Gt. Brit. Hydrographic office.

## Pacific Islands Pilot

THE WESTERN GROUPS COMPRISING

THE TERRITORY OF PAPUA INCLUDING THE LOUISIADE ARCHIPELAGO, THE NORTH-EAST AND NORTH COASTS OF NEW GUINEA, THE SOLOMON ISLANDS, THE BISMARCK ARCHIPELAGO, AND THE CAROLINE AND MARIANAS ISLANDS

SEVENTH EDITION, 1946

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LONDON
PUBLISHED by the HYDROGRAPHIC DEPARTMENT, ADMIRALTY

To be obtained from the agents for the sale of Admiralty Charts

1946

Chart 977, plan of Paluu islands.

650 feet (198ml) long, at Bokurugeru point, 6 miles south-south-westward of Arumaten point, and a concrete pier, 1,550 feet (472m4) long, about 5½ miles south-south-eastward of Bokurugeru point.

A light is exhibited, at an elevation of 111 feet (33m8), on Arumaten

point.

Settlement.—The principal settlement in Babelthuap is Ngardmau, on the southern side of Ngardmau bay. Bauxite is mined in the vicinity, and this is the main industry of the island. Coal is also found in the vicinity of Karamadoo bay, entered about 3 miles south-eastward of Toagel Mlungui.

The population of Babelthuap, in 1938, was 4,915, of which 1,535

were Japanese and 3,380 natives.

Islets and dangers northward of Babelthuap.—Kayangel islets 25 consist of four low islets covered with coconut palms, lying on a reef, 13 miles northward of Kossol reef, being separated by Kayangel passage, in which there are no known dangers. Inside the lagoon there is a general depth of less than 6 fathoms (11m0), and there are many reefs, but it is suitable for small craft with local knowledge during 20 easterly winds, which can enter through a boat passage on the western side of the atoll.

A shoal, with a depth of 5 fathoms (9m1), is reported to lie half a mile eastward of Ngajangel islet, the northernmost of the Kayangel islets.

Ngaruangl reef (Lat. 8° 10' N., Long. 134° 38' E.) is an atoll lying 25 about 5 miles north-westward of Kayangel atoll. Inside the lagoon there is a general depth of about 5 fathoms (9ml), but there are many reefs. There are no known dangers in Ngaruangl passage, the channel between the two atolls, and it is reported to be a safe route for vessels approaching the western side of the Palau group from eastward.

30 Chart 763.

Velasco reef is a sunken atoll extending about 20 miles northward from Ngaruangl reef; the least depths, about 6½ fathoms (11m9), are on the edges of the reef. When the tidal streams are strong there are overfalls on the outer edge of the reef, and even when it is calm 35 there is sometimes a choppy sea, but it is difficult to make out from a distance, so that caution is necessary when approaching it.

Chart 977, plan of Sonsorol islands.

Outlying islands and reef south-westward of Palau islands.— Buoy.—Sonsorol are two islands lying about 150 miles south-westward 40 of Angaur. They consist of Sonsorol, 118 feet (36m0) high to the tops of the trees, the larger of the two, and Banna, 109 feet (33m2) high to the tops of the trees, one mile northward of it; both islands are surrounded by a fringing reef extending from about one to 3 cables, and both are thickly wooded with coconut palms and other trees.

5 A red mooring buoy is situated close westward of the fringing reef

about the middle of the western side of Sonsorol.

The channel between the two islands is about 6 cables wide and is free from dangers.

Chart 763.

60 A bank, with a depth of 13 fathoms (23<sup>m</sup>8), which has not been examined, was reported, in 1944, to lie about 70 miles south-westward of Angaur island.

Current.—In July, 1926, the Japanese man-of-war Manshū, experienced a south-easterly current of about 3 knots when about 8 miles Chart 763.

eastward of Sonsorol. On proceeding southward, the rate of the current gradually decreased, until in the vicinity of Tobi (see below) it ceased. See the Chart 977, plan of Pulo Anna.

Pulo Anna. - Pulo Anna, 43 miles south-south-westward of Sonsorol, is surrounded by a fringing coral reef, which extends about a quarter of a mile from its northern and eastern sides. The island is densely wooded, the tops of the trees having an elevation of 63 feet (192).

In 1894, H.M.S. Pallas was unable to obtain anchorage off Pulo 10 Anna, there being no bottom at a depth of 150 fathoms (274m3), at

a distance of 2 cables offshore.

North-eastward of the island a strong east-going tidal stream has been experienced. It has been reported that in the vicinity of the island, a current sets east-south-eastward at a rate of from half a knot 15 to 3 knots. Tide-rips have also been reported northward of the island.

. The island lies in the flow of the Equatorial counter current through-

out the year.

Chart 977, plan of Merir island.

