each planted tree lush,” said Lt. Col. Lương Xuân Giáp.

Colonel **Đoàn Huy Tông** (deputy chief of naval logistics):

Life and vitality on Trường Sa

Green represents life and vitality. “Green Trường Sa” is that very life and vitality. It helps lessen difficulties and hardships for our soldiers... The work that we do today will give future generations on Trường Sa that shade, that green.

“Together we will build a green and beautiful Spratly Archipelago” movement, including the “Green Trường Sa” program with the goal of protecting and improving the environment on the island. We will green the archipelago step by step, while helping to improve combat readiness to protect the islands in the Spratlys.

During 2013, the officers and soldiers on the islands pitched in thousands of work days to collect and process garbage, utilizing organic material to improve the soil for planting trees. We will green the islands. We also study how to plant suitable species, planning flower gardens and landscaping. At first, everybody was afraid that flowers from inland could not tolerate the harsh conditions on the islands. However, results in last April showed that plants and flowers grow very well. Currently, soldiers are maintaining flower gardens on the islands, boosting morale of everyone on the islands.

MY LĂNG

TRUNG TÂN - NHẬT HUY

Thứ 4, Ngày 25.02.2015



Xanh hóa Trường Sa

04/06/2014 08:04 GMT+7

TT - “Chương trình Trường Sa xanh ra đời nhằm mục đích huy động mọi nguồn lực vật chất, tinh thần, kiến thức khoa học để cải tạo thổ nhưỡng, trồng các loại hoa, cây cảnh, cây ăn quả, cây tạo bóng mát, cây chắn sóng, rau xanh... góp phần biến các đảo và điểm đảo ngày càng xanh, đẹp hơn”.



Bí thư Trung ương Đoàn TNCS Hồ Chí Minh Đặng Quốc Toàn (bìa trái) cùng các đại biểu trồng cây trong lễ phát động Trường Sa xanh - Ảnh: DƯ HẢI

Đó là phát biểu của nhà báo Bùi Thanh tại lễ phát động “Trường Sa xanh” - chương trình do báo *Tuổi Trẻ* phối hợp với Quân chủng hải quân thực hiện tại quần đảo Trường Sa chiều 3-6.

Nỗ lực cải tạo môi trường

Chiều 3-6, đoàn công tác số 14 “Hành trình tuổi trẻ vì biển đảo quê hương” thăm và làm việc tại đảo Trường Sa, “thủ phủ” của huyện đảo Trường Sa, tỉnh Khánh Hòa. Đoàn thực hiện lễ tưởng niệm các anh hùng liệt sĩ hi sinh để bảo vệ chủ quyền biển đảo, thắp hương tại nhà tưởng niệm Chủ tịch Hồ Chí Minh, thăm chùa Trường Sa, tặng quà cho quân và dân trên đảo. Ngay sau đó, 198 thành viên của đoàn cùng quân và dân trên đảo Trường Sa tham gia lễ phát động chương trình “Trường Sa xanh” nhằm cải tạo môi trường, sinh thái tại các điểm đảo thuộc quần đảo Trường Sa quanh năm sóng gió.

Thượng úy Trần Quốc Huyền, một cán bộ trên đảo, cho biết đảo Trường Sa trước đây phổ biến là các loại cây phong ba, bão táp, bàng vuông. Quân và dân trên đảo có nhiều nỗ lực trong việc xanh hóa đảo bằng các loại cây khác như cây bàng ta, dừa, tra. Chính các loại cây này đã cải thiện, giữ cho đảo luôn xanh tốt.

Theo anh Trần Nhật Trường (31 tuổi, một người dân sinh sống tại đảo Trường Sa Lớn), mỗi hộ dân khi ra đảo đều có trách nhiệm trồng và chăm sóc hai cây xanh. Tuy nhiên, do thời tiết khắc nghiệt nên cây phát triển chậm. Chị Đoàn Thị Trịnh (45 tuổi, một hộ dân trên đảo Trường Sa) cho biết cây xanh, đặc biệt là cây dừa và cây tra, giữ nước rất tốt. Trước đây, tám giếng nước trên đảo đều rất lợ, hệ thống cây xanh của đảo giúp một số giếng nước được ngọt hóa 2-3 tháng trong năm.

Không phải đảo, điểm đảo nào cũng xanh tươi như đảo Trường Sa. Đoàn công tác số 14 đi qua nhiều điểm đảo, cảnh tượng chung cho thấy các cán bộ chiến sĩ vẫn phải phơi mình dưới nắng gió, phong ba bão táp biển khơi. Nhiều điểm đảo nỗ lực trồng cây xanh nhưng dường như nắng gió và vị mặn của nước biển cản trở những nỗ lực đó. Có điểm đảo thậm chí không tìm ra chỗ để trồng cây xanh, phơi mình dưới nắng gió khắc nghiệt của Trường Sa.

Nói kết đất liền với biển đảo

Theo nhà báo Bùi Thanh, từ năm 2011 báo *Tuổi Trẻ* phát động phong trào “Góp đá xây Trường Sa” và nhận được sự ủng hộ to lớn của bạn đọc và nhân dân trong, ngoài nước. Chương trình đã xây dựng được hai ngôi nhà kiên cố cho cán bộ chiến sĩ trên đảo Đá Tây A và Đá Tây C, trao tặng một số xuống CQ và các trang thiết bị khác trong chương trình Thắp sáng nhà giàn DK1. Tuy nhiên, ban biên tập báo *Tuổi Trẻ* vẫn nhận thấy rằng như thế là chưa đủ, còn nhiều việc phải làm cho Trường Sa.

