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I.S.T.D./F/386 (Restricted)

THE COAST OF
FORMOSA

(This report is a preliminary edition of
Part VA of B.R. 877 Q, I.S.I.S. Report on Formosa)

INTER-SERVICE TOPOGRAPHICAL DEPARTMENT

June 1944

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THE COAST OF FORMOSA

(*This report is a preliminary edition of Part V A of B.R. 877 Q, I.S.I.S. Report on Formosa*)

WARNING NOTE

Grid references in this preliminary report are to American Map Service maps, series L592, 1st edition 1943, gridded with CHINA BELT 1 GRID (RED); these maps are issued with this report as plans 12-19. It is understood that this series is to be regridded; the new grid references will, if available, be incorporated in the final report.

INTER-SERVICE TOPOGRAPHICAL DEPARTMENT

June 1944

B.R.877Q

A

FORMOSA

COAST PORTS AND INLAND TOWNS

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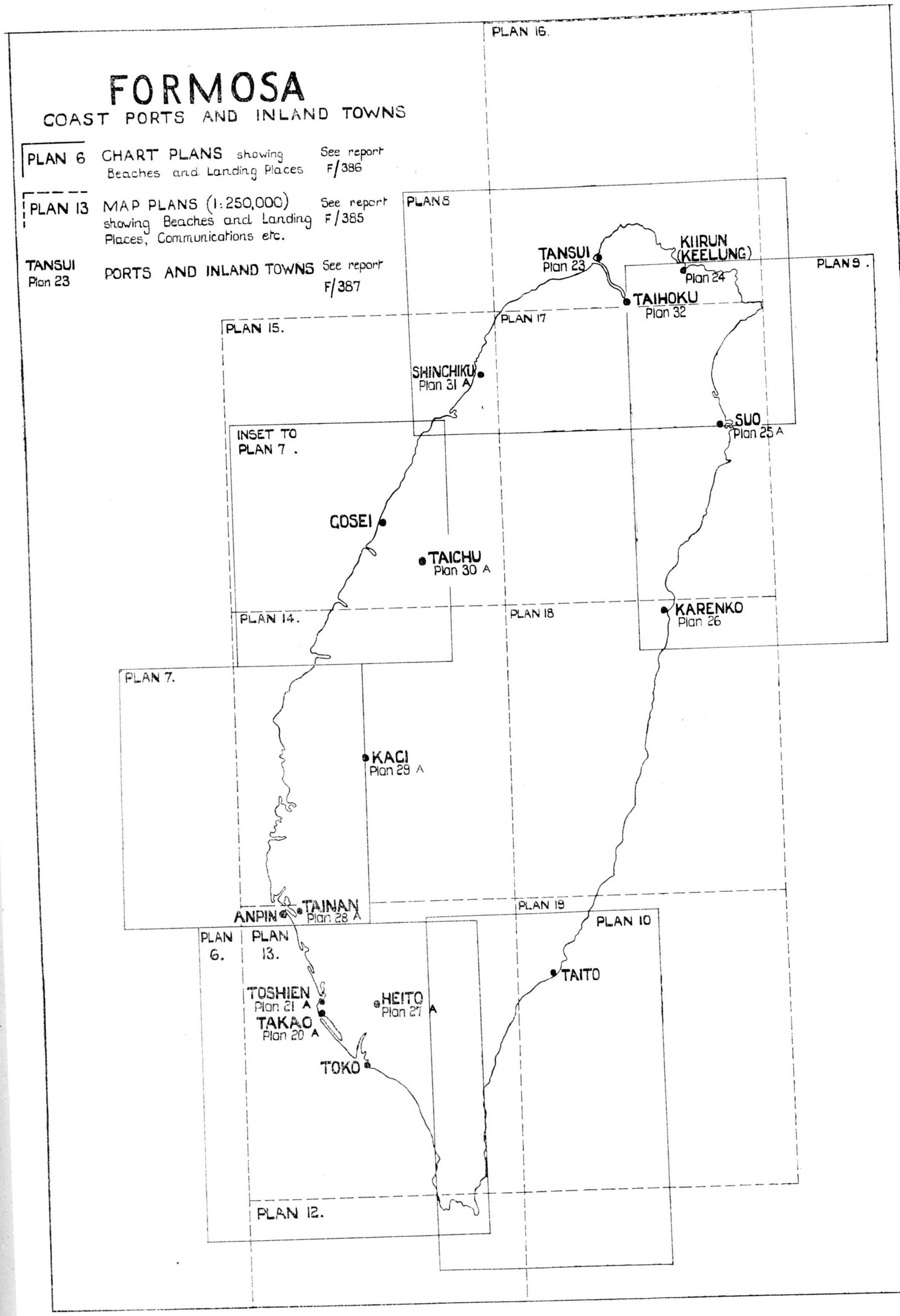

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(A) COAST

NOTES

Maps: Map references are to A.M.S. Series L592, 1:250,000.

Distances are given as follows: seawards, coastwise, between points by sea, lengths of beaches and up charted rivers in nautical miles (2025 yds. approx.): up all other rivers and inland generally, in statute miles (1760 yds.).

Dimensions of bays, creeks, etc. Length of a bay= distance between the entrance points. Width of a bay=distance from line joining entrance points to head of bay. Length of a river, creek, etc.=distance from mouth to head. Width of a river, creek, etc.= distance between the banks. Deep, shallow, refer only to the depth of water.

Depths on the bars of inlets, rivers, etc., are given at H.W. or at L.W. as in the Pilot. When not otherwise stated, depths are at L.W. or below datum of soundings.

Heights of mountains and hills are taken from Admiralty Charts and Pilot.

Spelling of place-names follows that given on Admiralty Charts and in the Pilot; where this differs from that used on A.M.S. Maps, Series L592, alternatives have been given.

Route Numbers given for *Roads* refer to *I.S.T.D. Report, F.*385.

Route Numbers given for *Railways* refer to *I.S.T.D. Report, F.*385.

Topography. For a description of the country behind this coast, including 'Summary of Suitability for Military Operations' dealing with Cross Country Movement, Cover, etc., see *I.S.T.D. Report, F.*383.

For roads and nature of the country see *Plans* 12-19.

Glossary: The following native geographical terms are used in this report:

Wan, uan	=	bay.
Bi, pi, saki	=	cape or headland.
Hakuchi	=	bight or roadstead.
Kei, Ke	=	river.
Ko	=	estuary or roadstead.
San, sua	=	mountain.
To, sho	=	island.

(I) DISTANCES

Approximate distances by sea in sea miles

	Keelung	*Takao*
Amoy	222	164
Bangkok	1845	1654
Batavia	2158	1957
Guam	1475	1510
Haiphong	930	788
Hongkong	471	341
Honolulu	4376	4537
Kam Ranh Bay	1099	908
Labuan	1297	1112
Manila	725	543
Port Darwin	2366	2249
Rabaul	2525	2491
Saigon	1312	1121
Singapore	1812	1621
Sunda Strait	2171	1970
Surabaya	2138	1956
Yap	1340	1317
Yokohama	1134	1337

	Keelung (Kūrun)	*Tamsui (Tansui)*	*Ampin (Amping)*	*Toshiyen (Toshien)*	*Takao*
Tamsui	35	...			
Ampin	204	174	...		
Toshiyen	215	186	22	...	
Takao	224	194	24	6	...
Karenko	90	118	222	197	202

(2) COAST REPORT

Note: All distances coastwise are given in nautical miles.

(*Plans* 5-19; *Admiralty Charts* 1968, *F*0443, 2409, 3658, *F*0446, *F*0444; *Maps A.M.S. L*592, *Sheets*, 1, 4, 5, 11-15; *Photographs G.*1-26)

GENERAL

The island of Formosa (named Taiwan by the Japanese) forms a link in the volcanic chain which extends from New Guinea to the Kurile Islands. A chain of mountains runs from north to south. Eastward of the central range, the country is mostly mountainous. Westward of the central range are graduating hills, falling eventually to broad alluvial plains which extend to the west coast.

Communications, in the form of roads and railways, are more or less confined to the coastal areas, with few lateral roads. There are no important rivers.

Anchorages

Except at the ports of Takao, Kiirun, Tansui, and Suo, there are no sheltered anchorages, and off beaches open anchorage would need to be selected according to draught.

Kiirun (Keelung)—classified as a 'C' anchorage.
Tansui —classified as an 'E' anchorage.
Suo Wan —classified as a 'C' anchorage.

Beaches and Landing Places

WEST COAST. The west coast consists mainly of sand-banks, mud-spits, and sandy beaches, the latter prevailing mostly in the south-west and north-west. The beaches are, for the most part, fully exposed to the westward. This side of Formosa is rapidly extending seaward and new shoals are continually forming.

In the south-west, on the stretch of coast between Nyopii Taa (Byobi-to-Saki) and Anpin (about 80 miles), 17 beaches and landing places have been selected for description in this report, and on the north-west section of this coast, between Taian Kan and Fuki Kaku, 12 beaches. Between these two sections there appears to be only one beach (*Beach* 18) which can be considered as at all practicable for landing even a small force.

NORTH COAST. The north coast is much indented with small bays, at the heads of most of which are sandy beaches where landing should be possible. Five beaches and one landing-place (31 *to* 36) have been selected and described. Apart from these, the coast is mostly rocky, with many off-lying islets and rocks. The bays are all open to the north and north-east.

SOUTH COAST. The short south coast is entirely taken up by the bay of Nan Wan (Lam-uan). There are some sandy beaches at the head, but the shores are mostly coral-fringed, and there are numerous off-lying dangers. The two sections of beach described under *Beach* 37 appear to be the only practicable, though limited, landings.

EAST COAST. As a result of the mountainous country, the east coast is composed of high cliffs, or steep-to, rocky shore, with comparatively few sandy beaches, those that exist being at the mouths of valleys, or where alluvial coastal plains have formed eastward of the high land.

Beaches 38 to 47 are described later in this report, and have been selected with due regard to exits. Landing may be possible, in good weather, at other places, but access inland would be difficult.

Weather as effecting landing operations

The beaches and landing places of Formosa are all more or less restricted by weather conditions.

The south-west section of coast is sheltered from wind, from October to March, when landing may be possible at times, but surf conditions due to swell, are probably bad.

Generally, sea and swell conditions along the whole of the west coast of Formosa improve in April and May, and as an average, good conditions may be experienced on about 25 days a month from May to August.

The north coast (including the north-west) is open to the prevailing north-easterly winds from October to March. These are often strong, particularly in November to January, but in April and May they decrease in velocity and frequency. Sea and swell conditions on the north coast are usually good for about 20 days a month in June to August.

The east coast is subject to a good deal of surf, and conditions are particularly bad from October to March, when landing would not be practicable.

The south coast, being short, is subject to more variation, but winds are generally light, though variable, in June to September.

Formosa is in the typhoon region, and these affect the east coast particularly. (See *CLIMATE*.)

Ports (see *I.S.T.D. Report, F*.387)

There are few good natural harbours, and, due to the silting-up which is taking place, some of the ports which could formerly be used, are no longer accessible to any but vessels of very shallow draught. The harbour of *Takao* on the west coast was formed by dredging the head of a lagoon. Similarly, the chief port, *Kiirun* (Keelung), which is in an inlet on the north coast, has been made available to deep-draught vessels by means of dredging. On the east coast there are no large ports, and the only one of any importance is *Karenko*, with, in addition, the natural harbour formed by *Suo Wan*, the only bay affording complete shelter during the north-easterly winds in winter.

Other ports described in this report are: Toko, Anpin, Gosei and Tansui.

Tides and currents

The tidal streams along the west coast, in general, set southward with the flood tide in the northern part, and northward in the southern part, but the exact position of the meeting point of these two streams has not been determined, although it appears to be somewhere between Rokuko and Koryu. Between Ryukyu Sho (22°20′*N*., 120°22′*E*.) and the south-west coast of Formosa, however, the tidal streams appear to set south-eastward with the rising tide and north-westward with the falling tide, the maximum rate varying from 1 to 2 knots. Off the south-western and north-eastern extremities of Ryukyu Sho, the tidal streams are strong, reaching a rate of 2 to 3 knots, and causing tide-rips. In the Pescadores Channel, the north-going stream may attain a considerable rate, whilst the south-going stream is sometimes imperceptible, owing to the Kuro Shio (or Japan Stream) which sets northward and almost parallel with the east coast. South-westerly winds considerably increase the rate of the Kuro Shio, and north-easterly winds reduce it. At spring tides, after a spell of south-westerly winds, the north-going stream may attain a maximum rate of about 5 knots. About 5 miles off the north-west coast in the vicinity of latitude 25°, the 'Kata Shio' (one-direction current) always sets northward with considerable strength, but is weakened during rising tide and reinforced during falling tide. Approaching nearer the coast the rate of this current

is gradually reduced, and at 2 miles offshore, with the south-going tidal stream, it almost disappears.

Along the north coast, in the region of Fuki Kaku, the east-going tidal stream may attain a rate of 5 knots during the south-west monsoon, and the west-going stream, about 2 knots. Northerly or north-easterly winds cause strong tide races and heavy seas off this point.

The tidal streams off the east coast between Taito and Suo Wan appear to set south-westward and north-eastward. The rate of the north-going sea current is reduced by the south-westerly set of the tidal stream and increased by the north-easterly set. Off Samucho Kaku (Sancho), the north-easternmost point of Formosa, there is a tidal race for about $1\frac{1}{2}$ miles offshore.

Sources

In the absence of contacts with a knowledge of the coast of Formosa, and of air photographs (except for a few short sections), this coast report has been compiled from a study of existing maps and charts (both British and Japanese).

The coast of Formosa is dealt with in the following order, i.e. West, North, South, East, being in the same direction as shown in *China Sea Pilot*, Vol. III, except for the south coast.

(a) DESCRIPTION OF COAST

(*Plans* 5-8, 12-17; *Admiralty Charts* 1968, *F*0443, 2409, 3658; *Maps*: *A.M.S. L*.592, *Sheets* 1, 4, 5, 11, 13, 15; *Photographs G*.1-4)

West Coast: Nyopii Taa (Byobi-to-Saki) (21°55′*N*., 120°44′*E*.) **to Fuki Kaku (Puki Kaku)** (25°18′*N*., 121°32′*E*.)—about 280 miles of coastline.

An important feature of the west coast of Formosa is that, for almost its entire length, it is extending seaward and new shoals are continually appearing. This movement is particularly apparent between Anpin (Ampin) and Taian Ko (Taian Kan).

Nyopii Taa (Byobi-to-Saki) to Kaiko Wan (22°05½′*N*., 120°42′*E*.)

Nyopii Taa, the south-westernmost point of Formosa is about 200 ft. high, and is steep, with a reef-fringed base. Tidal streams are strong, and there are tide races off this promontory.

The high precipitous coast continues northward for $1\frac{1}{4}$ miles, when it is broken by the small bay of Hakusha Ko, at the head of which is a white, sandy beach, about 400 to 500 yds. in length (*Beach* 1). With local knowledge, and with offshore winds, small craft can shelter in this bay. Hakusha Bi is the northern entrance point of the bay and to the north side is a hill (407 ft.).

For the next 3 miles, the coast is high and rocky, and is then broken by the small cove of Jinkoshi, where boats can land; the entrance, however, is narrow (*Beach* 2). Between Jinkoshi cove and the headland, Daiheicho (Taiheicho) Kaku (Toapinten Kaku), about $2\frac{3}{4}$ miles farther north, the coastal range rises abruptly from the sea to a height of 645 ft. Owing to the plain which lies between the coastal range and the mountains eastward, Daiheicho Kaku (22°02′*N*., 120°41′*E*.) appears as an island when approaching from the northward. Immediately northward of this point is the small cove of Kowanshi, which has a short sandy beach at its head (*Beach* 3). Reefs extend from the shore on both sides of the entrance to the cove, leaving a channel barely 100 yds. wide. Within the cove are depths of from 1 to 5 fathoms. Small craft, with local knowledge, can find sheltered anchorage here. A good landmark for this section of the coast is Kisan, a dome-shaped hill (241 ft.) on the northern side of Kowanshi cove. Around the base of the hill the shore is rocky and fringed with reef, and to the north is the mouth of a river. Extending northward from the river for about 2500 yds. is a sandy beach (*Beach* 4), backed by a flat, cultivated plain and broken in the centre by the Shajo river (Shijukei). The beach and the open anchorage in the roadstead off it are exposed to westerly winds, and a heavy run of surf is common. At the northern end of the beach is Shajo Kaku, a sandy point covered with grass, and fringed by a coral reef which extends about 300 yds. westward.

Kaiko Wan is entered between Shajo Kaku and a point about $1\frac{3}{4}$ miles north-north-eastward on which is Sensan hill (414 ft.). Kaiko (Haikau) village (22°05½′*N*., 120°42½′*E*.) stands on the south-east shore of the bay. Here there is a small fishing harbour formed by a breakwater on the west side and a sea wall on the east side. Depths in the harbour are reported to be 6 to 8 ft., but there may be silting up (*Landing* 5). Immediately north-eastward of the harbour is a short beach of sand, where landing may also be possible.

The remainder of the shore of Kaiko Wan is either reef-fringed or fronted by rocks, and would be difficult to approach. This northern end of the bay is backed by hills which rise rapidly from the coast.

Kaiko Wan (Hai kau) to Anpin (Ampin) (23°00′*N*., 120°09′*E*.)

Northward from Kaiko Wan to about $3\frac{1}{2}$ miles south of Boryu (Panryo or Horyo), the coast is generally high, with boulder-strewn or reef-fringed base, or coarse, stony, narrow beach, except near the mouths of streams where steep valleys open out to the sea, with possibly small, sandy beaches. The coast road (*Route* 28) follows a tortuous, undulating course close to the shore, together with a railway reported under construction (1942). Both are vulnerable from seaward. The approaches to this coast are generally clear, but fully exposed to the westward and with deep water close inshore. There are several villages along this shore.

For the last $3\frac{1}{2}$ miles northward to Boryo (Panryo or Horyo) there is a sandy, or sand and pebble, beach (*Beach* 6). The hills here recede from the coast, giving way to a flat, alluvial, coastal plain.

Boryo (Panryo or Horyo) is a small, coastal town. The anchorage off this town affords the best shelter on the west coast of Formosa, except that off Takao, but local knowledge is necessary; it is possible to remain here in safety, even in winter. The town has the reputation of being very unhealthy.