Merir.—Merir, an island, 92 feet (28m0) high to the tops of the trees, 20 lies about 29 miles south-eastward of Pulo Anna. It is surrounded by a fringing reef which extends about 61 cables from its southern end and about one cable from its northern end; the edges of the reef are steep-to, except at the northern end where a spit, with a depth of 7 fathoms (12m8) over its outer end, extends about three-quarters of 25 a mile northward; it is reported that sailing vessels sometimes anchor here. which address into

A boat can reach the lee side of the southern end of the island at high water. In addition of the death as all new post and a view it a

Chart 977, plan of Tobi or Kodgubi island.

Tobi.-Tobi or Kodogubi, an island, lies about 104 miles southwestward of Merir. It is covered with coconut palms, the tops of which attain an elevation of 118 feet (36m0), and is fringed by a reef, which, at its northern end, extends about 41 cables offshore. Landing can be effected on the western side of the island, but in westerly winds 35 caution is necessary.

In 1930, the natives were friendly, and many understood English. Tobi island lies in the flow of the Equatorial counter current throughout the year, and the current in the vicinity has been reported to set south-eastward at a rate of about 12 knots.

Chart 977, plan of Helen reef. Meles and the control of the control

Helen reef.—Helen reef, about 35 miles eastward of Tobi, is surrounded by a narrow belt of coral on which the sea breaks heavily. Helen islet (Lat. 2° 58' N., Long. 131° 49' E.), which is low, thickly wooded, and uninhabited, lies at the northern end of the reef. At 45 high water when the sea is smooth there are sometimes no breakers on the reef, so that it is dangerous to approach it at night.

Although the reef is generally dry at the lowest tides, there is a channel into the lagoon near the middle of the western side. For about 2 hours before and after high water the reef can be crossed by 50 boat on the western side, and a landing can be effected on the western

side of the islet.

Tidal streams .- Current .- The tidal streams setting over Helen reef are strong. When the tide is falling, the water flows out of the Chart 977, plan of Helen reef.

lagoon over the reef in all directions until the reef is uncovered, and then flows out through the channel on the western side; when the tide is rising, the reverse takes place. At the end of the ebb and the 5 beginning of the flood, the tidal streams in the channel are strong, but as only few parts of the reef completely dry, the maximum rate does not exceed about 13 knots.

In March, 1918, an easterly current was reported throughout the

whole of this vicinity.

10 Chart 977, plan of Ngulu or Lamoliaur Ulu islands:

Ngulu.-Ngulu or Lamoliaur ulu, consisting of several islets on an atoll reef, lie about 170 miles east-north-eastward of the northern extremity of Babelthuap of the Palau group. The chain of reefs on the southern and western sides of the atoll afford complete protection 15 to the lagoon from the sea; the reefs on the eastern side are submerged, so that with strong easterly winds, a swell sets into the lagoon.

The islet named Ngulu, which is densely covered with coconut palms, lies at the southern extremity of the atoll; it is the only inhabited islet of the group. North islet, near the northern end of the atoll, is 20 low and covered with coconut palms. Between these two islets the reef is in detached patches, and does not break during westerly winds.

There are channels on either side of Ngulu, that on the western side being about 23 cables wide and free of dangers, but that on the eastern side is encumbered with shoals. There are several other channels into 25 the lagoon on the southern and western sides, but they are all narrow.

Anchorage may be obtained on the northern side of Ngulu. During north-westerly and south-easterly winds a swell sometimes sets in but generally the sea is smooth, and it is reported to be a good anchorage. At high water a landing can be effected on the northern side of Ngulu 30 islet (Lat. 8° 18' S., Long. 137° 29' E.).

This dangerous group should be given a wide berth at night or in thick weather, as strong currents often prevail in the vicinity.

Chart 1485, plan of Yap island.

SOATS TO DESCRIPTION OF SHARE Yap islands.—Yap islands, situated about 60 miles north-north-35 eastward of North islet of the Ngulu group, differs from the other islands of the Carolines in the nature of its soil, not one volcanic rock having been found.

The population, in 1936, was 6,299, of which 510 were Japanese,

and 10 were foreigners.

The group consists of Yap, the largest and south-westernmost island, Gagil-Tomil, Map and Rumung islands. Yap island is separated at its north-eastern end from Gagil-Tomil island by Tageren (Tagareng) canal, which has a width of 21 feet (6m4) and a depth of one foot (0<sup>m</sup>3); there is also a passage between Gagil-Tomil and Map islands. 45 At high water small craft can pass through Tageren canal, and at half-

tide can pass through the other passage, but the tidal streams in them are very strong. The southern extremity of Rumung island is connected to the north-western side of Map island by a reef.

The northern half of Yap island is traversed by a ridge of hills, the 50 summit of which is 585 feet (178m3) high. The southern part is covered with shrubs, above which rise numerous coconut palms. See view facing this page.

The group is fringed by a reef which extends from about 3 cables to 12 miles, except at the northern and southern extremities, where it