“Trường Sa xanh” ra đời như một hoạt động trong khuôn khổ chương trình “Góp đá xây Trường Sa”. Ngay tại lễ phát động, 80 cây dừa, 200 cây tra được trồng tại các khu vực trên đảo Trường Sa. Thời gian tới, báo sẽ tiếp tục phối hợp với lực lượng hải quân trồng thêm nhiều loại cây xanh, cây ăn trái, cây chắn gió và đặc biệt là rau xanh trên các điểm đảo. Để làm được điều đó, báo *Tuổi Trẻ* sẽ phối hợp với các doanh nghiệp, các nhà khoa học nghiên cứu cải thiện điều kiện thổ nhưỡng trên các đảo, điểm đảo; đầu tư trồng những loài cây thích hợp có khả năng tạo môi trường trong lành, giữ nước.

Đại tá Nguyễn Phong Cảnh, phó chủ nhiệm Cục Chính trị Quân chủng hải quân, ghi nhận sáng kiến của báo *Tuổi Trẻ* đối với quân dân trên quần đảo Trường Sa. Đại tá Cảnh cho biết chương trình Trường Sa xanh thật sự là một phong trào lớn, có ý nghĩa, góp phần cải tạo môi trường thổ nhưỡng, cải thiện môi trường, tăng cường thể trạng phòng thủ và nâng cao đời sống quân dân trên các đảo. Ông Cảnh tin tưởng rằng bằng kinh nghiệm và uy tín của mình, báo *Tuổi Trẻ* sẽ phối hợp và triển khai tốt chương trình Trường Sa xanh.

Thay mặt quân và dân đảo Trường Sa, trung tá Lương Xuân Giáp - chính trị viên đảo - cảm ơn sáng kiến của báo *Tuổi Trẻ*. Phong trào cho thấy quân dân đất liền luôn một lòng hướng về biển đảo, từ đó sẽ giúp cán bộ chiến sĩ trên đảo yên tâm công tác, sẵn sàng chiến đấu để bảo vệ chủ quyền của quê hương. “Thực hiện chương trình Trường Sa xanh, quân và dân đảo Trường Sa quyết tâm phấn đấu trồng cây nào sẽ sống và xanh tốt cây đó” - trung tá Lương Xuân Giáp khẳng định.

Đại tá **Đoàn Huy Tông** (phó chủ nhiệm Hậu cần hải quân):

Thể hiện sự sống, sức sống ở Trường Sa

Sự sống, sức sống thể hiện ở màu xanh. “Trường Sa xanh” chính là sự sống đó, sức sống đó, giúp bộ đội ta vui bớt đi những khó khăn, gian khổ... Những việc chúng tôi, chúng ta làm hôm nay sẽ có ý nghĩa cho những thế hệ sau ở Trường Sa được thụ hưởng bóng mát đó, màu xanh đó.

Mang thùng rác ra đảo

Cứ mỗi sáng sớm, trên boong tàu HQ571, ông lại cặm cụi nhặt từng cọng rác, làm sạch boong tàu. Ông là Đinh Trọng Cảnh, giám đốc Công ty Huy Hoàng, TP Lạng Sơn, tỉnh Lạng Sơn.

Ông Cảnh cho biết công ty ông là doanh nghiệp tư nhân đầu tiên chuyên về thu gom và tái chế rác tại tỉnh Lạng Sơn. Ra thăm quần đảo Trường Sa lần này, ông Cảnh mang theo món quà đặc biệt: 70 thùng rác. “Mang thùng rác ra tặng các đảo, tôi muốn góp phần giữ cho đảo thêm xanh, sạch đẹp, đồng thời nâng cao nhận thức về bảo vệ môi trường, môi sinh cho cán bộ, chiến sĩ, nhân dân trên đảo và những ai tới thăm đảo” - ông Cảnh nói.

25/2/2015

Xanh hóa Trường Sa - Bạn đọc - Tuổi Trẻ Online

Phong trào “Chung sức, chung lòng xây dựng xanh, đẹp quần đảo Trường Sa”, trong đó có chương trình “Trường Sa xanh” với mục tiêu là bảo vệ và cải thiện môi trường trên đảo, từng bước thực hiện xanh hóa, đồng thời góp phần nâng cao khả năng sẵn sàng chiến đấu, bảo vệ các đảo thuộc quần đảo Trường Sa.

Trong năm 2013, cán bộ chiến sĩ các đảo đã phát huy nội lực, lao động với hàng ngàn ngày công, tích cực thu gom xử lý rác thải, tận dụng chất hữu cơ để cải tạo đất trồng cây xanh. Chúng ta sẽ phủ xanh các đảo nổi trước. Chúng tôi cũng nghiên cứu ươm, chiết các chủng loại cây trồng phù hợp, quy hoạch và làm vườn cảnh, vườn hoa. Lúc đầu anh em khá lo lắng sợ hoa trong đất liền không chịu được sự khắc nghiệt ngoài đảo. Nhưng qua kiểm tra thực tế vào tháng 4 vừa rồi cho thấy cây và hoa phát triển rất tốt. Hiện anh em cán bộ chiến sĩ duy trì được vườn hoa tươi trên các đảo nổi, làm phong phú thêm đời sống tinh thần cho quân và dân trên đảo.

MY LĂNG ghi

TRUNG TÂN - NHẬT HUY

Annex 435

“PH won’t abandon Pagasa Island”, *ABS-CBN News* (6 June 2014)



Published on *ABS-CBN News* (<http://www.abs-cbnnews.com>)

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PH won't abandon Pagasa Island ^[1]

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MANILA - The Philippine government may have stopped rehabilitation of the airstrip in Pagasa Island but this does not mean that the country has abandoned the disputed area.