From Boryo (Panryo or Horyo) north-westward there is a low, sandy shore extending for about 5 miles to the mouth of the Rinpen Kei (Na-pi kei) (*Beach* 7). The coastal plain backs this section of the shore. Just within the mouth of the Rinpen Kei (Na-pi kei) is the shallow boat-harbour of Shin ta ko. The entrance is very narrow, and even at H.W. only small boats can enter. Off this coast, and $11\frac{1}{2}$ miles westward of Boryo (Panryo or Horyo) is Ryukyusho (Shoryukyu to) (22°20′.*N*, 120°22′*E*.), which is about $2\frac{1}{4}$ miles long from north-east to south-west and 1 mile wide. (*See* (*d*) '*Off-lying Islands*'.)

Between Ryukyusho and Formosa there is a remarkable sea gully, $\frac{1}{2}$ to 1 mile wide, running first eastward and then trending northward towards Toko. In one part of this deep gully no bottom has been found at nearly 350 fathoms.

From the mouth of the Rinpen Kei (Na-pi kei) to Toko, about 5 miles north-westward, there is a continuous sandy beach (*Beach* 8), but probably subject to frequent heavy surf. Lagoons back this front, with only two narrow approaches giving access inland. At the north end of the spit fronting the northern and larger lagoon, there is a break which appears to give an entrance from the sea to a seaplane base established on the lagoon. At the northern end of this front is the entrance to the Toko Kei (Ai-liau-ke). At the

mouth of this river is the harbour of Toko, but its importance is gradually waning and the number of junks using it is decreasing. The Toko Kei (Ai-liau-ke) and the Shimo Tansui Kei (the main stream of which flows out nearly one mile north-westward) carry a considerable amount of silt, the accumulation of which has gradually obstructed the channel leading to Toko. As a result there is barely 1 ft. of water over the bar at L.W. About 600 yds. offshore, however, depths increase sharply from 10 to 50 fathoms within a distance of half a mile. The town of Toko is on the left (south) bank of the river, a short distance from the entrance, with a landing place below the bridge at the south end of the town.

The right (north) bank of the Toko Kei (Ai-liau-ke) near the mouth, is flat and marshy and is transformed into an island by a creek. The shore of this island is sandy, and landing should be possible on a front of about three-quarters of a mile, but surf is probably frequent and heavy (*Beach* 9).

Westward of Beach 9 is Senbi Bi, a low, sandy spit, with shoal water fronting it for about 600 yds. southward. This section of coast is generally subject to heavy breakers.

Extending north-westward from Senbi Bi to Hobi (Kang-a-po) is a sandy shore, 5000 yds. long (*Beach* 10). Landing may be possible here, but the coast is exposed and heavy breakers are common, particularly at the north and south ends. The beach ends at Hobi To (22°30½′*N*., 120°21′*E*.), a rocky point 80 ft. high, with a rock (which dries 2 ft.) lying close off it. Behind Hobi To the land rises to Hozan (Hong-sua) hill (478 ft.) which forms the southern end of a hill range that runs southward from Hozan (Hosan) town to the coast.

From Hobi To the coast trends north-westward for just over 8 miles to the entrance to Takao harbour. The first 3000 yds. of this stretch of coast to Dairinpo (Tairimpo) there is fairly easy access inland (*Beach* 11), but the remainder fronts a narrow, sandy spit enclosing a large lagoon, on the northern end of which stands the port of Takao (*Beach* 12). The whole of the shore is subject to surf, especially Beach 11.

Takao is the best and most important port on the west coast of Formosa. It has an outer harbour formed by breakwaters, and an inner harbour formed by a dredged portion of the lagoon (*see I.S.T.D. Report, F.* 387, *PORTS*: *Takao*). At the northern end of the sandy spit (*see Beach* 12) forming the southern entrance point to the harbour, is Kigo Yama, a high point with precipitous cliffs on its seaward side. On the northern side of the entrance is Kokobuki Yama (Takao Zan) which rises from the shore, reaching its crater-like summit (1174 ft.) nearly half a mile inland. It is composed of coral and, in clear weather, can be seen from a distance of 35 miles, being one of the best landmarks in this area. Between the northern breakwater and the hill there is about 600 yds. of sandy beach (*Beach* 13), from which there is access to a road leading to Takao.

Round the base of Kotobuki Yama there are some rocks close inshore, and the steep shore continues for about 3 miles northward, followed by the sandy shore fronting the newly-developed Naval Base at Toshiyen (Toshien) (*see I.S.T.D. Report, F.*387, *PORTS*: *Toshiyen*).

From Toshiyen to Anpin (Ampin), about 18 miles northward, the coast takes the form of an almost continuous sandy beach broken by several streams, and for the most part backed by lagoons or marshes. The sandy spits which separate the sea from the lagoons are, in places, thickly covered with shrubs and grass and are inhabited by fishermen, whose rafts, hauled up in rows on the beaches, are a characteristic sight on this coast. Breakers may occur at some distance off this shore, but landing might be possible in places, with suitable weather conditions (*see Beaches* 14 *to* 17 *inclusive*).

Anpin Ko (Ampin) (23°00′*N*., 120°09′*E*.) consists of an inner bay, which has almost entirely silted up, leaving only a shallow and narrow channel to the port (*see I.S.T.D. Report, F.*387, *PORTS*: *Anpin*).

Anpin to Haipo Road (Kaiko) (23°44′*N*., 120°08′*E*.)

The tendency of the west coast of Formosa to extend seaward is most apparent between Anpin and Haipo Road (Kaiko). Along this 42 miles stretch of coast, the shore consists of a sandy beach which dries out to sand or sand-and-mud for a considerable distance in places. The seaward edge is fringed by sand cays, most of which are narrow and from 2 to 10 ft. high. There are no landmarks, and there is always a current setting inshore. The land behind this coast is very low and flat, and intersected by numerous small streams. The Sobun Kei (Tsan-bun-ke), which is about 400 yds. wide at its mouth, enters the sea about 7 miles north-west of Anpin. The southern branch of this river, known as the Kokushin-mung (Rokujimun or Lok-hi-mui-ke) flows out to sea about 2½ miles north-west of the entrance to Anpin. Between this branch and the main stream there are sandbanks with sand-dunes on which are numerous fishermen's huts, backed by salt-pans and fish-ponds. At its main mouth, the Sobun Kei flows across the outer sandbanks by way of the Kokushin Kan (Kokoshoko Kei), a channel formed by the junction of several streams. Junks are usually to be seen in this locality, but with strong westerly or southerly winds boats cannot enter the channel, owing to the very high seas at the entrance.

Northward of the Kokushin Kan and between the sand cays of Uryo and Shoseiryo (Sin-pak-kang-sua), the Shogun Kei (Chiang-kin-ke) finds its outlet. Junks proceed up this river to load salt and there are fishing villages on the banks, near the river mouth. Oya Ko (Onya kan) is a junk harbour within the entrance of the Kyusui Kei (Kipsui ke), which has its outlet north of Shoseiryo (Sin-pak-kong-sua). Entrance is possible only with smooth water.

About 6 miles northward of Oya Ko is Hotei Ko (Chiyen Kan), a very small harbour off the town of Hotei (Potei) with a least depth in the channel of about 1 ft. When the monsoon is strong it is almost impossible for boats to enter. About 4½ miles northward of Hotei is Toseki, on the north side of the mouth of the Bokushi Kei (P'ok-a-ke). There is a narrow and shallow channel, entered from southward, which leads between sandbanks to the anchorage off the town. Junks of less than 6 ft. draught can enter in good weather, at H.W. Onko (On Kan) (23°30′*N*., 120°05½′*E*.) is a narrow, shoal creek between sandbanks, where junks and boats can anchor.

Haipo (Kaiko) Hakuchi lies off the mouth of the Kyukobi Kei (Kau-lo-bue-ke), 15 miles north of Toseki. It is the only roadstead off this section of coast which does not appear to have deteriorated as a result of silting.

For the whole distance between Anpin and Haipo Road (Kaiko) there are no places where landings with suitable exits can be found except for about 4000 yds. at the northern end (*Beach* 18). Those roadsteads and entrances described as in use by junks are of very limited value, and local knowledge is essential. It must also be remembered that, as the silting-up proceeds, the channels and approaches are constantly changing.

Haipo Road (Kaiko) to Taian Kan (24°23′*N*., 120°32′*E*.)

Between Haipo Road (Kaiko) and Taian Kan, about 47 miles north-north-eastward, the coast is low, with sand-dunes and small hillocks and fronted by drying sand and mud-flats which, in places, extend as much as 3 miles offshore.

The tidal streams in this area are strong and the coast must be approached with the utmost caution. At the southern end of this section, there are practically no hills within 20 miles of the coast, but northward the hills gradually approach to within 3 or 4

miles of the sea. Numerous streams flow out along this coast, the principal being the Sairi (Seira) Kei, Taato Kei (Dakusui Kei), Taito Kei, and Taian Kei. The Sairi (Seira) Kei enters the sea about 9 miles northward of Kaiko. There is a channel across the flats fronting the mouth, but the position is too exposed for even junks to anchor. Five miles north-north-eastward of the mouth of Sairi (Seira) Kei is the small coastal town of Shazan (Soasua). A channel leads from the south-westward, across the fronting mud-flat to the town, but would probably be difficult to find and could be used only at towards H.W. Six miles farther to the north-north-eastward is the entrance to the Taato (Beq-su-tsu-ke) (Dakusui) Kei, the longest river in Formosa. The entrance to the river is about 1 mile wide, but is so entirely silted up that it cannot be used, even by small boats at H.W. About 4 miles north-eastward of the Taato (Dakusui) Kei is the town of Rokan (Lo Kianq, Rokko) at the head of a small inlet that dries. The flats of mud and sand are extensive off this section of coast and the roadstead outside is used by vessels trading here. The Taito Kei, which finds its outlet to the sea 9 miles north-north-eastward of Rokan, is also blocked by silt, and cannot be navigated except by bamboo rafts, which communicate with vessels lying offshore, or by very small boats. The village of Takutsukuru (Tokat-kut) is on the north side of the river entrance. Small boats can use the waterway for a distance of about 10 miles from its mouth. For about 8 miles northward of the Taito Kei the shore is subject to heavy surf and landing would be extremely difficult, except at the newly-constructed port of Gosei (Kochiye) (24°15′N., 120°31′*E*.) $3\frac{1}{2}$ miles south of the entrance to the Taiko Kei. This new port, according to reports, is expected to open to traffic in August of this year (1944) (*see I.S.T.D. Report, F*.387, *PORTS*: *Gosei*).

The Taian Kei enters the sea about $12\frac{3}{4}$ miles north-north-eastward of Tokatsukuru (Tokat-kut). The coastal bank dries out for only about half a mile here, and there is a channel across it, marked by stakes. The village of Taian is on the south side of the river entrance. Small boats may be able to reach the village at H.W., but no information is available.

TAIAN KAN TO KOTSUKAN (KYOSEKI KO) (25°5′*N*., 121°10′*E*.)

For 6 miles north-north-eastward of the mouth of the Taian Kei the shore is low, backed by a level plain through which a number of streams flow out to the sea. About 8 miles to the eastward of the Taian Kei is Hoyen San (Hue-iam-sua) (2008 ft.) which forms the southern end of a range extending northward to the coast. Continuing north-north-eastward from the mouth of the Taian Kei the shore is broken by the Tsusho Keo, which can be entered by junks at H.W. About half a mile up the river is the village of Tsusho (Tsnshosho) on the right (north) bank of the river on the southern slopes of Koto San (303 ft.). In form, Koto San resembles the head of a tiger.

A range of hills follows the coast to the entrance of the Koryu Kei (Au-Lieng-kei). The shore throughout is sandy, with possibly some pebbles, and landing should be possible on the greater part of a front of about 8 miles (*Beach* 19). There are boulders at the north and south ends of this front and a patch of bouldery shore at the centre.

The mouth of the Koryu Kei (Au-Lieng-ke) is entirely occupied by a sandbank which dries about 9 ft. Junks are able to enter the river at H.W. The town of Koryu (Auran) is on the right (north) bank of the river, about 2 miles upstream, and landing may be possible here, but no details are available. Vessels trading here anchor off the mouth in the open roadstead (Koryu Road, Koryu Hakuchi or Auran Road) in depths of 4 to 8 fathoms.

Between Koryu Kei (Au-Lieng-ke) and the mouth of the Chuko Kei (Tiong-kang-ke), 5 miles north-eastward, the shore is mostly low and sandy, with boulders. Landing may be possible in places, especially about half-way, where an unmetalled road leads south-eastward from the shore to Koryu (Auran). A single-track branch of the railway (*see I.S.T.D. Report, F*.385, *Railways, Route* 5) runs near the northern section of this front (*Beach* 20).

At the mouth of the Chuko Kei (Chunkan kee, Tiong-kang-ke) is a bar that dries, but there is a narrow channel over it which, though it changes, enables small craft to enter at from half to high tide. Off the river mouth is the open roadstead known as Chunkan Road (Chuko Hakuchi) which affords temporary anchorage with depths of 5 fathoms about $\frac{1}{2}$ mile off the bar, but holding ground is not good and there is no shelter except from easterly and southerly winds. On the south side of the river entrance is Ipo San (205 ft.) and $1\frac{1}{2}$ miles westward of Ipo San is another hill (172 ft.) with red cliffs and a sharp summit. Both hills form conspicuous landmarks.

From the mouth of the Chuko Kei (Tiong-kang-ke) the coast trends north-north-eastward for 11 miles to the Kyuko (Kukan) Kei. Along this stretch the whole shore is sandy, except for occasional rocky or bouldery patches. Backing the shore are a succession of plains and hills, the principal hill formation being in the middle. Several streams flow out along this front, the most important being the Ensui Kei (Yamutsuikan) with the village of Yamutsuikan (Iamtsui-kan) at its mouth. For about $2\frac{1}{2}$ miles northward of this river mouth the road (*Route* 1) and railway (*see I.S.T.D. Report, F*.385, *Railways, Route* 1) run close to the shore and, although the coast is fronted by a bank of sand and possibly mud, landing should be possible in fair weather (*Beach* 21).

The Kyuko (Kukan) Kei (Tau-chieng-ke) and the Hozan Kei (Hong-sua-ke) have a common estuary which is entirely silted up except for one narrow channel which can be used by small craft at from half to high water. The village of Kyuko (Kukan) is on the north side of the mouth of the Kyuko Kei (Tau-chieng-ke). The red brick Customs office here is conspicuous (*Landing* 22). The town of Shinchiku (Shinteku) is about 3 miles to the south-eastward.

For the next $19\frac{1}{2}$ miles north-north-eastward from Kyuko (Kukan) to the entrance to Kotsukan (Kyoseki Ko or Ko-tsu-kang) the shore is sandy, broken in several places by rivers and streams and drying out to a sand (and possibly mud) bank, varying in width from about 400 to 1000 yds. Behind the southern end of this front is Table Hill (Koshiko San) which is grass-covered, has a flat summit, and is a conspicuous feature of an otherwise low coast, which is backed by a low-lying cultivated plain.

Ammokantsun (Komo Ko) and Kantotsukan (Kantoseki Ko or Kantau-t'su) about $1\frac{1}{2}$ and 7 miles north-north-eastward of Table Hill are small harbours in the mouths of rivers, but they are available only for junks. Both are silted up, and even at H.W. entrance would probably be difficult.

Pakusa Point (Hakusha Ko or Paq-sua-tun) (25°03′*N*., 121°04′*E*.), 14 miles north-north-eastward of Kyuko (Kukan) is an almost featureless point on which there is a lighthouse, and a grassy sandhill 62 ft. high. Between Pakusa Point (Hakusha Ko or Paq-sua-tun) and the northern end of this front, the shore is backed by sandhills, some of which rise to a height of 130 ft. Landing should be possible on most of this stretch, but probably at from half to high tide only (*Beaches* 23 *and* 24).

Kotsukan (Kyoseki Ko or Kotsu-kang) at the northern end of this section of coast is a small junk harbour, available only at H.W. The mouth of the river forming the harbour practically dries out at L.W.

KOTSUKAN (KYOSEKI KO OR KOTSU-KANG) TO FUKI KAKU (PUKI KAKU) (25°18′*N*., 121°32′*E*.)

Between Kotsukan (Kyoseki Ko or Kotsu-kang) and Nankankan (Nankan Ko), $4\frac{1}{2}$ miles east-north-

eastward, the coast is low and sandy throughout, but for the first 3½ miles it is broken by a number of rivers and streams, and fronted by sandbanks and rocks which are subject to a run of surf. For the last mile, however, the sandy shore appears to be clear, except for a boulder about mid-way, and landing should be possible (*Beach* 25). Nankankan is at the mouth of a river which is used by junks as a harbour, at H.W. only.

For over a mile eastward of Nankankan the shore is encumbered by boulders; this is followed by about 1 mile of clear, sandy shore (*Beach* 26).

The shore for the next 5 miles east-north-eastward is of sand and boulders (*Beach* 27), backed by a plateau which rises rapidly from the coast. Thence to the entrance of the Tansui Kei (or Tansui-ho) there is a clear, sandy shore, with isolated sandy shoals in the approaches, backed by sand-dunes and a flat, coastal area (*Beach* 28).

At the entrance to the Tansui river is a bar, with a channel across it. The port and town of Tansui is about 1400 yds. upstream, on the right (north) bank, and, owing to the silting-up which is taking place, is only available to small vessels (*see I.S.T.D. Report, F.*387, *PORTS*: *Tansui*). Taihoku, the capital of Formosa, is about 9 miles upstream, but it is not known whether boats are able to reach this point. The depths in the entrance to the river change every time the river is in flood, and the bar tends to become shoaler in winter. In 1932 there was a least depth of 8 ft. in the fairway of the entrance channel, but this may have since changed. Kannon (Kanin) San (Kuan-im-Sua) (1986 ft.), on the south side of the entrance to the river, forms a good mark for navigation.

On the north side of the entrance to the river, there is a beach of white sand on which landing should be possible at from half to high tide (*Beach* 29). Below half-tide line the foreshore merges into mud which is sticky and extremely difficult to negotiate. Backing this beach is the sandy spit which forms the northern entrance point to Tansui Ko (Tansui-Ho), the river estuary. On the spit are sand-dunes and scrub. Around the point itself the sandy shore is fronted by a boulder-strewn area.