Speaking to reporters, Armed Forces spokesman Lt. Col. Harold Cabunoc said the halt in planned improvements on a military airstrip in the disputed South China Sea will have no effect on supply runs to the island.

"Practically, there is no effect. As of now, we can continue our resupply operations, the logistics run, including the transport of troops for rotation," Cabunoc said.

A spokeswoman of President Aquino said the government had suspended long-planned upgrade work on a military runway in the disputed Spratly islands to boost chances of a favorable ruling at the UN against Beijing over the tense territorial row.

"We wanted to maintain the moral high ground in light of the case we filed at the (UN) arbitration tribunal regarding the West Philippine Sea," Deputy Presidential Spokeswoman Abigail Valte said, using the Filipino name for the area.

"We chose...to ease tensions and avoid any incident that may be construed as ramping up tensions or trying to provoke any of the claimant countries," Valte said over government radio on Saturday.

Pagasa is one of 9 areas in the disputed Spratly Islands occupied by Filipino troops. Hundreds of civilians are living on Pagasa Island which serves as the seat of government of Palawan's Kalayaan town.

The runway is used mainly by military aircraft to resupply the Filipino troops guarding the island and nearby rocks, as well as a small community of Filipino civilians living on Pagasa.

The upgrade plans were suspended by Aquino "sometime in the middle of 2014," Valte said.




The airstrip project, as well as acquisitions of Navy vessels, were part of Aquino's efforts to upgrade the capability of the Philippine military, one of the most poorly equipped in the region.

China has refused to take part in UN arbitration with the Philippines, and warned Manila that bilateral ties will suffer.

The two countries have been involved in several tense confrontations in the South China Sea in recent months.

Department of National Defense spokesman Peter Paul Galvez said the decision was also meant to ease the tension in the region, even as China continue to reclaim its occupied reefs which may be turned into military bases. **With a report by Agence France-Presse**

as of 10/06/2014 5:30 PM

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Annex 436

Nikko Dizon, “Photos confirm China reclamation; experts hit reef degradation in Spratlys”, *Philippine Daily Enquirer* (7 June 2014)

PHILIPPINES ASIA & PACIFIC AMERICAS MIDDLE EAST & AFRICA EUROPE GLOBAL PINOY COLUMNIST

Photos confirm China reclamation; experts hit reef degradation in Spratly

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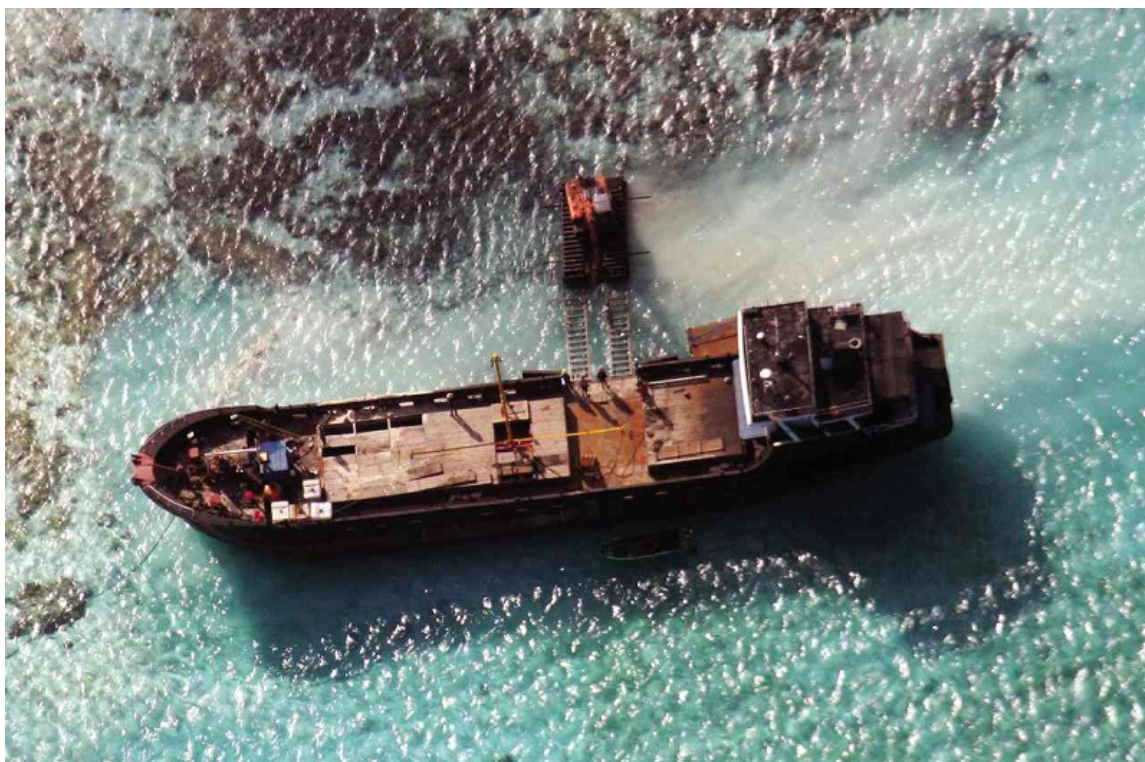
Philippine Daily Inquirer 1:59 AM | Saturday, June 7th, 2014

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'EARTHMOVING ACTIVITIES' A backhoe attached to a Chinese vessel is apparently scooping up some filling materials in a reclamation project while at the same time harvesting endangered species, giant clams. PHOTO COURTESY OF THE ARMED FORCES OF THE PHILIPPINES

China has reclaimed land in one of the contested reefs in the Spratly Islands, and this time, the defense department is not the only one expressing concern, but Filipino scientists as well.

They have expressed alarm over China's activities on the contested reefs in Spratly Islands, citing environmental degradation that could adversely affect the country's population, with "diseases, scarcity of resources and conflict."

The military has taken photographs of China's ongoing reclamation activity on Malvar Reef in February, with the pictures showing a backhoe attached to a Chinese vessel that, scientists said, was presumably used to gather filling materials and harvest giant clams.

On Thursday, President Benigno Aquino III said Chinese ships had been monitored moving around other reefs in the West Philippine Sea, possibly to reclaim land in Gavin Reef (Gaven Reef) and Calderon Reef (Cuarteron Reef).

Defense spokesperson Peter Galvez confirmed that China had reclaimed land on Malvar Reef (Eldad Reef), which lies northeast of Mabini Reef (Johnson South Reef), where China had



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previously reclaimed land.

“It’s called ‘earthmoving activities’ and there’s quite a lot going on in the [West Philippine Sea] that we are monitoring,” Galvez told the Inquirer on the phone.

The defense spokesperson said China’s reclamation activities were especially worrisome not only because of the ongoing territorial dispute in the West Philippine Sea, but also because of its impact on the environment.

“The environment is an integral component of a state,” so environmental issues are considered security issues, according to professor Charithie Joaquin of the National Defense College of the Philippines.

“A state must be able to protect its territory and ensure that its citizens enjoy the benefits of the natural resources within its territory,” Joaquin told the Inquirer in an e-mail.

Environmental degradation could adversely affect the population, with “diseases, scarcity of resources and conflict,” she added.

“A sickly population impedes economic growth and drains much-needed resources. Scarce resources, such as water or strategic minerals, could also lead to conflict or exacerbate existing tensions,” Joaquin said, adding that “the consequences of nonsustainable use of natural resources could be irreversible, impacting not just the current generation but generations to come.”

“Because of interconnected ecosystems, the impact oftentimes transcends borders,” she added.

Scientists at the University of the Philippines Marine Science Institute (UP MSI) are just as alarmed at China’s relentless harvesting of giant clams, considered endangered species, and corals in the West Philippine Sea.

Fish feed on reefs

One of the country’s foremost experts in marine life conservation, professor emeritus Edgardo Gomez of UP MSI, noted that one-fifth of the fish that Filipinos consume come from the West Philippine Sea, and move around or feed on reefs. Without the reefs, depleted fish productivity is a possibility, he added.

“If you destroy everything, there won’t be any source of food [for the fish],” Gomez explained.

Based on the February 2014 photograph of Malvar Reef, MSI deputy director for research professor Perry Aliño said the backhoe apparently served a dual purpose: to get filling materials for the reclamation and to harvest giant clams.

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"[China was] not only collecting the shells but the substrate as well," he said. A substrate is the base where an organism lives.

Land reclamation effectively destroys the reef and its surroundings, which would have a long-term impact on the environment, said Aliño, who coauthored one of the most definitive books on Kalayaan Islands, a result of an in-depth research conducted by UP MSI.

Reefs play an important role in maintaining biodiversity in the West Philippine Sea, the scientist said, adding that dredging in the reefs would eventually destroy and weaken their framework.

Natural breakwaters

The destruction of the reefs near Pagasa Island in Palawan province could bring bigger waves to the only island in the Kalayaan Island Group, where a small community lives, because reefs serve as ripraps or natural breakwaters that could reduce the force of incoming waves, Gomez said.

The Philippine military has monitored Chinese poachers using dinghies to routinely harvest giant clams (*Tridacna gigas*), an endangered species of clams, as well as corals and other clam species.

Some 30 to 45 dinghies trawl for giant clams and corals in areas in the West Philippine Sea, like Ayungin Shoal, Pagasa Island, Tizard Bank and reefs, Union Banks and reefs and Hasa-Hasa Shoal, and store their catch in the vessels' huge cargo hold.

The clams, used for food or decorative purposes, are reportedly sold in the black market in Hainan province in China, with clam shells fetching from

\$13 (P567) to \$750 (P33,000).

Aliño explained that clams grow on top of each other, such that when they are harvested by dredging, even the fossilized clams are collected.

"They are getting depleted, which would make them more valuable," he said. "The clams need to be restocked. [But] if they are restocked clams, then they are more valuable because there is already an investment in terms of putting them back."

Restocking program

The UP MSI has a restocking program for cultured clams for the past 30 years, a brainchild of Gomez who hand-carried the microscopic specimens of giant clams from Solomon Islands that the UP MSI laboratory used for their first cultured giant clams.

The cultured clams are then distributed to different parts of the country, although not a substantial number has been sent to Kalayaan Island Group.



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Clams cultured at UP MSI Bolinao Marine Laboratory in Pangasinan province have been brought to Panatag Shoal or Bajo de Masinloc in Zambales—and most likely already harvested by the Chinese.

Gomez said it was about time that the government had a “game plan” that would not only protect the territory but also conserve natural resources.

Gomez said it was time for the government to “support blue water oceanography that will help our scientists do research on our [Exclusive Economic Zone] and show the [Philippine] flag.”

“If we have research vessels going out to [Kalayaan Island Group], Scarborough Shoal, the east coast of the Philippines ... we are [at least] showing our presence,” he added.

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Annex 437

“Airstrip repair on Pagasa island ‘a go’ despite China protest - PAF”, *GMA News Online* (18 June 2014)

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Airstrip repair on Pagasa island ‘a go’ despite China protest –PAF

June 18, 2014 8:02pm



The planned repair of the Rancudo airstrip on the Philippine-occupied Pagasa island in disputed waters “is a go” despite China's protest, Philippine Air Force officials said Wednesday.