On the north side of the spit is another small beach of good sand and some boulders, with a steeper inshore gradient where landing should be possible in fair weather, at all states of the tide, but probably best at around slack water, owing to the strong tidal streams in this vicinity (*Beach* 30). With a westerly wind it is unlikely that this beach could be used. To the north-east of the beach is a stream with paddy fields on its banks.

From Beach 30 to Fuki (Puki) Kaku (25°18′*N.*, 121°32′*E.*), a distance of about 10½ miles, the shore is composed of sand and pebbles, fringed by a reef which extends offshore as much as ½ mile in places. There are strong tidal streams in this area, with considerable tide-rips off Fuki Kaku. Backing this shore are low hills, with a mountain range beyond. Fuki Kaku, the northernmost point of Formosa, is low, with a rocky shoal extending for about a quarter of a mile from it. There is a small beach between rocks on the western side of the point, but a boat could only approach during calm weather. There is a lighthouse (an octagonal iron tower 100 ft. high) at the point.

North coast: Fuki Kaku (Puki Kaku) (25°18′*N.*, 121°32′*E.*) **to Samucho Kaku** (25°00½′*N.*)—approximately 45 miles of coastline.

(*Plans* 5, 8, 9, 16; *Admiralty Charts* 1986, 3658, *F*0446; *Maps A.M.S. L.*592, *Sheet* 1; *Photograph G.*5.)

The north coast of Formosa is much indented with small bays, and is rocky generally with many off-lying islets and rocks. There are sandy beaches in some of the bays, which can be approached in good weather, but all are open to north and north-east.

Fuki Kaku to Kiirun (Keelung) Harbour (25°09′*N.*, 121°44′*E.*)

From Fuki Kaku to a small bay about 7 miles south-eastward the coast is rocky throughout. Backing the shore are hills, with the mountain range beyond. Several narrow valleys, through which flow small, swift streams, open out to this coast. Where these valleys open out there may be places where boats could get in, during calm weather, with access to the coast road, but this coast cannot be considered as generally suitable for landing. The small bay eastward of this section is enclosed on the east by Shishito Bi (Chiek-tai-su), a cliffy point, close eastward of which is Double Rock (Shokudai Sho), 77 ft. high. A line of reef extends eastward from the rock. At the head of the bay is a sandy beach (*Beach* 31) and landing should be possible here at a front of about 1800 yds. At the eastern end of the beach, on the southern side of Shishito Bi (Chiek-tai-su), is a small harbour where small vessels, with local knowledge, can take refuge. At the mainland end of Shishito Bi is a round-topped hill (247 ft.), with the small town of Kimpori (E-tiong-ko) close at its base.

Between Shishito Bi and Yali (Yaryu Hanto) peninsula, 3 miles to the south-eastward, is Masu Bay (Yaryu Wan). Yali Peninsula ends in a steep, sandstone point known as Kutau Pii (Ia-liu-kaq), with rocks extending from it. The peninsula is fringed with reef and rocks on both sides, its centre being formed by a hilly ridge. At the head of Masu Bay is a long, sandy beach, with a coast road running close behind it (*Beach* 32). Landing should be possible here on a front of nearly 2 miles, and small vessels could anchor in the bay, with a certain amount of shelter.

Immediately eastward of Yali Peninsula is another small bay with a sandy beach at its head (*Beach* 33) about 2000 yds. long. The road from Kiirun (Keelung) to Tansui (*Route* 2) runs close behind the beach with hills beyond. The beach is broken at its centre by a small stream. A short distance up this stream is the village of Mari (Ma-lat-kang-kau). Eastward of this to Banjintai Bi (Ban-lang-tui-pi), the western entrance point to Kiirun Ko (Keelung Harbour), the shore is entirely fringed by reefs and rocks, which in places extend as much as 400 yds. offshore, backed by hilly land behind. The point of Banjintai Bi (Ban-lang-tui-pi) is conspicuous by the peculiar-shaped sandstone rocks lying close off it, and by the patches of stratified, perpendicular cliffs on its seaward side. About 2½ miles northward of Banjintai Bi are two rocky heads, known as Shin Ro, with a depth of 3 to 3¼ fathoms over them. In 1936 a breakwater was under construction at Banjintai Bi.

Kiirun (Keelung) is the principal port of Formosa (*see I.S.T.D. Report, F.*387, *PORTS*: *Kiirun*). It is entered between Banjintai Bi (Ban-lang-tui-pi) and the rocky islets on the eastern side of the harbour entrance, known as Toban Sho. These islets are surrounded by coral reefs and on the northern side there is foul ground for 300 yds. offshore. Close eastward of Toban Sho are the islands of Shanjo To (Sia-hau-to) and Chu San, which are connected to each other by reefs. The shores of these islands are rocky and reef-fringed, with foul ground extending from them. Shanjo To is now connected to the mainland by a white stone bridge.

Kiirun (Keelung) Harbour to Peitau (Bito) Kaku (25°7½′*N.*, 121°55′*E.*)

The coast trends east-south-eastward for 8½ miles to Peitau (Bito) Kaku. This shore is generally rocky and indented in the form of small bays, separated by rocky headlands, and backed by high land. The first bay eastward of Shanjo To (Sia-hau-to) is Hatto Ko, which is entered between Mubiko Bi and Rokokei Kaku. It is open to the northward and is much encumbered by rocky shoals. The east side of the bay is formed by an island which is connected to the mainland by what appears to be a causeway. The easternmost point of the island is Kensau Kaku.

The shores of the bay are mostly reef-fringed, but there are sandy patches. The approaches, however, are so much beset by rocks and shoals and the exits are so poor as to make landing impracticable. The next bay eastward between Kensan Kaku and Hwan-ao-Pii, $1\frac{1}{4}$ miles distant, is completely fringed with reef and rocks, with no sandy beaches, and backed by hills, which, in places, fall steeply to the shore.

Hwan-ao Pii forms the western entrance point to Chimuo Wan (Sin-o-wan), a small bay with reefs extending from both entrance points. In approaching Chimuo Wan (Sin-o-wan), a round-topped summit (1939 ft.), about 1 mile east-south-eastward of the eastern entrance point of the bay, forms a conspicuous landmark. The shores of the bay are fringed by reefs and rocky points, with sandy patches between. On the west and south-west shores, respectively, are two short sandy beaches, where landing would be possible (*Beach* 34), and vessels with local knowledge can anchor in the centre of the bay in depths of 6 to 7 fathoms, with shelter from all quarters except north-east. A mole and timber-built pier are reported to have been constructed in this bay for the export of ore, but no details are available.

From Chimuo Wan (Sin-o-wan) to Peitau (Bito) Kaku, $5\frac{1}{4}$ miles eastward, the shore is rocky, with small indentations, and landing would not be possible. In places along this stretch of coast the hills fall steeply to the sea. Between them small streams flow out and, although there may be short patches of sand, the approaches generally are too rocky to permit landing. Peitau (Bito) Kaku is a steep, cliffy headland, 394 ft. high, and, approaching from seaward, has the appearance of an island. On the north-west side of the headland is the small fishing village of Pei-tau (Bito), with a small boat harbour (*Landing* 35).

PEITAU (BITO) KAKU TO SAMUCHO (SANCHO) KAKU ($25°00\frac{1}{2}'N.$, $122°00'E.$)

From Peitau (Bito) Kaku the shore trends south-eastward for 8 miles to Samucho (Sancho) Kaku, the north-easternmost point of Formosa. For the first $5\frac{1}{4}$ miles to Yamuryo the shore is reef-fringed or bordered by rocks and shoals for some distance offshore. At Yamuryo there is about 2500 yds. of good, sandy beach stretching southward to the mouth of a river (*Beach* 36). The beach is fully exposed to the north-east, and may be subject to a heavy run of swell and surf in the north-east monsoon. From the river mouth to Samucho (Sancho) Kaku the coast trends eastward and is cliffy and rocky, with high land behind falling steeply to the sea. Samucho Kaku rises to a plateau on which is a sharp peak (546 ft.). This peak, and the mountain summits westward of it, are conspicuous from seaward. At the base of the headland is a rocky ledge, which extends for about 400 yds. offshore. There are tidal races off this shore, and the inshore approaches are dangerous. The lighthouse on Samucho (Sancho) Kaku is a white, circular, concrete structure. In the north side of the headland is a small bay, Uo Wan, at the head of which is the village of Uo (Bau-o). Small vessels could shelter here, during westerly winds; depths decrease gradually to the head of the bay from 11 fathoms at the mouth. Landing may be possible here from boats, but the exits are poor, the country behind being wild and mountainous.

South Coast: Nyopii Taa (Byobi-to-Saki) ($21°55'N.$, $120°44'E.$) **to Garan Bi (Garambi)** ($21°54'N.$, $120°51'E.$)—approximately 12 miles of coastline.

(*Plans* 5, 6, 10, 12; *Admiralty Charts* 1968, *F*.0443, *F*.0444; *Maps A.M.S. L*.592, *Sheet* 15; *Photographs G*.6-7)

The short south coast of Formosa is entirely taken up by the bay of Nan Wan (Lam-uan). The shores of the bay are mostly fringed by coral reef, with some sandy beaches at the head. There are numerous off-lying dangers in the bay in the form of rocks and shoals, and also patches of foul ground close inshore.

Nyopii Taa (Kokushoku Kaku or Byobi-to-Saki) is the southern extremity of a hilly promontory and the south-westernmost point of Formosa. From here the shore of the bay trends north-north-eastward for about 3 miles to its head. For the first $2\frac{3}{4}$ miles the coast is steep with a reef-fringed base and many off-lying rocks, both above and below water. This is followed by two short beaches (*Beach* 37) separated by $1\frac{1}{4}$ miles of reefs. The western of these is about $\frac{1}{4}$ mile long and probably consists of sand or sand and pebbles. It is backed by the Garan Bi-Koshun road (*Route* 28), and the village of Toapanra (Daihanratsu), which is the working base of a whaling company. The eastern beach, 1 mile eastward, is at least 600 yds. long and is probably of firm sand. There are dangerous reefs at both ends and shoals and rocks in the approaches. The Garan Bi-Koshun road (*Route* 28) runs parallel to the shore at a distance of 350 to 750 yds. from it. The country inland is hilly.

From the eastern beach the shore trends south-eastward to Garan Bi. It is reef-fringed, fronted by dangers throughout, and backed by hills which decrease in height towards the cape. Garan Bi (Garambi) is a low headland, fringed with coral reef and with a dense covering of scrub. There is a white circular, stone lighthouse on the point.

East Coast: Garan Bi (Garambi) ($21°54'N.$, $12°51'E.$) **to Samucho (Sancho) Kaku** ($25°00\frac{1}{2}'N.$, $122°00'E.$)—approximately 225 miles of coastline.

(*Plans* 5, 8-10, 12, 13, 17-19; *Admiralty Charts* 1968, 3658, *F*.0446, *F*.0444; *Maps A.M.S. L*.592, *Sheets* 5, 12-15; *Photograph G*.20)

The east coast of Formosa has few indentations and is for the most part steep-to and high, except where there are coastal plains at the mouths of valleys, as at Taito, Karenko and Giran. On this coast the mountain ranges fall steeply to the sea, in some places from heights of 3000 ft. During the north-east monsoon, especially between November and the end of February, there is usually a heavy sea along this coast, with a considerable run of surf in many places.

GARAN BI (GARAMBI) TO TAITO ($22°45'N.$, $121°09'E.$)

Between Garan bi (Garambi) and Koko bi (Kankau Pii), 6 miles northward, is the bay of Koko Wan which affords anchorage during south-westerly winds only. The shores are high, reef-fringed and rocky, with some isolated off-lying rocks and shoals. The Koko Kei (Kang-kau-ke) finds its outlet in the north-west corner of the bay where a narrow, steep valley opens out to the sea. Small craft may be able to enter the river at towards H.W. and to ascend to Koko village, on the left bank, about $\frac{3}{4}$ mile upstream (*Landing* 38). At the mouth of the river there is also a short, sandy beach which could possibly be used for landing in fair weather conditions, but with any easterly wind there is probably a run of surf.

From Koko bi (Kankau Pii) to Shuppu bi (Tsupon Pii or Tsut-hong-pe), $2\frac{1}{4}$ miles north-north-eastward, the mountains rise sharply from the shore, which is steep-to. Gullies, through which flow mountain streams, open out along this shore, but there are no landing places. Shuppu bi (Tsupon Pii or Tsut-hong-pe) is formed of high cliffs and is conspicuous for some distance from seaward. Rocks lie off this headland, but there is deep water close inshore.

From Shuppu bi (Tsupon-Pii or Tsut-hong-pe) to Nanjin bi (Namjinbi), 4 miles northward, the high and rocky coast continues, broken by a few mountain streams and with stretches of steep sandy or pebble and sand beaches. There is deep water close inshore throughout this section. Around Nanjin bi (Namjinbi) are cliffs, and close off this headland is a small islet and rocks.

Nanjin bi forms the southern entrance point of Hachiyo Wan (Paayo Wan or Pueq-io-wan), with Koshi bi (Kang-a-pi), $2\frac{1}{4}$ miles northward, as the northern entrance point.

Hachiyo Wan (Paayo Wan or Pueq-io-wan) is a slight indentation only, but, with offshore winds, small ships could anchor here in depths of 7 to 8 fathoms. The head of the bay has a sandy beach, 3000 yds. long (*Beach* 39), where, with offshore winds, landing should be possible. Surf conditions may exist here, but no details are available. The mouth of a steep valley backs the beach, with mountains close behind. A stream flows out through the valley and across the beach. The track from the south also descends this valley to the coast and leads northward. Koshi bi is fringed with rocks to a distance of about 500 yds. offshore.

Between Koshi bi (Kang-a-pi) and Kannon Bi (Kuan-im-pi), $5\frac{3}{4}$ miles northward, the shore is composed principally of cliffs, with the high land falling steeply to the sea. There are sandy patches and coarse shingly beaches with deep water close in, but no practicable landing places.

The high, steep-to shore continues north-north-eastward until the coastal plain on which Taito is situated is reached. A coastal track follows the shore to Taito. A number of mountain streams break this section of the coast, and $7\frac{1}{2}$ miles north of Kannon Bi (Kuan-im-pi) the Taibu Kei (Daibu ke) enters the sea at the mouth of a valley. Taibu (Daibu), the seat of government for the district, is about $\frac{1}{2}$ mile southward of the river entrance.

At the mouth of the river is a short, sandy beach, backed by the mouth of the valley behind, in which there is cultivation, including paddy fields. Landing here would appear to be of little practical value, owing to the poor exits, and the rocky and inhospitable nature of the hinterland.

About $15\frac{1}{4}$ miles north-north-eastward of the Taibu Kei (Daibu Ke), the Tomari Kei (Tai-ba-li-ke) flows out. There is a beach of sand, or sand-and-mud, fronting the river mouth, with cultivation, including paddy, in the mouth of the valley behind. The village of Tomari (Daimari) stands on the lower slopes of the range, about 1 mile north of the river mouth. About $8\frac{1}{2}$ miles south-west of Taito light, the mountain range recedes inland for a short distance, leaving a small coastal plain. From here a sandy shore extends north-eastward to about $2\frac{1}{2}$ miles beyond Taito light, and landing should be possible here when surf permits (*Beach* 40).

The beach is broken by several streams, and northward of the town it is backed by lagoons. The coast here is generally steep-to, and there are depths of over 40 fathoms $\frac{1}{2}$ mile offshore. There is only one small area up to 600 yds. offshore immediately off the town, where depths are suitable for anchoring. There is nearly always a heavy surf on this shore and landing, though possible, needs the greatest care at all times. There is a timber-built jetty which can be used only by small craft. The tidal streams are affected by the direction of the wind but the rate of stream is never great.

Taito to Karenko (23°59′*N*., 121°37′*E*.)

North-north-eastward from Taito, the coast is high, for the most part steep-to, with many rocks close inshore. The shore at the base of the coastal range is rocky and cliffy in places with steep beaches elsewhere. Breakers are encountered off this shore and there is a run of surf. There are no suitable landing places until Shinko (Mararao or Sin-kang) is reached. Here shelter is afforded from the north-east by a reef with rocks on it, which extends southward for 600 yds. from a rocky point known as Kayakai Bi. The rocks on the reef are above water, except for the most southerly one, which is awash, and, together with the reef, they form a natural breakwater. Westward of the reef, vessels with local knowledge can find anchorage in a depth of about 17 fathoms over sand and rock, about $\frac{1}{2}$ mile offshore. About 1400 yds. south-westward of Kayakai Bi, and approximately 500 yds. offshore, is a rock with $1\frac{3}{4}$ fathoms over it. Between the two is a sandy beach which affords safe landing (*Beach* 41). On the western side of Kayakai Bi a small harbour for fishing craft has been constructed. It is formed by two breakwaters, each about 200 yds. in length, with an entrance between them about 50 yds. wide. Within the breakwater is a least depth of 12 ft. An oil tank and an abattoir on the west side of the harbour are conspicuous. The harbour might be used by landing craft in conjunction with the beach.

There is a steep and rock-strewn coast between Kayakai Bi and Sasendai (Sa-sian-tai) an islet lying close off a point, $2\frac{1}{4}$ miles north-eastward. Sasendai (Sa-sian-tai) is conspicuous by its three rocky peaks, the middle one being 239 ft. There is no passage between the islet and the mainland.

About 2 miles northward of Sasendai (Sa-sian-tai) is Seiko o Hakuchi, a small cove which is encumbered with reefs. Owing to the reefs at the entrance points, there is only a narrow passage, but small craft can enter, with local knowledge; there are depths of 7 to 8 ft. in the northern and southern corners. Temporary anchorage may be obtained in depths of 12 fathoms over sand, about $\frac{1}{2}$ mile off the entrance to the cove. Landing should be possible in the cove, with access to the coast road, but details are not available (*Beach* 42).

The coast between Seiko o Hakuchi and Karenko is generally high, with rocky points and steep, surf-beaten beaches. There are a number of rocks close inshore and several streams enter the sea. The only stream of importance is the Shukoran Kei (Sui-ko-luan-ke), 21 miles northward of Sasendai (Sa-sian-tai) islet. The entrance to this river is obstructed by sandbanks and there is usually a heavy surf, so that even small boats cannot enter. It is reported that within the bar the river averages about 200 yds. in width, for a distance of nearly 10 miles and that there are depths of over 10 ft. About 2 miles northward of the river mouth is a rocky point, Chotsui Pii (Sketikei Bi or Tsuru-no-saki) which runs out from the base of Hokutokei San (817 ft.), an isolated and conspicuous summit.

From the mouth of the Shukoran Kei (Siu-ko-luan-ke) to Karenko, about 31 miles northward, the coast is for the most part steep-to and high, broken in places by streams, but with no known practicable landing places. There are cliffs, rocks and beaches at the base of the high coast, but it is probable that surf conditions prevail along most of this shore. A poor road follows the coast to Chioq-te, from whence a track leads to Karenko.

At Karenko the high ground recedes from the coast for a short distance, and there is a small coastal plain. The land immediately behind the shore is flat, becoming undulating a short distance inland. About $1\frac{1}{2}$ miles southward of the town of Karenko, the Karen Kei (Hua-lian-ke) flows out from the south-westward, and immediately northward of the town is the mouth of the Biirun Kei (Beiron or Bi-lung-ke). At the entrance to the Karen Kei (Hua-lian-ke) is a formidable bar, on which there is usually so great a run of surf as to make it extremely difficult, if not impossible, for boats to enter. Immediately within the bar are depths of over 10 ft. Fronting the town, between the two river mouths is a beach of coarse sand and pebbles (*Beach* 43). Heavy surf is common and landing is invariably difficult, even in fair weather. The roadstead off this front is without shelter, but open anchorage is possible. North of the town is an artificial harbour which has been constructed in recent years (*see I.S.T.D. Report, F.*387, *PORTS*: *Karenko*).

Karenko to Suo (24°36′*N*., 121°53′*E*.)

The coastal plain on which Karenko stands extends northward for about 10 miles, but gradually becomes narrower. Kirai Bi (Bi-lun-pi), a bluff point about 3 miles north-eastward of Karenko, is 62 ft. high and has a square concrete lighthouse 25 ft. high.

Between Kirai Bi and the mouth of the Takkiri Kei (Tatsukui-ke), $7\frac{3}{4}$ miles northward, is a small bight in

which are depths of over 300 fathoms 1 mile offshore. The shore of the bight is sandy but it is steep-to generally and landing is not practicable.

From the Takkiri Kei (Tatsukui-ke) to Koko Bi, the southern entrance point to Suo Wan, about 29 miles, northward, the mountains fall precipitously to the sea, and there are considerable depths close inshore. In places the mountains along this coast rise from 4000 to 8000 ft. There are stretches of conspicuous red cliffs, and along the whole distance runs the Karenko-Suo road which is cut from the hillside. The only breaks in this otherwise formidable coast are where the Taiseisui Kei (Kanagan-ke), Taidakusui Kei (Tua-tak-tsui-ke) and Tainano Kei (Tua-lam-o-pak-ke) find their outlets to the sea through deep and steep-sided valleys, and a small bay north of Useki Bi (Ochioq Pii). There are sandy beaches at the valley-mouths, backed by small areas of comparatively flat land. It is not known whether landing is possible on these beaches in fair weather, but it is likely that conditions are rarely suitable. In the drier season the mouth of the Taidakusui Kei (Tua-tak-tsui-ke) is deltaic, comprising several small channels, but after heavy rains it becomes a large estuary with a swift-moving stream.

The salient features of this stretch of coast are Nanzankyaku Bi, Useki Bi (Ochioq Pii), Ugan Kaku (O-gam-kak) and Koko Bi. Nanzankyaku Bi, $8\frac{1}{2}$ miles north-north-eastward of the entrance to the Takkiri Kei (Tat-su-kui-ke), is a rocky point, backed by a mountain which rises abruptly to a height of 4536 ft. Useki Bi (Ochioq Pii) is a narrow projection of rock, $14\frac{1}{2}$ miles north-north-eastward of Nanzankyaku Bi. On its seaward end is a cone-shaped hill (300 ft.) which appears as an island, when approaching from the northward. Between Useki Bi (Ochioq Pii) and Ugan Kaku (O-gam-kak) (3 miles to the northward) is a small bay with a sandy beach at its head (*Beach* 44). It may be possible to land here in calm weather, with access to the coast road but there is little information available. Ugan Kaku (O-gam-kak) is a promontory, close off which there are several rocks.

Koko Bi (Kaukau Pii), $2\frac{3}{4}$ miles northward of Ugan Kaku (O-gam-kak), is a rocky point, forming the southern entrance point to Suo Wan. A rocky ledge extends from it, and there are off-lying rocks. The northern entrance point of Suo Wan is Hokkaku, a rocky point, with a hill behind rising to 380 ft. The point is fringed with dangers, including Sansentai (Sa-sian-tai), a group or rocks immediately eastward.

Suo Wan is the only good natural harbour on the east coast of Formosa. There are beaches on the north, west and south shores, together with a small, artificial harbour in the south-east corner (*see I.S.T.D. Report, F.*387, *PORTS*: *Suo*). The town of Suo is a short distance up the Shuto Kei, which flows out at the head (west shore) of the bay. At H.W. small craft can enter the river and ascend to the end of the road (*Route* 35) and railway (*see I.S.T.D. Report, F.*385, *Railways, Route* 2).

SUO TO SAMUCHO (SANCHO) KAKU ($25°00\frac{1}{2}'N.$, $122°00'E.$)

Northward of Hokkaku to Samucho (Sancho) Kaku, 29 miles distant, the coast takes the form of a bight, the southern half of which has a sandy shore, backed by sand-dunes, beyond which is a cultivated coastal plain (*Beaches* 45, 46 *and* 47). Along this southern section of the bight a number of streams flow out, the principal being the Buroko Kei (Bu-lau-ke-ke), Toko Ko and Toi Ka (Tau-iu-tsui). The mouth of the Buroko Kei (Bu-lau-ke-ke) is narrow and shallow, but small shallow-draught craft may be able to enter at H.W. Toko Ko is the joint estuary of three rivers, the Tozan Kawa (Tang-sua-tsui), Dakusui Kei and Giran Kawa (Giran Kei). The estuary is reported to be about 200 yds. wide, with depths of about 2 to 3 ft. The position of the mouth, together with the depths, are often changing as a result of floods or the action of the sea. Junks enter the estuary at H.W. and ascend to Toko (Ro-au) village, about $\frac{3}{4}$ mile up the Giran Kawa (Giran Kei). A flat-topped sand-dune on the northern side of the entrance is a good recognition mark. The masts of junks at anchor inside the river should also help in identifying the approach. The Toi Ka (Tau-iu-tsui) enters the sea about 8 miles northward of the Toko Ko estuary. There are depths of 1 to 2 ft. in the entrance, but because of the heavy run of surf and the strong stream it is difficult for junks to enter even in fine weather and at H.W. The town of Toi is about $\frac{3}{4}$ mile up the river.

At the northern end of the bight, from a short distance northward of the mouth of the Toi Ka (Tau-iu-tsui) the mountains again approach the coast, which continues steep and rocky for the remaining 14 miles to Samucho (Sancho) Kaku. A few streams break the shore where narrow valleys or gullies open out to the sea but there are no places where landing would be practicable.

Samucho (Sancho) Kaku is the north-easternmost point of Formosa.

(b) BEACHES AND LANDING PLACES

(*Plans* 5-19; *Admiralty Charts* 1968, *F.*0443, 2409, 3658, *F.*0446, *F.*0444; *Maps*: *A.M.S. L.*592, *Sheets* 1, 4, 5, 11-15; *Photographs G.*6, 7, 12, 13, 15-19)

The beaches and landing places around the coast of Formosa are all more or less restricted by weather conditions, in some instances by ocean currents and tidal streams, and by the limitations of the exits.

It is essential that the section on 'Climate' (*see I.S.T.D. Report, F.*382) should be consulted for weather conditions as affecting landing operations. Details of tidal streams and currents are given under 'General' at the beginning of this coast report.

Note: In the absence of contacts with a knowledge of the coast of the island of Formosa, and of air cover (except for a few short sections), this coast report has been compiled from a study of existing maps and charts (both British and Japanese).

The coast of Formosa is dealt with in the following order: West, North, South, East, being in the same direction as shown in *China Sea Pilot, Vol. III*, except for the south coast.

No. 1 Beach: Hakusha Ko

($21°56'N.$, $120°42\frac{1}{2}'E.$; *wL.*7616, *Sheet* 15, *at centre*; *Plans* 5, 6, 12)

Location and general nature. At the head of the small bay of Hakusha Ko, $1\frac{1}{4}$ miles northward of the south-westernmost point of Formosa is a white, sandy beach, where landing should be possible in calms or with offshore winds.

Suitability for landing. Suitable for infantry and light arms, and possibly light M/T.

Dimensions. Length about 400 to 500 yds., and probably narrow.

Gradient. There are charted depths of 10 ft. in the centre of the bay, with gradual inshore gradient. The 10-fathom line lies about 900 to 1000 yds. offshore.

3-fathom line to L.W. line (very approximately), 400 yds.=1:66 average, but probably considerably steeper close inshore.

Approaches. A rock, with a depth of 18 ft. over it, lies about $\frac{1}{2}$ mile southward of Hakusha Bi (the northern entrance point to the bay) and about 600 yds. offshore. Otherwise the approaches appear to be clear for boats or landing-craft.

The hill (407 ft.) on the northern side of the bay should assist in identifying the bay.

Tides. Springs rise about 3 ft., neaps 2 ft. Mean sea level about 2 ft.

Exits. About 200 yds. behind the beach is a narrow track leading to a narrow road about 500 yds. eastward. This road joins a wider road leading north-

eastward to the main Koshun-Garan Bi road (*Route* 28).

Hinterland. High ground north of the bay commands the beach. Backing the beach is a small settlement with cultivation around it, probably mixed. The road passes through undulating cultivated land, including a fair proportion of coconut palms.

Local resources. Information required.

No. 2 Beach: Jinkoshi
(21°59′*N.*, 120°42½′*E.*; *wL.*7622, *Sheet* 15; *Plans* 5, 6, 12)

Location and general nature. In the small cove of Jinkoshi, boats can land in fair weather or with offshore wind.

Suitability for landing. Could possibly be used for a small party of infantry only.

Dimensions. Length about 200 yds. Width unknown.

Gradient. No data available, but landing at all states of the tide may be possible. There are charted depths of 6 fathoms and over just off the mouth of the cove.

Approaches. The approaches appear to be clear but would probably be very difficult for boats or landing craft with westerly winds, or when a swell is running.

Tides. Exact information not available, but springs probably rise about 3 ft. and neaps 2 ft.

Exits. A track leads east-north-eastward to Koshun, about 4000 yds. distant. A narrow road or track also leads northward and southward along the coast.

Hinterland. The shore is backed by the small village of Jinkoshi (Sim-kong-tsui) with low hills around. Eastward of the hills is the plain on which stands the town of Koshun.

Local resources. Information required.

No. 3 Beach: Kowanshi
(22°2½′*N.*, 120°41½′*E.*; *wL.*7427, *Sheet* 13; *Plans* 5, 6, 13)

Location and general nature. Sandy beach at the head of Kowanshi Cove, where landing should be possible in fair weather.

Suitability for landing. Owing to the narrow entrance there would appear to be no room for manoeuvring other than a few craft landing a small force of infantry.

Dimensions. Length about 300 yds. Width not known.

Gradient. Fairly steep inshore gradient. There are charted depths of 5 fathoms in the entrance to the cove and about 400 yds. off the beach.

Approaches. Reefs extend from the shore on both sides of the entrance, leaving a channel barely 100 yds. wide. The outer approaches are clear. Ki San (Kisan), a dome-shaped hill (241 ft.) on the north side of the cove, should assist as a landmark.

Tides. Exact data not available but the estimated rise of tide is about 3¼ ft. at springs and 2 ft. at neaps.

Exits. The beach is backed by the village of Kowanshi (Au-uan-a), from where a narrow track leads north-eastward to the main road (*Route* 28), 1½ miles distant.

Hinterland. Behind the village (eastward) hills rise to over 200 ft., with the Koshun plain beyond. The hills are partly under cultivation, and partly wooded, with principally paddy fields in the plain.

Local resources. Water in limited quantities is available at Kowanshi (Au-uan-a) village.

No. 4 Beach: Shajo
(22°04′*N.*, 120°42′*E.*; *wL.*7531, *Sheet* 13, *at centre*; *Plans* 5, 6, 13)

Location and general nature. Beach of sand in the head of the bight between Kisan Kaku and Shajo Kaku, broken, roughly midway, by the mouth of the Shajo Kei (Shijukei). Landing should be possible in fair weather conditions, at all states of the tide.

Suitability for landing. Suitable for infantry only, owing to the lack of exits.

Dimensions. Length about 2500 yds. Width not known.

Gradient. Gradual inshore gradient, probably becoming steep close inshore.

3-fathom line to L.W. line (approximately), about 500 yds.=average of 1:80.

Approaches. The approaches are clear but surf is probably bad when the westerly swell prevails. There are depths of 6 fathoms about ½ mile offshore.

Tides. Springs rise about 3¼ ft. and neaps about 2 ft.

Exits. The main road (*Route* 28) runs parallel to this coast, at a distance of about 800 to 1000 yds. from it, but there are no known tracks or paths between the shore and the road, and cross-country movement would be necessary.

Hinterland. The slightly higher land of Shajo Kaku at the north end of the beach, and of Kisan Kaku at the south end, form commanding positions, and enfilade fire could be brought to bear on the inshore approaches. Between the beach and the road is low-lying land. Immediately behind the shore is broken, sandy ground with some coconut palms. Beyond this are a cemetery and rice fields behind the northern half, and marshy ground and rice fields behind the southern half. The village of Shajo lies close to the road at the centre.

Movement across country would probably be difficult and slow, with no cover from air observation, and, except immediately near the shore, little ground cover for troops.

East of the main road is flat paddy country, with very hilly country beyond.

A railway, reported under construction (1942), probably follows close to the main road.

Local resources. None beyond local food products.

No. 5 Landing Place: Kaiko
(22°05½′*N.*, 120°42½′*E.*; *wL.*7634, *Sheet* 13; *Plans* 5, 6, 13)

Location. At Kaiko (Hai Kau) village at the head of Kaiko Wan.

Suitability for landing. Suitable for infantry and light M/T. With some preparation it may be possible to land other arms when there is little swell in the anchorage outside.

Access. The approaches from the WNW. are clear, but northward of this line, in the middle of the bay, is Suiko Sha, a reef with a least depth of 3 ft. over it. Reefs also extend about 600 yds. north-westward and northward from Shajo Kaku, the southern entrance point of Kako Wan. The entrance to the harbour is narrow.

Nature. Small boat-harbour formed by a breakwater on the western side and a sea wall on the eastern side. The basin enclosed is about 450 yds. long, but narrow. A beach runs north-eastward from the harbour.

Depth alongside. A depth of 8 ft. has been recorded inside the basin and, if no silting-up has taken place, it would seem reasonable to estimate that a depth of about 5 to 6 ft. alongside would be available.

Tides (approx.). Springs rise 10½ ft. and neaps 7½ ft.

Exit. Backing the harbour is the fishing village of Kaiko (Hai Kau) which extends to the main road, about 200 to 300 yds. distant. A road (or track) leads from the harbour through the village to the main road (*Route* 28). The railway reported under construction (1942) by now probably follows close to the road.

Hinterland. There are trees between the shore and main road (*Route* 28) on the west side of the village and some village cultivation.

To the north-north-east of the village the main road gradually approaches the shore, with sandy un-

cultivated ground between the shore and road. Eastward of the main road the land rises rapidly to the wooded mountain range which northward converges on to the coast.

Kaiko Beach. Immediately north-eastward of the harbour is a short, sandy beach on at least 200 yds. of which it should be possible to land, with almost direct access to the main road behind. There is probably a fairly steep inshore gradient.

No. 6 Beach: Boryo (Panryo or Horyo): south beach
(22°20′*N.*, 120°36′*E.*; *wL*.6560, *Sheet* 13, *at centre*; *Plans* 5, 6, 13)

Location and general nature. Sand or sand and pebble beach, extending southward from Boryo (Panryo or Horyo), where landing should be possible when swell and surf conditions permit.

Suitability for landing. Infantry; other arms in calm weather.

Dimensions. Length about 3½ miles, and probably rather narrow above H.W. line.

Gradient. It is not possible with the data available to give an estimated gradient, but the beach is believed to have a fairly steep inshore gradient throughout.

Approaches. The approaches appear to be clear, with the 6-fathom line about 600 yds. offshore at the centre, increasing both northward and southward to a greatest distance of 1000 to 1200 yds. respectively.

Surf may be experienced along the whole of this shore, especially with a heavy westerly swell. The approaches inshore may therefore be difficult.

Tides (approx.). Springs rise about 2 ft. 6 in. and neaps 2 ft. 0 in. to 2 ft. 3 in.

Exits. Access to the main road (*Route* 28), which runs near this section of coast, should be easy. The railway reported under construction (1942) probably follows close to the road.

Hinterland. On the south end of this beach the hills recede inland in a northerly direction. Immediately backing the beach is alluvial plain, mostly under cultivation (probably chiefly paddy). Cross-country movement is likely to be difficult east of the road and very little ground cover or cover from air observation is likely to be available. Trees line the main road (*Route* 28).

Local resources. Limited supplies of water and local food produce should be available at Boryo (Panryo or Horyo).

No. 7 Beach. Boryo (Panryo or Horyo): north beach
(22°23½′*N.*, 120°32½′*E.*; *wL*.5867, *Sheet* 13, *at centre*; *Plans* 5, 6, 13)

Location and general nature. Low, sandy shore (with possibly shingle) extending north-westward from the small coastal town of Boryo (Panryo or Horyo). Landing should be possible at practically all states of the tide, in fair weather or with an offshore wind.

Suitability for landing. Infantry should be able to land along the whole front. M/T could possibly be landed at the south end near the road.

Dimensions. Length about 5 miles. Width not known. The beach is bounded on the north end by the mouth of the Rinpen Kei (Na-pe-ke), and on the south by a stream flowing out at Boryo (Panryo or Horyo). The Choku Kei breaks the beach at the centre.

Gradient. Gradual inshore gradient, but probably becoming steeper, close inshore.

3-fathom line to L.W. line, about 400 yds=1:65 at centre, but decreasing in gradient to about 1:100 in places.

Approaches. The approaches appear to be clear, but the heavy swell causes surf, when landing may be difficult.