“So far it is a go,” Maj. Gen. Edgar Fallorina, the Chief of Air Staff, told a forum in Villamor Air Base.

Air Force chief Lt. Gen. Jeffrey Delgado said funds have already been allotted for the repair of the 1.4-kilometer unconcretized airstrip.

“The bottom line is we need to repair that,” he said in the same forum.

PAF spokesman Lt. Col. Ernesto Canaya said the airstrip has to be repaired for safety purposes, as portions of its runway have eroded.

“Aircraft can still land but for safety purposes, the runway should be complete,” said Canaya.

Fallorina said the repair of the Rancudo airstrip will involve two stages — the dredging of an anchorage area to allow the entry of vessels with construction materials needed, and the actual repair itself.

The Department of National Defense has already awarded the contract for the project's first stage, Fallorina said. He did not say the status of the second stage.

“Hopefully, it will be finished this year,” said Fallorina, referring to the project's first stage.

Chinese Foreign Ministry spokesman Hua Chunying has earlier complained against the Philippine government's construction of a supposed “world-class” airport at the Pagasa island in the disputed West Philippine Sea, a part of the vast South China Sea that Manila claims.

China claims almost 90 percent of the South China Sea, a major sea route where oil and gas deposits have been discovered in several areas. Manila has adopted the name West Philippine Sea for areas in the South China Sea that fall within its sovereign jurisdiction.

The Philippines recently revealed that China is engaged in construction activities and reclamation of at least five disputed areas. These features, Philippine officials say, fall within the country's territorial waters and exclusive economic zone.

Alarmed with what it calls China's expansionist moves in the South China Sea, Manila sued Beijing before a Netherlands-based tribunal operating under a United Nations convention, to try to declare as illegal its massive claim. The case was rejected by China. —KBK, GMA News

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“2 monuments symbolizing Vietnam’s sovereignty over Spratlys named national relics”, *Thanh Nien News* (18 June 2014)

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2 monuments symbolizing Vietnam's sovereignty over Spratlys named national relics

JUNE 18, 2014 BY [THANHNIENNEWS](#)

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Two stone monuments erected on islands in the Truong Sa (Spratly) archipelago by the Republic of Vietnam in 1956 have been recognized as national historic relics.

On Tuesday, Director of Khanh Hoa Province's Department of Culture, Sports and Tourism Truong Dang Tuyen said his province (which administers the Spratly islands) received the recognition from the Ministry of Culture, Sports and Tourism.

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A monument on the [Song Tu Tay \(Southwest Cay\)](#) Island, part of the Truong Sa (Spratly) archipelago. Photo: [Tran Dang](#)

The steles, one on the [Song Tu Tay \(Southwest Cay\)](#) Island and the other on the [Nam Yet \(Namyit\)](#) Island, were inscribed by the US-backed Republic of Vietnam with the words, "The Truong Sa archipelago belong to [Phuoc Tuy Province](#). A military mission paid a field visit to this archipelago on August 22, 1956 under the Vietnam Navy's guidance."



The monument on the Nam Yet (Namyit) Island, part of the Spratly archipelago. Photo credit: [Tuoi Tre](#)

The former Phuoc Tuy Province (now Ba Ria-Vung Tau) sits southeast of Saigon (now [Ho Chi Minh City](#)). In 1982, the Truong Sa island chain was merged into the central province of Phu Khanh.

[After Phu Khanh](#) was split into the provinces of [Phu Yen and Khanh Hoa](#) in 1989, the Truong Sa archipelago became a district of Khanh Hoa Province and remains so today.

Tuyen said his province will propose a plan to restore the two monuments in [the near](#) future.

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Tran Dang

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Steles in Truong Sa named as national relics

Two steles which affirm Vietnam's sovereignty over the Truong Sa (Spratly) archipelago have been recognized as national relics, pursuant to a recent decision by the Vietnam's Ministry of Culture, Sports, and Tourism. On June 18, director of the central Khanh Hoa provincial Department of Culture, Sports and Tourism, Truong Dang... [\[Read more\]](#)



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Ancient Vietnamese artifacts found in Spratlys

By **Tran Dang**, Thanh Nien News

NHA TRANG - Sunday, September 28, 2014 21:20 [Email \(mailto:email@domain.com?subject=Ancient%20Vietnamese%20artifacts%20found%20in%20Spratlys%20-%20Politics%20-%20Thanh%20Nien%20Daily&body=http%3A%2F%2Fwww.thanhniennews.com%2Fpolitics%2Fancient-vietnamese-artifacts-found-in-spratlys-31580.html\)](mailto:email@domain.com?subject=Ancient%20Vietnamese%20artifacts%20found%20in%20Spratlys%20-%20Politics%20-%20Thanh%20Nien%20Daily&body=http%3A%2F%2Fwww.thanhniennews.com%2Fpolitics%2Fancient-vietnamese-artifacts-found-in-spratlys-31580.html) [Print](#)



Ancient Vietnamese pottery shards discovered on and below the surface of Spratly Island, in the namesake archipelago, in June. Photo: Nguyen Ngoc Quy

Vietnamese archaeologists have announced the discovery of ancient Vietnamese artifacts in the Truong Sa (Spratly) archipelago.

Recent excavations in the archipelago -- Spratly Island, Namyit Island, Pearson Reef, and Sand Cay -- in June yielded Vietnamese pottery shards that dated back to between the 13th and 19th centuries, archaeologists said.

Bui Van Liem, deputy director of the Vietnam Institute of Archaeology, said: "The results of the June explorations strengthened those of our explorations in Truong Sa in 1993, 1994, and 1999. They prove that Vietnamese people operated in the archipelago in the past."