The 5-fathom line lies about 1000 yds. off the centre of the beach.

Tides. Springs rise about 2 ft. 6 in. and neaps about 2 ft. 0 in.

Exits. The main road (*Route* 28) trends inland from the south end of the beach and afterwards runs parallel to the shore at a distance of about 2000 to 2300 yds. from it. A narrow track or path runs close behind the beach.

The railway runs close behind the southern half of the beach and thence trends inland to Kato and follows the road to Na-Pi behind the northern half of the beach (*see F*.385, *Railways*, *Route* 6).

Hinterland. The shore is backed by sand-dunes with a low, alluvial plain beyond. There is probably a certain amount of cover in trees near the shore.

Local resources. Water in limited quantities would be obtainable at Boryo (Horyo) and also at Kato, 1250 yds. inland behind the northern half of the beach.

No. 8 Beach: Rinpen Kei to Toko
(22°26′*N.*, 120°28′*E.*; *wL*. 5072, *Sheet* 13, *at centre*; *Plans* 5, 6, 13)

Location and general nature. Between the mouth of the Rinpen Kei (Na Pi Ke) and the entrance to Toko is a low, sandy shore where landing should be possible in calms, or with an offshore wind, at most states of the tide.

Suitability for landing. Suitable for infantry and light arms only.

Dimensions. Length about 5 miles. Width not known, but probably rather narrow above H.W. line.

Gradient. At the northern end the gradient is steep, becoming more gradual southward:

North end—3-fathom line to L.W. line, about 250 yds.=1:40 average, but believed to be steep close inshore.

South end—3-fathom line to L.W. line, about 500 yds.=1:85 average, but probably steeper close inshore.

These gradients must be regarded as a very rough indication only.

Approaches. The approaches appear to be clear, but surf may be heavy. The 5-fathom line lies at ½ to ¾ mile offshore for most of this front, and depths of over 50 fathoms occur within a mile off the northern end of the beach, near the river entrance.

Tides (approx.). Springs rise about 2 ft. 6 in. and neaps 2 ft. 0 in.

Exits. The only exit is by means of a track which runs behind the beach, and from which branches lead inland in two places, between lagoons to the main road (*Route* 28), 2000 to 3000 yds. inland.

Hinterland. The beach is backed for the greater part of the front by lagoons which are separated from the sea by a narrow, sandy spit, with sand-dunes and some vegetation. There is a break in the north end of the spit fronting the northern lagoon, giving entrance to a seaplane base. The country behind the lagoons is flat and cultivated, the principal cultivation probably being paddy.

River. The Toko Kei (Ai-liau-ke) can be entered by vessels drawing less than 5 ft., but at H.W. only. There is a landing place on the left (south) bank, just within the entrance. At L.W. there is barely 1 ft. of water over the bar at the river entrance.

No. 9 Beach: Toko
(22°28½′*N.*, 120°25½′*E.*; *wL*. 4776, *Sheet* 13, *at centre*; *Plans* 5, 6, 13)

Location and general nature. Between the mouths of the Toko Kei (Ai-liau-ke) and the Shimo Tansui Kei

is a short, sandy shore where landing may be possible, but surf is probably heavy.

Suitability for landing. It may be practicable to land a small force of infantry here.

Dimensions. Length about 1800 yds. Width not known.

Gradient. Gradual inshore gradient which is a little steeper at the north-western end, becoming more gradual to the south-eastward.

Off the centre of the beach, the 3-fathom line lies about 400 yds. offshore=average of 1:66. The gradient is probably steeper close inshore.

Approaches. The approaches are clear, but there are depths of over 50 fathoms about ½ mile offshore, shoaling suddenly near the coast. Surf conditions are probably frequent and heavy.

Tides. Springs rise about 2 ft. 6 in. and neaps about 2 ft. 0 in.

Exits. An earth road (*Route* 24) about 1000 yds. inland, gives access to Heito northward, and to the Hosan road (*Route* 26). Movement between the beach and the road would be difficult owing to swamp.

Hinterland. Backing the beach is a swampy area for about 1000 yds. inland, across which going would be difficult, and in the wet season movement is likely to be impossible. Troops could possibly move along the shore to the north-westward and up the bank of the Shimo Tansui Kei, in this way reaching the road, but exact information is not available. Beyond the marshy area is cultivated land.

Local resources. None near the beach, but limited supplies of food and water should normally be available at Toko.

No. 10 Beach: Hobi To: south beach
(22°29½′*N.*, 120°22′*E.*; *wL.* 4277, *Sheet* 13, *at centre*; *Plans* 5, 6, 13)

Location and general nature. Stretching south-eastward from Hobi To is a sandy beach on which landing may be possible at most states of the tide, when surf conditions permit.

Suitability for landing. Infantry and, in calms, possibly light M/T.

Dimensions. About 5000 yds. long. Width not known.

Gradient. Gradual inshore gradient, probably becoming steeper close inshore.

3-fathom line to L.W. line, about 600 yds. at centre=average of 1:100.

Approaches. The approaches are clear of dangers, but breakers are common, and the run of surf is likely to be particularly severe at the north and south ends. The 5-fathom line lies about 1100 yds. offshore.

Tides. Springs rise about 2 ft. 6 in. and neaps about 2 ft. 0 in.

Exits. For a front of 1500 yds. at the north-western end an improved road runs parallel to the shore at a distance of about 600 yds. inland (*Route* 27). Southward of this the road trends inland to a distance of over a mile from the coast. A path leads inland from the south-eastern end of the beach to the road. Movement from the beach to the road should present no difficulty for troops.

Hinterland. The shore is fringed with trees, including a good proportion of coconut palms. Beyond the road is a flat plain, much of which is under cultivation. There is a small village, Chukomon (Kang-a-po), on the shore near the north-western end of this front.

Local resources. None near the beach, beyond a limited supply of timber for felling.

No. 11 Beach: Hobi To: north beach
(22°31′*N.*, 120°20½′*E.*; *wL.*3781, *Sheet* 13, *at centre*; *Plans* 5, 6, 13).

Location and general nature. Sandy beach extending north-westward from Hobi To. Landing should be possible at all states of the tide when swell and surf conditions permit.

Suitability for landing. Suitable for infantry and light arms only.

Dimensions. Length 3000 yds., and generally narrow above H.W. mark.

Gradient. Gradual inshore gradient, probably becoming steeper close inshore.

3-fathom line to L.W. line, about 750 yds.= average of 1:125. This is not considered likely to give a true indication, however, as changes are constantly taking place.

Approaches. The approaches appear to be clear, but the coast is fully exposed to swell and surf is prevalent. The 6-fathom line lies about 1 mile offshore.

Tides. Springs rise about 2 ft. to 2 ft. 6 in.

Exits. An improved road runs parallel to this shore at a distance of 400 to 500 yds. from it (*Route* 27). The road trends inland in a northerly direction from Dairinpo (Tairimpo), near the north-western end of the front, and affords access to the town of Hosan.

Hinterland. The small village at Hobi To backs the south end of the beach, and behind the northern end is the village of Dairinpo (Tairimpo). A ridge of low hills runs northward from Hobi To to Hosan. Westward of the ridge is a coastal plain, much of which is under cultivation, including paddy fields. Exact data are not available.

Local resources. None of importance near the shore. At Hosan general supplies should be available in limited quantities.

No. 12 Beach: Takao
(22°34′*N.*, 120°17½′*E.*; *wL.*3386, *Sheet* 13, *at centre*; *Plans* 5, 6, 13)

Location and general nature. Sandy shore fronting the chain of lagoons that stretches south-eastward from Takao port. If the surf is not heavy, landing should be possible at all states of the tide.

Suitability for landing. Owing to the poor exits, this beach would appear to be of little value for other than infantry.

Dimensions. Length about 6 miles. Width narrow.

Gradient. Gradual inshore gradient, probably becoming steeper close inshore.

3-fathom line to L.W. line, about 600 yds.= average of 1:100.

The gradient along this shore varies fairly considerably, and an average gradient of 1:100 may be regarded as the most gradual likely to be experienced along the whole front. It is believed that the gradient close inshore is, for the most part, likely to be fairly steep, and that the average charted gradient is of little value in assessing the landing. Exact information is not available.

Approaches. A shoal of sand, about 200 yds. wide and 1 mile long, lies close off and parallel to the north-western end of the beach, with a least depth of about 9 ft. over it. There is frequently some surf, particularly towards the south-eastern end. The 6-fathom line lies about 1200 yds. offshore.

Tides. Springs rise about 2 ft. 6 in. to 3 ft. 0 in., with a mean level of about 1 ft. 9 ins.

Exits. The beach fronts a narrow spit enclosing a large lagoon. Along the spit is a road, which from air photographs appears to be motorable, and at the south-western end trends northward to Hosan. This road (*Route* 27) leading inland from Dairinpo (Tairimpo) is also referred to under *Beach* 11. The road on the spit should be easily accessible from any part of the beach.

Hinterland. The spit backing the beach is, to some extent, wooded, with low, bushy trees. At the northern end of the spit there appear to be a number of temporary and permanent buildings around the

harbour installations on the lagoon side. Southward along the spit are many temporary hutments, possibly used in connection with defences. For details of the harbour, *see I.S.T.D. Report, F.*387, *PORTS: Takao*.

At the north end of the beach is Kigo Yama, the headland forming the south-western entrance point to the port. On its seaward side Kigo Yama is composed of precipitous cliffs. On the headland is a lighthouse and the remains of an old fort.

Local resources. See *I.S.T.D. Report, F.*387, *PORTS: Takao*.

No. 13 Beach: Takao: north beach
(22°38′*N.*, 120°15′*E.*; *wL.*2893, *Sheet* 13, *at centre*; *Plans* 5, 6, 13; *Photograph G.*2)

Location and general nature. Extending northward from the northern breakwater is a sandy beach on which landing should be possible at most states of the tide, but there is usually a line of surf.

Suitability for landing. In calms it should be possible to land all arms, but with a swell this would be difficult.

Dimensions. The beach, which has a total length of at least 600 yds., is divided into two parts by a spur of the hill behind, which comes down to the sea at the centre. The northern half of the beach is about 30 yds. wide above H.W., but the southern half is wider (about 50 yds.) and is used as a bathing beach.

Gradient. Gradual inshore gradient.

North end—3-fathom line to L.W. line, about 400 yds.=average of 1:66.

South end—3-fathom line to L.W. line, about 440 yds.=average of 1:73.

This is a rough estimate only, and the gradient may be steeper close inshore.

Approaches. The approaches are clear, with the 6-fathom line about ¾ mile offshore. The shore here is subject to some surf, but in fair weather it is not likely to be sufficient to interfere with landing. Close inshore at the northern end of the beach is a rocky, foul patch, and there is a similar patch in the centre at the base of the spur which here falls to the sea.

Tides. Springs rise 2 ft. 0 in. to 2 ft. 6 in. Mean level about 1 ft. 9 in.

Exits. At below H.W. it should be possible to move along the beach from the northern section to the southern section by passing around the base of the hill spur. The northern half of the beach is backed by a wooded hill, but infantry could probably climb to the road just above the beach and move northward to Toshien or southward to Takao town and port. There appear to be no buildings behind this section.

The southern half of the beach is backed by bathing establishments, with various permanent buildings behind, including military barracks and a hospital.

A road passes between the buildings and around the shore southward at the foot of Ape's Hill to the town. There is also a tunnelled approach by road passing under the hill, forming a shorter route to the town. The first road is directly accessible from the beach by means of side roads between buildings.

By moving southward along the beach and over the shore end of the northern breakwater troops could reach a sandy beach at the head of the outer harbour. The road around Ape's Hill immediately backs this beach.

Hinterland. The immediate hinterland is hilly, and fairly well wooded, with small trees and bushes. The main section of Takao town lies on the east side of this hill ridge and tracks lead across. The whole of the beach can be easily commanded from the high ground all round, but once ashore troops could find good ground cover on the hill slopes and amongst the buildings behind the southern half of the beach. Cover from air observation is limited.

Local resources. Supplies of all kinds should normally be available at Takao (*see I.S.T.D. Report, F.*384, *RESOURCES, and I.S.T.D. Report, F.*387, *PORTS: Takao*).

No. 14 Beach: Sekko
(22°45′*N.*, 120°14′*E.*; *wF.*2605, *Sheet* 13, *at centre*; *Plans* 5, 6, 13)

Location and general nature. Sandy shore where landing should be possible at all states of the tide when the surf is not heavy, but the shore is fully exposed.

Suitability for landing. Suitable for infantry and light arms only.

Dimensions. Length about 4000 yds. and probably 20 to 30 yds. wide at H.W.

Gradient. Gradual inshore gradient.

3-fathom line to L.W. line, about 600 yds.= average of 1:100. It seems likely that there is a much steeper gradient close to the beach.

Approaches. The approaches are clear but fully exposed to westerly swell, and landing, owing to the swell and surf, would probably be very difficult, if not hazardous, except during calms or with an offshore wind.

Tides. Springs rise about 3¼ ft. and neaps 2½ ft.

Exits. From Kashiryo village (Chiaq-Kam) about ½ mile from the south end of this front an unmetalled road leads north-eastward to Okayama. A path or track also leads northward through the village of Sekko and eventually joins a secondary, unmetalled road at Bida (Mida).

Hinterland. The beach is backed by a coastal plain, much of which is under cultivation, and includes a fair proportion of paddy. Cross-country movement should be possible for troops, but streams and paddy fields would form obstacles. There is little information available concerning this area.

Behind this front are three villages, Kashiryo (Chiaq-Kam) in the south; Sekko, a short distance from the shore at the centre; and Kochiryo (Le-te), a short distance inland at the north end.

Local resources. Information required.

No. 15 Beach: Kyukoko
(22°48½′*N.*, 120°12½′*E.*; *wF.*2412, *Sheet* 13, *at centre*; *Plans* 5, 6, 13).

Location and general nature. Sandy shore where landing should be possible at all states of the tide when swell and surf permit.

Suitability for landing. Suitable for infantry only.

Dimensions. Length over 5¼ miles. Width above H.W. mark probably 20 to 30 yds.

Gradient. Gradual inshore gradient. Possibly steeper close inshore.

3-fathom line to L.W. line, about 600 yds.= average of 1:100.

Approaches. The approaches are clear, but swell and surf conditions persist. The 6-fathom line lies about 1 mile offshore.

Tides (approx.). Springs rise about 3 ft. and neaps 2 ft.

Exits. There are no exits except by crossing the lagoons and swamps behind this shore.

Hinterland. The beach is backed by a chain of lagoons and swamps with some salt-pans and with no known roads or paths. Movement inland would be difficult.

At the south end of this front movement could be made round the end of the southernmost lagoon and so gain access inland (*see Beach* 14).

Note. The frequent surf and swell and the lack of exits would appear to render this beach generally impracticable.

Local resources. None.

No. 16 Beach: Kiro
(22°53′*N*., 120°11′*E*.; *wF*.2220, *Sheet* 13, *at centre*; *Plans* 5, 6, 13)

Location and general nature. Extending north-north-westward from Beach 15 to the mouth of the Nisoko Kei (Dzi-tsan-hang-ke) is a sandy shore. Landing, in calm weather, or with an offshore wind, should be possible at all states of the tide when surf conditions permit.

Suitability for landing. Suitable for infantry and light arms only.

Dimensions. Length about $3\frac{3}{4}$ miles. Width probably 20 to 30 yds. above H.W. line.

Gradient. Gradual inshore gradient, but probably steeper close inshore.

3-fathom line to L.W. line, about 700 yds.= 1:115.

Approaches. Approaches are clear, but silting-up appears to be taking place at the mouth of the Nisoko Kei (Dzi-tsan-hang-ke) at the northern end. Surf and swell are probably bad at times, as the whole shore is fully exposed and breakers occur for some distance offshore.

Tides (approx. only). Springs rise about 2 to 3 ft.

Exits. Tracks and paths lead inland to the roads beyond the lagoons, but exact details are not available. Movement inland must, in general, be considered difficult.

Hinterland. Except at the northern end the beach is backed by lagoons, marshes and salt-pans.

Local resources. None.

No. 17 Beach: Anpin
(22°58′*N*., 120°9½′*E*.; *wF*.1828, *Sheet* 13, *at centre*; *Plans* 5, 7, 13)

Location and general nature. Leading south-south-eastward from the entrance to Anpin is a sandy shore, where landing should be possible at from half to high tide.

Suitability for landing. Suitable for a small force of infantry only, in fair weather.

Dimensions. Length about 3 miles. Width not known.

Gradient. Gradual inshore gradient.

3-fathom line to L.W. line, about 900 yds.= average of 1:150. This estimate is very approximate owing to the continual silting-up which is taking place in this area.

Approaches. There are shoal patches close inshore, and these are probably developing to a greater extent than is indicated on existing charts. The 6-fathom line lies about $\frac{3}{4}$ mile off this beach according to the chart, but may be receding seaward and depths are irregular. There is probably a run of surf with a westerly swell, when landing would be difficult.

Tides. Rise of 3 ft. at M.H.W.S.; 2 ft. at M.H.W.N.

Exits. The exits from this beach are very poor, due to the salt-pans, fish-ponds and swamp immediately behind this front. There appear to be two places where tracks lead inland from small villages on the coast, but exact details are not available.

Hinterland. Backing the beach are salt-pans, fish-ponds and swampy ground, with rice fields and other cultivation beyond. The Nisoko Kei (Dzi-tsan-hang-ke) flows out at the south end of this front. At the northern end of the area is the town of Anpin, which was formerly a port doing considerable trade. The inner bay, on which Anpin stands, known as Anpin Ko, has now almost entirely silted up, and although the narrow channel leading to the town may be navigable by very small craft at H.W. it appears to be of no practical value for landing purposes.

Natives use bamboo rafts to maintain communication between the shore and vessels at anchor in the open roadstead outside.

Anpin is connected with Tainan by a canal and road.

Local resources. Limited supplies of general commodities should normally be available at Anpin and Tainan.

No. 18 Beach: Haipo Road
(23°39′*N*., 120°08′*E*.; *wA*.1606, *Sheet* 11, *at centre*; *Plans* 5, 7, 14)

Location and general nature. Just southward of Haipo Road there is a stretch of sandy shore where landing is possible. This appears to be the only section of coast between Anpin and Haipo where landing would be reasonably practicable.

Suitability for landing. Possibly suitable for infantry only.