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"The artifacts contribute to support Vietnam's assertion of sovereignty over the Truong Sa archipelago," said Liem.

Earlier this month, Vietnam's Ministry of Foreign Affairs (MOFA) condemned China's illegal construction work on Gac Ma (Johnson South Reef) in Vietnam's Spratly Islands as a "serious violation of Vietnam's sovereignty."

Le Hai Binh, a spokesman for the Ministry of Foreign Affairs, said Vietnam had sufficient legal and historical proof to assert its sovereignty over Truong Sa.

Unilateral action designed to change the status quo in this area seriously violated Vietnam's sovereignty and complicated the East Sea, internationally known as the South China Sea, and regional situation, he said.

A recent BBC report documented a Chinese project to dredge tons of rock and sand from the sea floor and pump it into the Johnson South Reef.

The work appears to have been going on for months, according to the BBC.

In May the Philippines released photos that appeared to show Chinese land reclamation efforts on Johnson South Reef.

It described the work as part of a Chinese plan to build an airstrip.

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The 24-year-old ship has been upgraded to be used in Vietnam's coast guard missions.

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Annex 440

“South China Sea rivals compared by Global Times”, *Want China Times* (19 Dec. 2014)

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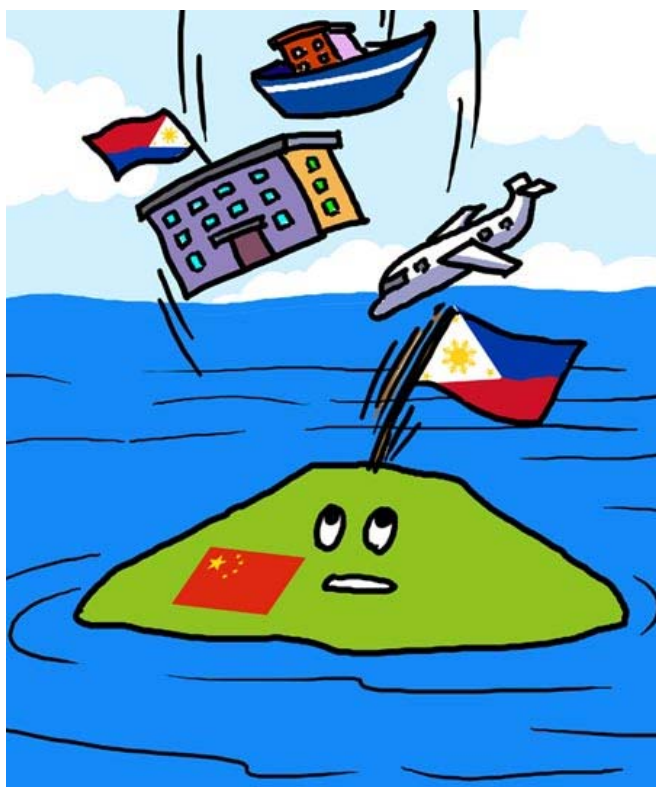
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South China Sea rivals compared by Global Times

Staff Reporter | 2014-12-19 | 16:50 (GMT+8)



An illustration showing the infrastructure the Philippines is building on Thitu island in the disputed Spratly island group. The Chinese cartoon suggests a wobbly Philippine flag on an island stamped as Chinese. (Illustration/CFP)

The threats posed to China by each of the other claimants in the territorial disputes over the South China Sea were outlined in an analysis piece in China's nationalistic tabloid Global Times, run by the Communist Party mouthpiece People's Daily.

Over the last year China has engaged in prolonged standoffs and clashes with the Philippines and Vietnam and the rich underwater resources that the region is believed to possess will likely see each claimant build up a substantial military infrastructure to protect their claims over the next few years. The paper listed the threats posed by Vietnam, the Philippines, Malaysia and Brunei; as China does not acknowledge Taiwan's sovereignty over itself, not to mention over islands in the South China Sea, Taiwan was conspicuously absent from the list. Taipei officially

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Zhou Jiping (周吉平)

Zhou Jiping is general manager of PetroChina, the listed arm of the state-run China National Petroleum Corporation (CNPC) and is recognized as a ...

shares the same claim over the whole of the South China Sea as Beijing does and holds the Pratas islands in addition to Taiping, the largest natural island in the Spratly islands.

Vietnam: Military build-up on nine islands

From the early 1970s to the early 1990s, Vietnam occupied 29 islands and reefs in the Spratlys and strengthened their defensive infrastructure in the region.

Vietnam has used two defensive strategies. The first is to set up defensive positions comprising habitable and permanent defensive structures which can also serve in battle, forming a strategic defensive infrastructure. The second is establishing military outposts and guard houses on stilts, to widen the area of defense. The former are concentrated on nine islands and reefs including Spratly Island and Southwest Cay. The living conditions in these bases are reasonably comfortable, so more soldiers are stationed there. The islands of Spratly and Namyt are the core defensive strongholds of the Vietnamese army in the South China Sea.

Vietnam has 2,200 soldiers stationed in the Spratlys mainly armed with guns, tanks, anti-tank missiles and dynamic armed helicopters, but they do not have any ground-to-ship missiles, due to the complicated support system and permanent firing structure that they require which none of the islands can facilitate.

A photo set featured in the Hanoi-based Vietnam Pictorial shows nine of the main nine islands and reefs administered by Vietnam have 23mm anti-aircraft guns; six of them have 37mm anti-aircraft guns, five have 85mm cannons and two of them have 122mm howitzers and 130mm cannons; six of the islands have Russian made T-54/55 medium tanks, four have the Russian-made PT-76 amphibious light tank, totaling around 120 guns and 60 medium tanks. On Spratly Island and Namyt Island the Vietnamese army have a 122mm howitzer battalion, an 85mm cannon company, an 130mm cannon company, two to three 23mm or 37mm anti-aircraft gun companies and a tank company. Military helicopters can take off from and land on at least five of the islands and reefs.