Dimensions. Length about 4000 yds. Width not known.

Gradient. Very gradual inshore gradient.

3-fathom line to L.W. line, about 1000 yds= average of 1:166.

Approaches. Shallow banks and shoals occur both to the north and south. The approaches generally are shallow, with the 5-fathom line about 1 mile offshore, and 10-fathom line about $3\frac{3}{4}$ miles offshore. Seaward of the 10-fathom line is a 7-fathom shoal.

There is probably some surf along this shore with a swell or westerly winds.

Tides. Springs rise about $10\frac{1}{4}$ ft.

Exits. Backing the beach are sand-dunes, 15 to 25 ft. high. Beyond these a number of tracks and paths lead inland, and from a village at the centre of this front an earth road leads southward to the Shinko road (*Route* 18) and northward to the Haipo (Kaiko) road.

Hinterland. The immediate hinterland is low and flat, much of it near the coast being rough and possibly swampy ground. There is a great deal of cultivation, including some paddy.

Local resources. Information required.

No. 19 Beach: Hakushaton
(24°33′*N*., 120°41½′E.; *rV*.7207, *Sheet* 4, *at centre*; *Plans* 5, 7, 8, 15; *Photograph G*.3)

Location and general nature. Beach of sand and possibly pebbles extending from the mouth of the Tsusho Kei to the mouth of the Koryu Ko.

Suitability for landing. Possibly all arms could be landed here in fair weather, at towards H.W.

Dimensions. Length about 8 miles. Width not known.

Gradient. Variable, but gradual inshore gradient, possibly steeper close inshore.

Approaches. The approaches appear to be clear, but exposed. The 10-fathom line lies about 1 mile offshore at the centre. There are boulders at the south, centre and north of the beach.

Tides (approx. only). Springs rise about 15 to 16 ft. and neaps 11 to 12 ft.

Exits. A single-track line of the main railway runs close behind this shore, beyond which the main road (*Route* 1) follows the line of the railway, northward to Hakushaton (Hakusha), after which it trends inland. Behind the northern end of the beach the railway passes through a tunnel beneath an isolated hill (*see I.S.T.D. Report, F*.385, *Railways, Route* 5.)

Hinterland. Backing the beach are trees and cultivation, with hills rising close behind the road (*Route* 1) and railway.

Local resources. Information required.

No. 20 Beach: Gua-po
(24°39½′*N*., 120°46¾′*E*.; r*V*.7918, *Sheet* 4, *at centre*; *Plans* 5, 8, 15)

Location and general nature. Sandy shore with scat-

tered stones or small boulders stretching north-eastward from the village of Gua-po. Landing should be possible in calm weather, at from half to high tide.

Suitability for landing. Should be suitable for infantry and possibly for light M/T.

Dimensions. Length about 3500 yds. Width not known.

Gradient. Depths off this beach are uneven and gradients variable.

3-fathom line to L.W. line, about 900 yds. at centre=average of 1:150.

Approaches. The approaches appear to be clear, but exposed. There is evidence that the shore is extending seaward, and shallows are to be found some distance from the shore. Fronting the beach is a drying foreshore of sand or mud-and-sand about 300 to 400 yds. wide. Landing would probably be best at from half to high tide.

The 10-fathom line lies about 1 mile offshore.

Tides. Springs rise about 16½ ft. and neaps 12 ft.

Exits. An unmetalled road leads south-eastward from the village of Gua-po, at the south-westward end of the front, to Koryu, 4500 yds. distant. A path from Gua-po also follows the coast north-eastward to a single-track branch of the railway (*I.S.T.D. Report, F.*385, *Railways, Route* 5). This railway runs close behind the north-eastern end of the beach, and should be easily accessible.

Hinterland. Behind the railway at the north-eastern end of the beach is a low hill (172 ft.) but, apart from this, the coastal area is mostly flat, with part rough ground and part cultivation (principally paddy and village produce). Beyond the coastal plain are low hills to the eastward.

Local resources. Information required.

No. 21 Beach: Yamutsuikan (Iam-tsui-kang)
(24°46′*N.*, 120°54½′*E.*; *rV.*9329, *Sheet* 4, *at centre*; *Plans* 5, 8, 15)

Location and general nature. Sandy beach, stretching northward from Yamutsuikan (Iam-tsui-kang) village and fronted by a flat of sand and possibly mud, which dries out for about 1 mile. Landing may be possible at towards H.W., but with difficulty.

Suitability for landing. It is unlikely that the beach could be used for other than infantry, although the exits would be suitable for all arms.

Dimensions. Length about 2½ miles, and probably wide.

Gradient. Very gradual and variable inshore gradient.

3-fathom line to L.W. line, about 1500 yds. at centre=average of 1:250.

Approaches. There is a 2-fathom rocky shoal about 1½ miles off the centre of this front. At the southern end is a sand-bank standing on the coastal flat, about 1 mile off the beach. The sandbank is about 11 ft. high. The 5-fathom line lies about 1¾ to 2 miles offshore.

Tides. Springs rise about 16 ft. and neaps 12 ft.

Exits. The main road (*Route* 1) and a double-track line of the railway (*F.*385, *Railways, Route* 1), run close behind, and parallel to, the shore. Both should be easily accessible from the beach. Paths lead eastward from the road into the low hills beyond.

Hinterland. The shore is lined with trees, principally coconut palms. The village of Yamutsuikan (Iam-tsui-kang) backs the southern end of the beach, with other small settlements northward along the coast. Immediately beyond the road and railway the land begins to rise into the low hills beyond. The slopes of the hills are wooded with rough country on the summits. Troops should be able to deploy with ease, with reasonable ground cover and limited cover from air observation.

Local resources. None.

No. 22 Landing Place: Kukan (Kyuko)
(24°51′*N.*, 120°56½′*E.*; *rV.*9538, *Sheet* 4; *Plans* 5, 8, 15)

Location. At Kukan (Kyuko) village at the mouth of the Kukan Kei (Tau-chieng-ke).

Suitability for landing. Possibly suitable for small party of infantry and light stores only.

Access. There is a channel across the coastal bank fronting this shore, through which both the Kukan (Tau-Chieng-ke) and Hozan Kei (Hong-sua-ke) flow out. The channel is only available to small craft at half to high tide. The red-brick Customs House is fairly conspicuous. The present condition of the channel is not known, but silting-up may have become more pronounced.

Nature. Landing facilities of a sort no doubt exist, but details are not available.

Exit. An unmetalled road leads south-eastward to Shinchiku, 3 miles distant, which is a railway centre.

Hinterland. The surrounding country is flat and swampy, and used principally for the cultivation of paddy.

No. 23 Beach: Ho-k'ak-kang
(24°57½′*N.*, 121°00′*E.*; *rV.*0151, *Sheet* 4, *at centre*; *Plans* 5, 8, 15 to 17)

Location and general nature. Irregular, sandy shore, stretching north-eastward from Ammokautsun Ko (Gua-o). Landing may be possible at from half to high tide, but possibly difficult. The beach is broken in two places by river mouths.

Suitability for landing. Suitable for infantry, and possibly, in fair weather, for light M/T, but preparation would be necessary.

Dimensions. Length about 6 miles. Width not known.

Gradient. Gradual, but variable, inshore gradient.

3-fathom line to L.W. line, about 800 yds. at centre=average of 1:134. The gradient is probably much steeper close inshore.

Approaches. The approaches appear to be clear, but there is likely to be silting-up near the river mouths. This section of coast is fully exposed; the 5-fathom line lies from ¾ to 1 mile offshore.

Tides (approx. only). Springs rise about 11 to 12 ft. and neaps 8 to 9 ft.

Exits. A number of paths and tracks lead inland from the sand-dunes backing this shore, but the only road is an unmetalled one, leading inland from the village of Kam-tau-tsu near the northern end.

Hinterland. The beach is backed by sand-dunes up to 40 ft. in height, possibly soft blown sand on the surface. Beyond the dunes is a low, flat plain mostly of wet land under cultivation, and dotted with irrigation ponds. Cross-country movement would be difficult, with very little cover when once the dunes are crossed.

Local resources. Information required.

No. 24 Beach: Pakusa Point (Hakusha-ko)
(25°03½′*N.*, 121°05′*E. rW.*1164, *Sheet* 1, *at centre*; *Plans* 5, 8, 16)

Location and general nature. Sandy shore stretching around Pakusa Point (Hakusha-ko) and broken by several streams. Landing may be possible here at from half to high tide.

Suitability for landing. Suitable for infantry only.

Dimensions. Length about 8 miles and probably fairly wide above H.W. mark.

Gradient. The foreshore dries out to a sand, and possibly mud bank, for distances varying between 400 and 1000 yds. Seaward of this the inshore gradient is very gradual and variable.

Approaches. The coast here is open and exposed, but the approaches appear to be clear. The 5-fathom line lies about 1300 yds. to 2000 yds. offshore.

Tides (approx. only). Springs rise about 11 ft. and neaps about 7¾ ft.

Exits. Exits are poor. A number of paths lead inland, and at the northern end a track leads south-eastward for 3500 yds. to Taien. The nearest road (*Route* 6), an unmetalled one, runs parallel to the coast, at an average distance of 3500 yds. from it. This road affords access to the main road (*Route* 1) and railway (*F.*385, *Railways, Route* 1).

Hinterland. The beach is backed by sandhills which are fairly low to the south of Pakusa Point, but which rise to as much as 130 ft. northward of the point, and may be difficult to cross. Behind the sandhills is low, flat land, intersected by many streams and irrigation ponds. The principal cultivation is paddy. Cross-country movement would be difficult, and cover very limited.

Local resources. Information required.

No. 25 Beach: west of Nankankan
(25°07′*N.*, 121°14′*E.*; *rW.*2569, *Sheet* 1, *at centre*; *Plans* 5, 8, 16)

Location and general nature. Beach of sand, with a boulder about mid-way, where landing may be possible with fair weather conditions at from half to high tide.

Suitability for landing. Infantry only.

Dimensions. Length about 2000 yds. Width not known.

Gradient. Gradual inshore gradient. Probably steeper close inshore.

2-fathom line to L.W. line, about 450 yds.= average of 1:112.

Approaches. The approaches are clear, but open and exposed. The 5-fathom line lies about 1000 yds. offshore.

Tides (approx. only). Springs rise about 11 ft., neaps 7¾ ft.

Exits. The road from Nankankan to Taien (*see Route* 6) runs behind this shore at an average distance of about 1000 yds. from it. From this road a branch road leads inland to the main road. There are no known roads or paths from the shore to the road.

Hinterland. The immediate hinterland is low-lying and intersected by irrigation ponds and streams. Near the shore the country is rough but inland of this are paddy fields, and other cultivation, and some swampy patches. Movement inland to the road should be possible for infantry, though not easy.

Local resources. None beyond local products. Water in limited quantities should be available in the villages.

No. 26 Beach: Ts'ut-Tsui-a
(25°07′*N.*, 121°16½′*E.*; *rW.*2869, *Sheet* 1, *at centre*; *Plans* 5, 8, 16)

Location and general nature. Running eastward from the coastal village of Ts'ut-Tsui-a is a sandy shore, on which landing should be possible at towards H.W.

Suitability for landing. Infantry and light arms.

Dimensions. Length about 2000 yds. The beach is probably 20 to 30 yds. wide above H.W. line at the eastern end, becoming wider towards the western end.

Gradient. Gradual inshore gradient, but probably steeper close inshore.

3-fathom line to L.W. line, about 500 yds.= average of 1:83.

Approaches. Two rocks with depths of 2¾ and 1½ fathoms over them respectively lie about 1 mile north-westward of the western end of the front. Apart from these the approaches appear to be clear. The 6-fathom line lies about ½ mile offshore.

Tides (approx. only). Springs rise about 11 ft. and neaps 7¾ ft.

Exits. A path runs close behind the eastern half of the beach, eventually joining a track that leads inland to the road system.

Hinterland. Backing the whole beach is rough and possibly stony ground. Behind the eastern end the land rises to the hills immediately inland. At the western end the ground is mostly low-lying with a stream flowing out to sea. Beyond the rough coastal fringe is cultivation, including paddy fields.

Local resources. None beyond local produce.

No. 27 Beach: Tua-lam-nan
(25°07½′*N.*, 121°20′*E.*; *rW.*3571, *Sheet* 1, *at centre*; *Plans* 5, 8, 16)

Location and general nature. Beach of coarse sand and possibly stones or boulders. Landing should be practicable here at about half tide.

Suitability for landing. Infantry only.

Dimensions. Length about 5 miles and probably rather narrow, but details are not available.

Gradient. There is a gradual inshore gradient, becoming more gradual towards the eastern end.

Western half—3-fathom line to L.W. line, about 450 yds.=average of 1:75.

Eastern half—3-fathom line to L.W. line, about 700 yds.=average of 1:116.

Approaches. The approaches appear to be clear, with the 5-fathom line about 750 yds. off the western end, increasing to about 1 mile off the eastern end.

Tides. Springs rise about 11 ft. and neaps 7¾ ft.

Exits. A track runs close behind this shore and gives access to a road (*Route* 4) at the eastern end.

Hinterland. Immediately behind this shore the land rises in fairly well wooded slopes to a plateau about 800 ft. high, 2 miles inland. Small valleys, through which swift streams flow, open out to the shore.

Paths and tracks lead up to the plateau, where there are small settlements surrounded by cultivation, principally tea-growing.

Local resources. Water from streams and wells, and local products.

No. 28 Beach: Tansui Ko
(25°09½′*N.*, 121°23½′*E.*; *rW.*4374, *Sheet* 1, *at centre*; *Plans* 5, 8, 16)

Location and general nature. Sandy shore stretching south-westward from the entrance to the Tansui river. Owing to the shallow approaches it is unlikely that landing would be possible except at high water.

Suitability for landing. Suitable for infantry and light arms only.

Dimensions. Length about 2½ miles and width about 70 to 100 yds. above H.W. line.

Gradient. The inshore gradient is variable but extremely gradual throughout. At the north-eastern end of the front the approach is almost flat, because of the silt from the river.

Approaches. The approaches are very shallow, with some very shoal patches. The foreshore of sand dries out at L.W. for up to 250 yds. in places. The 3-fathom line lies about 1500 yds. off the south-western end of the beach and 2300 yds. off the north-eastern end. The 5-fathom line lies about 1½ miles off the centre.

Tides. Springs rise about 11 ft. and neaps 7¾ ft.

Exits. Behind the dunes backing this shore are paths that lead inland to an unmetalled road (*Route* 4) 700 yds. distant. The unmetalled road runs southward to the main road (*Route* 1).

Hinterland. Immediately behind this beach are sand-dunes 30 to 40 ft. high, covered with low trees and grass, and affording a certain amount of ground cover. Beyond these is a flat, cultivated area about

½ mile wide, with well-wooded hills to the southward, culminating in a peak (Kannon San, or Kuan-im-sua) which rises to 1986 ft., about 2 miles inland.

Paths and tracks lead through the hills. The hills are flanked on the east by the Tansui river. The town of Taihoku lies in a plain about 10 miles to the south-south-eastward of the beach.

Local resources. Water from hill streams is available. The nearest centres for general supplies would be Taihoku and Tansui.

No. 29 Beach: Tansui Ko
(25°11′*N.*, 121°25′*E.*; 4376, *Sheet* 1, *at centre*; Plans 5, 8, 16; *Photograph G.*4)

Location and general nature. Beach of fairly firm white sand, on the north side of the entrance to the Tansui river. Below half-tide line the foreshore merges into mud which is sticky and difficult to negotiate. Landing at from half to high tide would be possible. From the north-western end of the beach, the shore around the entrance point of the river is boulder-strewn. The beach is used for bathing.

Suitability for landing. It should be possible to land infantry at half tide, and M/T and other arms at towards full tide.

Dimensions. Length about ½ mile. Width above H.W. probably about 50 yds., drying out for a further 100 to 300 yds. (sand and mud) at L.W.

Gradient. Very gradual inshore gradient.

Approaches. The approaches are clear, but very shallow. It is reported that the spit of land forming the northern entrance point to the river affords considerable shelter to this front from northerly winds.

The 5-fathom line lies just outside the river entrance. The beach is reported to be used by small fishing-craft.

Tides. Springs rise about 11 ft. and neaps 7¾ ft.

Exits. The top of the beach is formed of blown sand, but there should be little difficulty in reaching an unmetalled road which leads from a W/T station at the centre of this front to Tansui, where there is a rail-head, and a road (*Route* 2) leading to Taihoku.

Hinterland. The north-western end of this beach is backed by a sandy spit on which is grass and scrub, and used partly as a golf course. Along the whole front there is a gradual rise inland. The south-eastern section of the front is backed by scrub-covered shore with cultivation, including paddy, beyond (*see F.*387, *PORTS*: *Tansui*).

Local resources. Supplies of various kinds should be available at Tansui and Taihoku.

No. 30 Beach: Tansui entrance
(25°11½′*N.*, 121°24½′*E.*; *rW.*4377, *Sheet* 1; *Plans* 5, 8, 16)

Location and general nature. On the north (seaward) side of the sandy spit at the entrance to the Tansui river is a beach of firm sand which stretches from the boulder-strewn point to the entrance of a stream to the east-north-eastward. It is reported that, at slack water, it is possible for boats to beach here comfortably, but immediately off the beach tidal streams are strong.

Suitability for landing. Suitable for infantry and light arms and, in exceptionally calm weather, could possibly be used for light M/T.

Dimensions. Length about ½ mile. Width probably about 50 yds., drying out for about 100 yds. at L.W.

Gradient. The inshore gradient is reported to be fairly steep close to the H.W. line, but confirmation of this has not been possible. The gradient is definitely very much steeper than that of *Beach* 29.

3-fathom line to L.W. line, about 500 yds.= average of 1:80.

Approaches. The approach from north-north-westward is clear, but boulders exist at both ends of the front. The 5-fathom line lies about 1000 yds. offshore. There may be some boulders on the beach itself. There are strong tide-rips off this shore.

Tides (approx. only). Springs rise about 11 ft. and neaps 7¾ ft.

Exits. There are no roads or tracks from the shore, but little difficulty should be experienced in crossing the sandy spit, where there is a golf course, to the road which forms the exit from *Beach* 29.

Hinterland. The beach is backed by the same country as that behind *Beach* 29. The eastern end of the beach is flanked by a stream, along the banks of which is paddy cultivation.

Local resources. See *Beach* 29.

No. 31 Beach: Kimpori
(25°14′*N.*, 121°38′*E.*; *rW.*6584, *Sheet* 1, *at centre*; *Plans* 5, 8, 16)

Location and general nature. Beach of firm sand at the head of the bay westward of Shishito Bi (Chiek-tai-su). Landing should be possible at all states of the tide when there is no swell.

Suitability for landing. Suitable for infantry and light arms only, as exits are probably not suitable for other arms.

Dimensions. Length about 1800 yds., and probably narrow, drying out for about 500 yds. at the north-western end, but tapering off at the south-eastern end.

Gradient. There appears to be a fairly steep gradient close inshore, but the average gradient between L.W. line and charted depths of 5 fathoms (about 500 yds. offshore) is 1:50.

Approaches: The approaches appear to be clear except for a rocky shore at each end of the front. The 10-fathom line lies about 1400 yds. off L.W. line.

Tides (approx. only). Springs rise about 2¾ ft. and neaps 2¼ ft.

Exits. The coast road (*Route* 2), runs close to the north-western end of the beach, but then trends inland running parallel to and at a distance of about 1200 yds. from the remainder of the beach. The ground between the beach and the road is probably firm, but a stream, flowing diagonally across it west to east, forms an obstacle.

Hinterland. The beach fronts the mouth of a valley, with a comparatively flat cultivated area through which a stream flows out to the head of the bay. High land at both ends of the front commands the beach and bay. At the eastern end of the beach, on the southern side of Shishito Bi (Chiek-tai-su), is a small harbour. The small town of Kimpori (E-tiong-ko) is about ½ mile inland at the junction of road *Routes* 2 *and* 37.

Local resources. Information required, but it is unlikely supplies of general commodities are to be found in any quantity, nearer than Kiirum (Keelung).

No. 32 Beach: Masu Bay
(25°12½′*N.*, 121°39½′E.; *rW.*6781, *Sheet* 1, *at centre*; *Plans* 5, 8, 16)

Location and general nature. Firm sandy beach at the head of Masu Bay where landing should be possible at all states of the tide.

Suitability for landing. The beach should be suitable for landing all arms in fair weather.

Dimensions. Length nearly 2 miles, and probably narrow.

Gradient. Gradual inshore gradient.

Charted gradient: 3 fathom line to L.W. line about 350 yds. = average of 1:58.

Approaches. The approaches from the north-eastward are clear, but rocky dangers extend from both entrance points of the bay and fringe the north-west and south-east shores. The 10-fathom line lies about ½ to ¾ mile offshore.

Tides (approx. only). Springs rise about 2¾ ft. and neaps 2¼ ft.

Exits. The coast road Tansui-Kiirun (Keelung) runs close behind this shore and appears to be easily accessible (*Route* 2). A branch road passes over the mountainous country in a south-westerly direction to Taihoku and Hokuto (*Route* 37).

Hinterland. Backing the beach is the coast road on which are some small settlements with a little cultivation. South of the road the land rises to the foothills, with mountainous country beyond.

Local resources. None.

No. 33 Beach: Mari or Ma-lat-kang-k'au
(25°11′*N.*, 121°41′*E.*; *rW.*7077, *Sheet* 1, *at centre*; *Plans* 5, 8, 16)

Location and general nature. Sandy shore at the head of the bay on the east side of the Yali peninsula. Landing should be possible at all states of the tide.

Suitability for landing. Suitable for infantry and possibly M/T.

Dimensions. Length about 2000 yds. Width not known.

Gradient. Gradual inshore gradient.

Charted gradient: 3-fathom line to L.W. line about 200 yds. at centre=average of 1:33.

Approaches. The approaches are clear. The 5-fathom line lies about 500 yds. offshore and the 10-fathom line about 1000 yds.

Tides (approx. only). Springs rise about 2¾ ft. and neaps 2¼ ft.

Exits. The Tansui-Kiirun (Keelung) coast road (*Route* 2) runs close behind the beach and should be easily accessible.

Hinterland. The beach is broken near the centre by a small stream. A short-distance up the stream is the village of Mari (Ma-lat-kang-k'au). A steep valley opens out to the sea at this section of shore, and the whole of the surrounding country is hilly.

Local resources. None.

No. 34 Beach: Chimuo Wan or Sin-o-wan
(25°7½′*N.*, 121°49′*E'*; *rW.*8471, *Sheet* 1; *Plans* 5, 8, 16)

Location and general nature. Two short, sandy beaches on the west and south-east shores of Chimuo Wan (Sin-o-wan or Chimo). Landing should be possible here at all states of the tide. The two beaches are separated by about 400 yds. of reef and rocks.

Suitability for landing. Suitable for infantry only.

Dimensions.

West Beach—Length about 330 yds. Width not known.

South-west Beach—Length about 300 yds. Width not known.

Gradient. Gradual inshore gradient.

3-fathom line to L.W. line, about 450 yds.= average of 1:75.

Approaches. Reef and rocks extend from the entrance points of the bay, and there are reefs off the shore at both ends of each beach. Between the dangers at the entrance the approach is clear, and depths of 6 to 7 fathoms are carried to the middle of the bay.

The bay is sheltered from all directions but the north-east.

Tides (approx.). Springs rise about 3¾ ft. and neaps 2¼ ft.

Exits. A track or path runs close behind the two beaches and leads westward to Kiirun (Keelung) and eastward to Peitau Kaku (Bito-Kaku). There is also believed to be a track leading from the south-east corner of the bay to Kiiran (Ke-a-liau) from whence a road and narrow-gauge push-car line lead to Kiirun (Keelung).

Hinterland. The hinterland is wild and mountainous and, although cross-country movement may be possible for infantry, the going is likely to be difficult. The mountains to the southward rise to over 2000 ft.

The village of Sin-o stands behind the west beach and Kiiran (Ke-a-liau) lies 1 mile south of the south-west beach. There are other settlements around the bay.

Other landing facilities. A mole and a wooden pier are reported to exist in this bay, and are used by the local mining company for the export of ore. The annual export of ore is stated to be over 100,000 tons. Details of the pier and mole are not available.

Local resources. Information required.

No. 35 Landing Place: Peitau Kaku
(25°07¾′*N.*, 121°55′*E.*; *rW.*9372, *Sheet* 1; *Plans* 5, 8, 16)

On the north-western side of Peitau Kaku (Bito-Kaku), at the fishing village of Peitau (Bito or P-i-t'au), is a small boat harbour, where landing may be possible, but details are not available.

No. 36 Beach: Siang-K'e-ts'ui
(25°02′*N.*, 121°55¾′*E.*; *rW.*9662, *Sheet* 1, *at centre*; *Plans* 5, 8, 16)

Location and general nature. At the head of the bay westward of Samucho (Sancho) Kaku, is a beach of firm sand where landing should be possible at all states of the tide except with northerly or north-easterly winds.

Suitability for landing. Suitable for infantry only.

Dimensions. Length 2500 yds. Width not known.

Gradient. Gradual inshore gradient.

3-fathom line to L.W. line, about 500 yds.=average of 1:83.

Approaches. The approaches from the north-eastward appear to be clear but a group of three rocks, that dry 1 foot, lies about 1000 yds. off the north-western end of the beach.

The beach is subject to swell and surf, but conditions are usually good for about 20 days a month, from June to August.

Tides (approx.). Springs rise about 2 to 3 ft. and neaps 1 ft. 6 in. to 2 ft.

Exits. There should be little difficulty in reaching a track 100 to 200 yds. from the beach and of proceeding southward to the road (*Route* 35) and railway from Kiirun (Keelung) (*see I.S.T.D. Report, F.*385, *Railways, Route* 2).

Hinterland. The beach is backed by a fairly flat, but small, area at the mouth of a valley, through which a river flows. The river enters the sea at the south-eastern end of the beach. The village of Yamuryo stands behind the north-western end of the beach, and there are other villages on the river bank. High hills rise up on both sides of the valley to over 1000 ft.

Little information is available concerning this region. There is believed to be cultivation in the valley but the hill country is wild generally.

Local resources. Information required.

No. 37 Beach: Nan Wan
(21°57½′*N.*, 120°45½′*E. and* 21°57′*N.*, 120°47′*E.*; *West Beach wL.*8218 *Sheet* 15, *at centre*; *East Beach wL.*8417, *at centre*; *Plans* 5, 6, 10, 12; *Photographs G.*6, 7)

Location and general nature. Two short, sandy beaches at the head of Nan Wan, where landing may be possible at all states of the tide, during calm weather, particularly during June to August or September, when winds are generally light and variable.

The west beach is of sand, or sand-and-pebbles, and the east beach is believed to be of firm sand.

Suitability for landing. Suitable for infantry, and, with some preparation, possibly for light M/T also.

Dimensions.
West Beach: Length about 400 yds. and width probably 40 to 50 yds. at H.W.
East Beach: Length about 600 yds. and width probably 40 to 50 yds. at H.W.

Gradient. The inshore gradients appear to be gradual, but it is possible that they become steeper close inshore.

3-fathom line to L.W. line about 400 yds. = average 1:65.

Approaches. There are a number of off-lying dangers in Nan Wan, particularly around the head of the bay and the channels between them are rather narrow. Reefs and rocks extend from the shore on both sides of the beaches, so that approach could be made only in calm weather. The 10-fathom line lies about 1500 yds. off the West Beach and 1200 yds. off the East Beach.

Tides. Springs rise about 5 ft.; neaps about 3 ft.

Exits.
West Beach: Palms and other trees grow on the shore, with the Garan Bi-Koshun road (*Route* 28) about 100 yds. inland from the western end, converging close to the shore at the eastern end. Movement across the ground between shore and road should cause no difficulty at any part of the front.
East Beach: Palm trees line the shore, with other trees close behind, and separating the beach from the Garan Bi-Koshun road (*Route* 28). The road is about 800 yds. inland from the west end of the beach, but converges to within 200 yds. of the east end. Two small streams flow out along this shore, but there should be little difficulty in crossing the firm, sandy ground between beach and road at any part of the front.

Hinterland.
West Beach: At the eastern end of the beach is the village of Toapanra (Daihanra-tsu) which stands on the road. Immediately northward of the road are wooded hills rising to a 1071 ft. summit. The road to Koshun follows a cultivated valley through which streams flow.
East Beach: At the eastern end of this beach is the village of Kontei. The land rises gradually from the shore to the road with wooded hill country to the northward of the road.

Local Resources. Limited supplies of water should be available in the villages.

No. 38 Landing Place: Koko
(21°59½′*N.*, 120°50′*E.*; *wL*.8823, *Sheet* 15; *Plans* 5, 6, 10, 12)

The Koko Kei (Kang k'au-ke) finds its outlet in the NW. corner of Koko Wan. Small craft may be able to enter the river at towards H.W. and to ascend to Koko (Haikikoku) village on the left (north) bank, about ¾ mile upstream. Confirmation of this has not, however, been possible.

On either side of the river mouth is a short, sandy beach where landing in calm weather should be possible at all states of the tide, although with easterly winds the surf is probably heavy.

A track leads along the north bank of the river to Koshun.

No. 39 Beach: Hachiyo Wan (Pueq-io-uan)
(22°07′*N.*, 120°52¾′*E.*; *wL*.9437, *Sheet* 13, *at centre*; *Plans* 5, 10, 13)

Location and general nature. At the head of Hachiyo Wan (Paayo Wan or Pueq-io-uan) is a beach of firm sand where landing should be possible at all states of the tide. The beach is broken towards the south end by the Kyuko Kei.

Suitability for landing. Suitable for infantry and possibly for light M.T., when surf is not heavy.

Dimensions. Length 3000 yds. Width not known.

Gradient. Fairly steep gradient close inshore. Depths of 1 to 2 fathoms are charted close to L.W. line.

3-fathom line to L.W. line, about 300 yds. = average of 1:50.

Approaches. The approaches are clear, except for reefs and rocks extending from the entrance points of the bay. From October to March and during typhoons sea conditions here are bad, and a heavy run of surf and swell may be expected.

The 5-fathom line lies about 1000 yds. offshore.

Tides. No information available.

Exits. A coastal track runs close behind the beach at the north end of this front, but gradually trending inland behind the south end, and then runs west-south-westward through a valley to the Koshun road (*Route* 29). It may be possible for light M.T. to use this track, but no detailed information is available. The coastal track leads northward to Taito, but is very rough and liable to be blocked by rock-falls.

Hinterland. The beach is at the mouth of a narrow valley through which flows the Kyuho Kei. Sand dunes back the shore. The surrounding country is wild and mountainous.

Local resources. None except water from streams.

No. 40 Beach: Taito
(22°43′*N.*, 121°06¾′*E.*; *wG*.1703, *Sheet* 14, *at centre*; *Plans* 5, 10, 19; *Photographs G*.12, 13)

Location and general nature. Fronting the coastal plain of Taito is a long, sandy shore, where landing should be possible when there is little or no surf. The beach is broken in several places by rivers.

Suitability for landing. Possibly suitable for infantry and light arms.

Dimensions. The beach extends for 8½ miles south-westward from Taito light, and about 2½ miles north-eastward of the light.

Gradient. The shore is practically steep-to throughout, and particularly so at the southern half of the front. The best landing is immediately off the town.

Approaches. The approaches are clear, but the whole shore is fully exposed. Owing to the deep water off this coast there is only one small area, up to 600 yds. offshore immediately off the town, where depths are suitable for anchoring. Half a mile offshore there are depths of over 40 fathoms. Sea conditions are usually particularly bad from October to March and during typhoons.

Tides. Springs rise about 5 ft. and neaps about 4 ft.

Exits. From the beach fronting the town, a road leads to the town, from whence there is a road or track running northward to Karenko (*Route* 30) and southward (deteriorating into a track, *see Route* 30) to Garan Bi and Koshun. The track leading southward is easily accessible from the southern end of this front. Taito is also the terminus of the East Coast narrow-gauge railway (*see I.S.T.D. Report, F*.385, *Railways, Route* 7).

Apart from the above, exits from the beach are poor, and are limited to one or two paths. North of the town access inland is made difficult, owing to a long, narrow lagoon immediately behind the beach.

Hinterland. The whole beach fronts a small alluvial plain which extends about 6 miles inland to the foothills westward, and in which paddy cultivation predominates. To the north and south of the beach is mountainous country. Cross-country movement would be difficult owing to the wet nature of the land, and near the river mouths and lagoons there are probably marshes.

Local resources. Information required.

Other landing facilities. There is a wooden jetty to which small craft can proceed. It is reported that the decking is 4 to 5 ft. above H.W. It was also reported (1942) that a harbour had been constructed, but no details or confirmation are available.

No. 41 Beach: Shinko or Mararao
(23°05½′*N.*, 121°22′*E.*; *wG*.4346, *Sheet* 12; *Plans* 5, 18)

Location and general nature. Firm, sandy beach in a small bay at Shinko, where there is sheltered landing at all states of the tide. There is also a small harbour for fishing craft.

Suitability for landing. It should be possible to land infantry and light M/T.

Dimensions. Length at least 600 yds. Width not known, but probably narrow.

The small boat harbour is formed by two breakwaters, each about 200 yds. long, with an entrance between them about 5 yds. wide.

Gradient. There is no data available, but it seems reasonable to suppose that the inshore gradient would be even and fairly steep.

Approaches. Off the western entrance point of the small bay (approximately 500 yds. from the shore) is a rock with a depth of 10½ ft. over it. The eastern entrance point of the bay is formed by the rocky point of Kayakai Bi. A reef with rocks on it extends for 600 yds. southward from the point, forming a natural breakwater. Except for the most southerly one (which is awash) the rocks on the reef are above water. Between the entrance points the approach is clear and vessels with local knowledge can find anchorage in a depth of about 17 fathoms, over a bottom of sand and rock, about ½ mile offshore.

The small boat harbour has been constructed on the west side of Kayakai Bi. Within the harbour is a least depth of about 12 ft.

In approaching Shinko bay, an oil tank and an abattoir on the west side of the harbour are conspicuous.

Tides (approx.). Springs rise about 6½ ft.

Exits. A narrow road or track leads from the boat harbour and round the head of the bay to Shinko (Mararao or Sin-kang-ku). Through the village, a road leads southward along the coast to Taito, and northward along the coast to Chioq-te (*Route* 30). Northward of Chioq-te is a rough path or track to Karenko.

Hinterland. Close behind this shore and village the land rises steeply to the coastal range with no known paths or roads.

Local resources. Limited water supplies should be available at Shinko.

No. 42 Beach: Seiko-o Hakuchi (Sieng-Kong-o-ku)
(23°10′*N.*, 121°23½′*E.*; *wG*.4553, *Sheet* 12; *Plans* 5, 18)

Location and general nature. At Seiko-o (Sieng-Kong-o-Ku) is a small cove with a beach of firm sand at its head. Small craft can enter and landing should be possible at most states of the tide.

Suitability for landing. Suitable for a small force of infantry only.

Dimensions. Length about 200 to 300 yds. Width not known.

Gradient. No information available.

Approaches. The cove is encumbered with reefs, and owing to the reefs at the entrance points the passage into the cove is narrow. Small craft are able to enter, and depths on the north and south sides of the cove are reported to be 7 to 8 ft.

Anchorage off the cove can be found in depths of 12 fathoms over sand, about ½ mile from the entrance.

Exits. The Taito-Chioq-te coast road (*Route* 30) runs close behind the beach at the head of the cove and should be easily accessible.

Hinterland. Immediately westward of the road and village the land rises fairly steeply to the coastal range.

Local resources. None.

No. 43 Beach: Karenko
(23°57½′*N.*, 121°36′*E.*; *wB*.6542, *Sheet* 12, *at centre*; *Plans* 5, 9, 18; *Photographs G*.15-19)

Location and general nature. Fronting the Karenko coastal plain, between the mouths of Karen Kei (Hua-liang-ke) and Biirun Kei (Bi-lun-ke) is a beach of coarse sand and pebbles, where, owing to surf, landing is invariably difficult, even in fair weather. Special craft are used by the natives (*see photograph* 17).

Suitability for landing. Infantry and light arms, using suitable craft.

Dimensions. Length about 2500 yds. Width about 50 to 100 yds.

Gradient. The inshore gradient is variable, but mostly steep, with deep water close offshore.

Approaches. The approaches are clear, with open anchorage close offshore.

Tides. Springs rise about 5½ ft. and neaps 4¼ ft.