From this configuration it is likely that when attacked Vietnam will make use of its large-caliber artillery to engage enemy warships in a long-range gunfight. The 130mm cannon has a range of 27 kilometers, a similar range to the gun on China's destroyers. The range of guns deployed by the Vietnamese troops is in preparation for long-distance, medium range and close-range defense against landing troops. To take Spratly as an example, the island has four guns with a range of over 16km, 21 guns with a range over 14km, 31 guns with a range of over 10km and 48 guns with a range of over 2km. The army can also make use of its helicopters to launch air attacks.

In addition to the nine larger islands, the Vietnamese army also has guard posts stationed at islands and reefs that are more vulnerable to attack, but these usually consist of a makeshift concrete or shacks on stilts with soldiers only armed with individual weapons.

Several special units of the Vietnamese army are said to have trained in amphibious warfare in the Spratlys and the 126th rapid response battalion, set up in 2005, is said to be Vietnam's answer to the US Navy Seals.

The Philippines: Cannot sustain low intensity warfare

The Philippines is relatively weak in terms of its economy and military power and its strategy in the region is different. Currently the Philippines administers eight islands in the region, including Thitu Island and Nanshan Island. Thitu is the second-largest island in the Spratlys and hundreds of Philippine civilians live there in addition to 40 soldiers. Conflicting reports put the total number of Philippine soldiers stationed on the islands at anywhere from 60-200.

The first group of civilians were sent to live on Thitu in 2001. The island has a town hall, a school, a clinic, a military barracks, a water treatment

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plant, a deep well, a small jetty, a 1,300m runway, a telecommunications base, an electricity generator and some greenhouses. There are flights between Thitu and Puerto Princesa in the Philippines.

On other islands, such as West York and Northeast Cay, the Philippines has only built a few simple structures and some islands, such as Flat Island and Lankiam Cay, are extremely small, so the army has erected a 10m tall watch tower on Nanshan and Loaita islands to watch over these islands with the naked eye, so troops are not actually stationed on them.

A documentary aired by Philippine TV station GMA7 described the daily lives of soldiers posted to the South China Sea islands. According to the documentary, there are four soldiers currently posted to Nanshan. A simple wooden structure has been erected on the island and army ships visit every month to bring fresh supplies and to change personnel. The four guards are armed with M-16 rifles and hand grenades.

In May, a high-ranking Philippine army officer told Japan's Kyodo News that the country plans to deploy two coast guard patrol boats and two surveillance craft to Thitu; as well as deploying permanent patrol boats to Nanshan and Commodore Reef; and establishing a Spratlys group (Kalayaan) army task force. The Philippine officer also said that the country plans to renovate the airport on Thitu and its bases and observation stations on Nanshan. In October, however, Manila announced that it had called a temporary halt to its renovation work on the islands in order not to influence an arbitration judgment which is still pending.

The Philippines is unlikely to be able to maintain even low-intensity warfare in the region, however. The army and the air force are mostly concerned with maintaining order domestically and tackling guerrilla fighters, while the navy is tasked with maintaining the country's territorial claims in the South China Sea. The Philippines has three main naval bases in Cavite, San Vicente and Mactan in Cebu and the majority of its warships and marine corps are located in the west of the country, bordering the South China Sea — or the West Philippine Sea, as Manila redesignated it relatively recently. According to a defense expert cited by the paper, though the Philippines has spent a large sum on modernizing the army it is still incapable of facing off against China.

Malaysia: Long-term military deployments on five islands

After engaging in military exercises with Australia, New Zealand, the UK and Singapore in August 1983, Malaysia sent marines to occupy the disputed Swallow Reef and has administered it since then. In 1986 the country also took over the administration of Mariveles Reef and Ardasier Reef and in May 1999 it took control of Investigator Shoal and Erica Reef.

Malaysia has opened a resort on Swallow Reef and has built an airport there. Currently Malaysia has just over 100 soldiers stationed on five islands and reefs, mostly at Lima Naval Station on Swallow Reef, Uniform Naval Station on the Ardasier Reef and Mike Naval Station on the Mariveles Reef.

Malaysia at one time occupied Louisa Reef, which is claimed by Brunei, but later quietly retreated from the island. Malaysia has placed emphasis on infrastructure in recent years, importing 18 MiG-29 fighters from Russia and 32 US-made F-18 Hornet and F-15 Eagle fighters, as well as buying 54 new naval vessels. Malaysia is also building up its submarine fleet, buying two Scorpene-class attack submarines and a decommissioned French Agosta-class submarine.

In its 2014 defense report, UK-based Jane's Defence Weekly stated that Malaysia is modernizing its navy. In October a Malaysian leader stated that the Royal Malaysian Air Force Butterworth base was transferring an F-16 Falcon fighter to Labuan island, to put it within closer range of Malaysia's claims in the region.

Brunei: No military presence

After Brunei declared independence in 1984, it declared sovereignty over the Louisa Reef. Brunei bought three coastal patrol boats in 1994 after

China claimed the island as part of its territorial waters and then bought fighters from the UK. Although Brunei administers Louisa Reef it has no military presence on the island, or in the entire South China Sea.

Brunei has a small-scale military, owing to its small land mass and small population, so it does not present much of a threat to other claimants in the region, the paper said.

Li Mingjiang, an expert on South China Sea relations at Singapore's Nanyang Technological University's Rajaratnam School of International Studies, stated that in terms of infrastructure and weaponry Vietnam is the biggest threat to China in the South China Sea, followed by Malaysia and then the Philippines.

References:

Li Mingjiang 李明江



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Annex 441

J. Laude, "Strong waves prevent delivery of goods to troops in Spratlys", *The Philippine Star* (25 Dec. 2014)

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Strong waves prevent delivery of goods to troops in Spratlys

By Jaime Laude (The Philippine Star) | Updated December 25, 2014 - 12:00am

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MANILA, Philippines - For most troops on forward deployment in the Spratlys archipelago, it would be a lonely Christmas.

A Navy supply ship sent to deliver their Christmas goodies, including Noche Buena and Media Noche packages, was forced back to Puerto Princesa City by severe sea conditions prevailing over the West Philippine Sea.

"Big waves forced the Navy boat to abort its Christmas and New Year's run and returned to Puerto Princesa last Saturday," Kalayaan Mayor Eugenio Bito-onon Jr. said.

He added the Navy ship originally scheduled to dock at Pag-Asa Island was only able to reach troops stationed at Lawak Island and Rizal Reef.

Aside from Lawak and Rizal Reef, troops are also stationed and manning forward military outposts in the islands of Likas, Parola, Kota, Patag, Panata, Pag-Asa and Ayungin Reef.

All these military outposts, except for Pag-Asa Island that has an airfield, could only be reached by sea because these are underdeveloped.



In the case of Ayungin Shoal, delivery of provisions was carried out precisely so as not to alarm the Chinese naval blockade around the area.

China, of all the Spratlys claimant countries, is pushing aggressively its maritime claim to almost the entire South China Sea by deploying naval gunboats, coast guard vessels and other civilian vessels in the region.

Troops deployed in these outposts are usually rotated every three months and those whose assignments are timed during Christmas are showered with gifts and other perks in acknowledgment of their sacrifices.

"It also happened last year. The supply ship was not able to reach us because of the big waves. But we still have to celebrate Christmas in our own little way," Bito-onon said, adding he allowed the slaughter of livestock and poultry in the island for the celebration of Christmas Eve.

He said that military leadership of the Western Command (Wescom), knowing full well the troops' morale out there, would be airdropping the Christmas goodies.

In the case of Pag-Asa Island, an Air Force plane has delivered Christmas provisions and other supplies to the area needed by around 90 civilian residents in time for their holiday celebration yesterday.

The number of residents in the island vary from time to time as during holidays, some of the families return to mainland Palawan to celebrate Christmas with relatives.

Bito-onon said there are 96 islanders, 32 of them children, out of the more than 200 civilians officially registered as residents left in the island.

On the other hand, the government troops deployed in Mindoro played Santa Claus by distributing Noche Buena packages to several families, even those with known links to and sympathizers of the communist New People's Army.

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Annex 442

J. Pan & L. Tien-pin, "Threat to Spratlys outposts 'growing'", *Taipei Times* (26 Dec. 2014)

Threat to Spratlys outposts ‘growing’

REPORT:: Some legislators voiced frustration over the government’s reluctance to deploy military ships in the area, despite the threat posed by China and Vietnam

By Jason Pan and Lo Tien-pin / Staff reporters

Fri, Dec 26, 2014 - Page 4

The nation’s military outpost on the disputed Spratly Islands (Nansha Islands, 南沙群島) in the South China Sea is being threatened by the latest deployment of mobile missiles and artillery guns on nearby islands held by China and Vietnam, according to a new report submitted to the Control Yuan.

The Ministry of National Defense report pointed to the increased buildup of troops and weapons by China and Vietnam on their island bases near the military outpost on Itu Aba Island (Taiping Island, 太平島).

Of particular concern are the moves by Vietnam to enhance its troop presence with more sophisticated weapons on Sand Cay — known as Dunqian Sand Island (敦謙沙洲) in Chinese and Son Ca Island to the Vietnamese — which lies just 11km east of Itu Aba Island.

The report said that Vietnam has deployed an unspecified amount of new shoulder-fired anti-aircraft missiles to its expanded marine base on Sand Cay in the past year.

“The effective range of the Vietnamese shoulder-fired missiles is about 1.5km. However, Vietnam may plan to deploy these portable missiles to reef islets closer to Taiping Island or might carry them on patrol boats to within striking range. In such a scenario, our military transport aircraft heading to Taiping Island would be directly threatened,” the report said.

It also provided surveillance information showing that Vietnam has begun work to artificially expand Sand Cay Island and to build military installations.

Meanwhile, China has reclaimed major tracts of land and constructed military installations on five reef and shoal locations claimed by China in the Spratlys since last year.

The Chinese construction operations in the Spratlys are on Cuarteron Reef (Huayang, 華陽), Gaven Reef (Nansyun, 南薰) and Fiery Cross Reef (Yongshu Reef, 永暑礁), which are also claimed by Taiwan, as well as Union Reef North and Union Reef South.

To counter the threats posed by China and Vietnam in the South China Sea, legislators had requested the deployment of a marine force, instead of coast guard units, to the Pratas Islands (Dongsha Islands 東沙群島) and the Spratlys.

Legislators said that the ministry has acted in a contradictory fashion, being outspoken about the increasing number of threats faced by the Itu Aba Island military outpost while continuously dismissing calls to deploy marines and declining requests to have warships permanently stationed on Taiwan's island outposts.

The report was part of the Control Yuan's special investigation into the current regional security situation in East Asia.

The report recommended that the government boost its defenses in the South China Sea, given that China, Vietnam and the Philippines have all built up military installations and deployed new weapons on 12 islands and shoals around Itu Aba Island.

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