Exits. A track runs close behind this shore, giving access to Karenko town. From Karenko a coast road leads northward to Suo (*Route* 35) and a track southward to Taito. There is also a station of the East Coast narrow-gauge railway (*see I.S.T.D. Report, F*.385, *Railways, Route* 7).

Hinterland. Sand-dunes, covered with trees and bushes, back the shore, with a small, cultivated plain beyond. Near the town the land is used principally for paddy cultivation, but southward of this the country is intersected by many streams with rough vegetation. The plain forms the northern end of a rift between the coast range and the main mountain range westward, which stretches from Taito to Karenko. A road (*Route* 34) and railway (*see I.S.T.D. Report, F*.385, *Railways, Route* 7) run through this rift. For particulars of Karenko town and the artificial harbour to the north of the town, *see I.S.T.D. Report, F*.387, *PORTS*: *Karenko*).

Local resources. See *I.S.T.D. Report, F*.387, *PORTS*: *Karenko.*

No. 44 Beach: Tang-o
(24°31¼′*N.*, 121°50½′*E.*; *rW*.8704, *Sheet* 5, *at centre*; *Plans* 5, 9, 17)

Location and general nature. Beach of firm sand at the head of a small bay between Useki Bi (O-Chioq-pi) and Ugan Kaku (O-gam-kak). In fair weather landing should be possible at all states of the tide.

Suitability for landing. Suitable for infantry and light arms.

Dimensions. Length about 2000 yds., and probably narrow.

Gradient. There are little data available from which to give an estimate of gradient, but the inshore gradient close to the beach is probably fairly steep. Between the 10-fathom line and the shore, the average charted gradient is 1:50.

Approaches. The approaches are clear, with the 10-fathom line about 1000 yds. offshore. The north and south entrance points of the bay are high, with off-lying rocks.

Tides (approx.). Springs rise about 4 to 5 ft. and neaps about 3 to 4 ft.

Exits. A tortuous road leads from the village of Tang-o, about 600 yds. from the shore to Suo.

Hinterland. There is a little cultivation around the village, but the surrounding country is wild and mountainous.

Local resources. Water from streams should be available.

No. 45 Beach: north of Suo Wan
(24°39′*N.*, 121°50½′*E.*; *rW.*8619, *Sheet* 5, *at centre*; *Plans* 5, 9, 17)

Location and general nature. Sandy shore stretching northward from the Suo peninsula to the Toko Ko. There is likely to be a heavy run of surf on this shore, but in calm weather or with an offshore wind landing may be possible at most states of the tide. The southern half of the beach is broken by the Buroko Kei (Bu-lau-ke-ke).

Suitability for landing. Owing to the run of surf and the poor exits this beach would be suitable for infantry only.

Dimensions. Length about 6 miles, and wide.

Gradient. Gradual inshore gradient.
3-fathom line to L.W. line, about 400 yds.= average of 1:66.

Approaches. The approaches are clear, but fully exposed, and the shore is subject to a frequent run of surf which, at times, is extremely heavy. The 5-fathom line lies at an average of 1000 to 1200 yds. offshore.

Tides (approx.). Springs rise about 4 to 5 ft. and neaps about 3 to 4 ft.

Exits. Backing the beach are low sand-dunes with bush and grass vegetation. Behind them, and in some places through them, are paths and tracks leading inland.

Hinterland. The beach fronts the wide alluvial plain of Giran. The country is low-lying, intersected by rivers and many streams, and used principally for the cultivation of paddy. Cross-country movement would be very difficult, and little or no cover is likely to be found.

Local resources. None beyond local food products.

No. 46 Beach: north of Toko Ko
(24°46¾′*N.*, 121°48¾′*E.*; *rW.*8433, *Sheet* 5, *at centre*; *Plans* 5, 9, 17)

Location and general nature. Sandy shore stretching between the mouths of the Toko Ko and Toi Ka (Tau-iu-tsui). There is likely to be a heavy run of surf on this shore, but in calm weather, or with an offshore wind, landing may be possible at most states of the tide.

Suitability for landing. With the run of surf and the poor exits, the beach would be unsuitable for anything but infantry.

Dimensions. Length about 7½ miles, and wide.

Gradient. Gradual inshore gradient.
3-fathom line to L.W. line, about 300 yds.= average of 1:50.

Approaches. The inshore approaches are clear, but exposed, and the shore is subject to a frequent run of surf, which is sometimes very heavy. The 5-fathom line lies about 600 to 800 yds. offshore.

Tides (approx.). Springs rise about 4 to 5 ft. and neaps about 3 to 4 ft.

Exits. The beach is backed by sand-dunes, covered with grass and rough vegetation. Beyond them a few paths lead inland.

Hinterland. The shore is backed by a low, alluvial plain, intersected by rivers, streams, and irrigation canals, in an area of paddy cultivation. Movement inland would be impeded by a river (Toi Ka or Tau-iu-tsui) and its tributaries which flow parallel to the shore and find their outlet at the north end of the beach. The principal road (*Route* 35) and railway (*see I.S.T.D. Report, F.*385, *Railways, Route* 2) are from 6000 to 7000 yds. inland, and in the intervening country there is little or no cover.

Local resources. None beyond local food products.

No. 47 Beach: Daikoko or Toi
(24°52′*N.*, 121°50′*E.*; *rW.*8643, *Sheet* 5, *at centre*; *Plans* 5, 9, 17)

Location and general nature. Sandy shore fronting the village of Daikoko (Toi) and extending between the mouth of the Toi Ka (Tau-iu-tsui) and the mountains to the north. Landing should be possible at all states of the tide, if surf conditions permit. The shore is subject to a frequent run of surf.

Suitability for landing. Appears to be suitable for infantry only.

Dimensions. Length 2 miles, and wide.

Gradient. Gradual inshore gradient.
3-fathom line to L.W. line, about 400 yds.= average of 1:66.

Approaches. The inshore approaches are clear, but there is foul ground to the north of this front and the 5-fathom line lies about 1200 yds. offshore. The island of Kisan To lies 5 to 6 miles off this front.

Tides (approx.). Springs rise about 4 to 5 ft. and neaps about 3 to 4 ft.

Exits. The beach is backed by sand-dunes covered with rough vegetation, but at the northern end of the beach there is almost direct access to the principal road (*Route* 35) and railway (*see F.*385, *Railways, Route* 2).

Hinterland. Behind this front is the village of Daikoko (Toi) standing at the narrow, northern end of the Giran plain, beyond which is mountainous country. Movement across country would be hampered by swampy land and paddy fields.

Local resources. None beyond water and local food products.

(c) ANCHORAGES

West coast (Nyopii Taa (Byobi-to-Saki) 21°55′*N.*, 120°44′*E.*) to Fuki Kaku (Puki Kaku) (25°18′*N.*, 121°32′*E.*), *Plans* 5, 6, 8, 13, 16)

Except for the ports of Takao and, to a limited extent, Tansui there are no sheltered anchorages for large vessels on the west coast. Open anchorage off beaches would need to be selected according to draught and weather conditions.

Anchorages at Takao and Tansui are described in *I.S.T.D. Report, F.*387, *PORTS.*

North coast (Fuki Kaku (Puki Kaku) (25°18′*N.*, 121°32′*E.*) to Samucho Kaku (25°0½′*N.*, 122°00′*E.*) *Plans* 5, 8, 16)

At Kiirun (*see F.*387, *PORTS*: *Kiirun or Keelung*), there is good anchorage with complete shelter, and in the bays off the selected beaches along the north coast limited shelter is afforded, but not during the north-east monsoon. Care is needed to avoid reefs and foul ground.

South coast (Nyopii Taa (Byobi-to-Saki) (21°55′*N.*, 120°44′*E.*) to Garan bi (Garambi) (21°54′*N.*, 120°5′ *E.*), *Plans* 5, 6, 10, 12)

At the head of Nan Wan (*Beach* 37) in Toapanra (Daihanretsu) Byochi is the best anchorage on the southern side of Formosa, with protection from all but southerly winds. The approaches, however, are beset with dangers lying close off the coast.

East coast (Garan bi (Garambi) (21°54′*N.*, 120°51′*E.*) to Samucho (Sancho) Kaku (25°00½′*N.*, 122°00′*E.*), *Plans* 5, 8-10, 13, 17, 18, 19)

The only sheltered anchorage on this coast is in Suo Wan (*see F.*387, *PORTS*: *Suo*), but in the

summer, with south-easterly winds, long rollers set into the harbour, and develop into a great tidal wave. Apart from this, open anchorage would need to be selected, and, owing to the great depths close offshore, even open anchorage is limited.

Small vessels may find anchorage in Hachiyo Wan (Pueq-io-wan) with offshore winds.

Off Taito (*Beach* 40) there is only a small area, immediately fronting the town, and up to 600 yds. offshore, where depths are suitable for anchoring. The best anchorage is with Rigyo San bearing 297°, in depths of 7 to 13 fathoms.

Shinko Hakuchi (*Beach* 41), a small bay, is open to the southward, but small vessels can find shelter here from north-easterly winds. Local knowledge is advisable. Large vessels must anchor outside the entrance.

Temporary anchorage can be obtained about ½ mile off the entrance to the cove, Seiko-o Hakuchi (*Beach* 42) in a depth of 12 fathoms over sand.

At Karenko (*Beach* 43) the best anchorage is with the light-structure bearing 309°, distant 1300 yds., in depths of 9 to 10 fathoms over sand. The depths in the southern part of this open roadstead appear liable to change owing to the sand and mud discharged by the Karen Kei (Hua-liang-ke).

(d) OFF-LYING ISLANDS

(*Admiralty Charts* 1968, *F*.0443, *F*.0444, 3658; *Admiralty Maps A.M.S. L*.592, *Sheets* 5, 14, 16, 1, 13; *Plans* 5, 6, 8, 10, 13, 16, 17, 19; *Photographs G*.21-26)

Except for the Pescadores group, there are few off-lying islands of any great importance. The Pescadores Islands are dealt with separately in *I.S.T.D. Report, F*.440.

Ryukyu Sho or Shoryukyu To (22°20′*N*., 120°22′*E*.) (*Plans* 5, 6, 13) is a small island lying 11½ miles off the south-western coast of Formosa westward of Boryo (Panryo or Horyo). Between the island and Toko Hakuchi there is a remarkable deep-sea gully which is from ½ to 1 mile wide. This depression runs first in an easterly direction and then trends northward towards the coast of Formosa, near Toko. In one part no bottom has been found at 350 fathoms. There are two flat-topped hills on the south-eastern side of the island, the north-eastern one being the higher (291 ft.). In 1930 there was a population of 4624, most of whom were engaged in fishing and agriculture.

BEACHES

(i) In the centre of the south-east coast is about ½ mile of sandy beach where landing should be possible. Temporary anchorage can be obtained about 700 yds. off this shore, in a depth of about 20 fathoms over a sandy bottom.

(ii) On the north-western side is a bight in which there is a landing place for boats, near a white house. Depths off this shore are too deep for anchoring.

(iii) At the north-eastern extremity is a sandy beach where landing may be possible, but shoal water extends from this end of the island, and tide-races occur in the vicinity.

Kiirun To (**Ki-liong-to or Keelung-to**) (25°11½′*N*., 121°47′*E*.; *Plans* 5, 8, 16) is a precipitous, black, rocky island with a flat summit, lying off the north coast of Formosa, about 2¾ miles north-eastward of Banjintai Bi. There appear to be no beaches or practicable landing places.

About 200 yds. off the north-western side of this island is the rocky islet of Shokitsu, 92 ft. high. From the south-west of Kiirun To a spit of gravel and rock extends for about 2500 yds. Over this spit are strong tidal races.

Kaheio Sho (**Pinnacle Island**) (25°25′*N*., 121°56½*E*.; *Plans* 5, 8, 16) is a rugged rocky islet with precipitous sides off the north coast, about 18 miles northward of Peitau (Bito) Kaku. The islet is surrounded by numerous pointed rocks, and a reef extends about 200 yds. from its western side.

Menka Sho (**Craig Islet**) (25°29′*N*., 122°06′*E*.; *Plan* 5) lies about 9½ miles north-eastward of Kahei Sho (Pinnacle Island). It is a rocky islet on which are three rounded peaks. The south and east coasts are formed by precipitous cliffs. The north coast is low and rocky, with a small cove. There are off-lying rocks.

Hoka Sho (**Agincourt Island**) (25°38′*N*., 122°05′*E*.; *Plan* 5) lies about 8 miles northward of Menka Sho (Craig Islet) and has two rounded peaks. There are only a few trees on the island, and the vegetation consists principally of grass and rushes, forming a breeding ground for mountain sheep. The island is inhabited on the west coast by a few fishermen. On the west and south sides there are depths of less than 10 fathoms up to a distance of 600 yds. offshore, but the east side is steep-to. A rocky shoal, with a depth of 9 fathoms over it, lies about 1¾ miles to southward. There is a white, circular lighthouse on the summit of the island.

BEACHES. There are no details available, but it would appear possible for landings to be made on the west coast.

Koto Sho (**Antau Su or Botel Tobago I.**) (22°03′*N*., 121°32′E.; *Plans* 5, 10, 19) lies about 38 miles east-north-eastward of Garan Bi, the south-easternmost point of Formosa. The island rises steeply from the sea, and has a number of precipitous peaks, the highest point being Koto San (1807 ft.) (Ang-tau-sua). The hills are densely wooded, and there are several good streams of water.

The high temperature which accompanies the Kuro Shio (Japan Stream) causes an almost continuous low-lying mist over the island. In the winter the island is frequently obscured by rain.

The coast of Koto Sho is almost all of a rocky nature and the many off-lying pinnacle rocks render the inshore approaches hazardous.

There are seven villages on the island, the women being engaged in agricultural work, and the men in fishing.

Rakuda Iwa (Loq-to-gam), an islet 144 ft. high composed of peaked rocks, lies about 1000 yds. off the north-east point.

BEACHES

(i) Landing should be possible at the head of Yashiro Wan, on the south-west side of the island. Vessels, with local knowledge, can find anchorage in this bay, the north-west section of which is sheltered from northerly winds. There is good holding ground of sand. The best anchorage is about 600 yds. offshore, in a depth of 10 fathoms, with Oki no iwa bearing 270°, and the police station, a conspicuous white building, bearing 027°.

(ii) In Tosei Wan, on the east side of the island, where there are villages, it should be possible to land, and there is safe anchorage for vessels, except with easterly winds.

Shokoto Sho (**Sho Antau Su or Little Botel Tobago I.**) (21°57′*N*., 121°36½′*E*.; *Plans* 5, 10) lies about 3 miles south-south-eastward of the south point of Koto Sho, and except on its northern side, is fringed with rocks. A reef extends about 1600 yds. south-eastward from its southern side.

BEACHES. No information is available as to any possible landing places.

Kasho To (22°40′*N*., 121°29′*E*.; *Plans* 5, 10, 19) is a volcanic island off the east coast of Formosa, about 18 miles east-south-eastward of Taito. The island has two peaks, the highest of which are 907 and

896 ft. respectively. There are a few trees, but the principal vegetation is grass.

The north-eastern section of the island is flat and about 600 yds. off this shore is a peaked rock, 151 ft. high, in which is a hole. About 1200 yds. east-north-eastward of this rock is another rock, 16 ft. high.

The north-west point of Kasho To is Bito Kaku (Pi-tau-kak) off which the Kuro Shio (Japan Stream) runs strongly. This stream is also strong off Pantuon Pii (Pang-so-pi), the south-east point of the island. Whirlpools are formed over a wide area.

There are four villages on the island, and in 1932 the total population was nearly 2000. The inhabitants, who are Chinese, are employed in the cultivation of peanuts, sweet potatoes, bananas and limes. Cattle rearing and fishing are also carried on.

The only stream of water, a small one, is on the east side and there is a thermal spring between rocks on the south-east coast.

BEACHES

(i) In Nanryo Wan on the west coast, landing is possible at a stone mole, which has been constructed near the police station, in a gap in the coastal reef. Extreme caution is necessary in entering.

The whole shore, except for the gap, is fringed with coral reefs to a distance of nearly 200 yds. in places. Close outside the reefs are depths of 4 to 5 fathoms. The bottom is of rock and sand, and anchorage is not good, although sheltered from the north-east.

(ii) In Churyo Wan (Teonryau Wan or Tiong-liau-uan) on the north coast, there is a sandy beach fringed by coral reef about 200 yds. wide. There are rocks at the entrance to this bay.

There is no information available, but it may be possible to land on this beach at H.W., and, with local knowledge, anchorage can be obtained about 1000 yds. offshore in a depth of about 17 fathoms, with bottom of sand and rock.

Kisan (Kusoan or Kizan) To ($24°50\frac{1}{2}'N.$, $121°57'E.$; *Plans* 5, 9, 17) is a small island off the north-east of Formosa, about 6 miles eastward of the mouth of the Toi Ka (Tan-ui-tsui). Except for portions of the east and west coasts there are steep cliffs all round Kisan To. The highest point is in the centre where there is a peak of 1335 ft. The island is very volcanic and vapour may be seen rising from two or three places on the south coast. There is a lake on the eastern side.

On the west side of Kisan To is a village, the inhabitants of which are engaged in fishing and agriculture.

BEACHES. There are no details available, but it may be presumed that landing is possible at or near the village on the west coast and anchorage can be obtained in depths of less than 11 fathoms, about 400 yds. northward of a pebble bank which extends from this side of the island. The holding-ground is of sand.

PHOTOGRAPHS

ILLUSTRATING I.S.T.D. REPORT F/386

NOTICE. The following list gives the negative numbers corresponding to the photographs in this report.

Any demands for copies of individual photographs from this report should quote the report number and negative number, and be submitted through the proper channels to the Director of Naval Intelligence (Section XI) Admiralty.

Photo No.	*Negative No.*	*Photo No.*	*Negative No.*
G.1	434462	G.14	430030
G.2	60961	G.15	443778
G.3	439777	G.16	333865
G.4	442732	G.17	434493
G.5	430037	G.18	434494
G.6	439757	G.19	420578
G.7	439800	G.20	434496
G.8	430073	G.21	432485
G.9	430064	G.22	443779
G.10	443790	G.23	185587
G.11	434463	G.24	430085
G.12	432497	G.25	430086
G.13	435077	G.26	430284

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Beach 19	G.3
Beach 29	G.4
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Beach 40	G.12, 13
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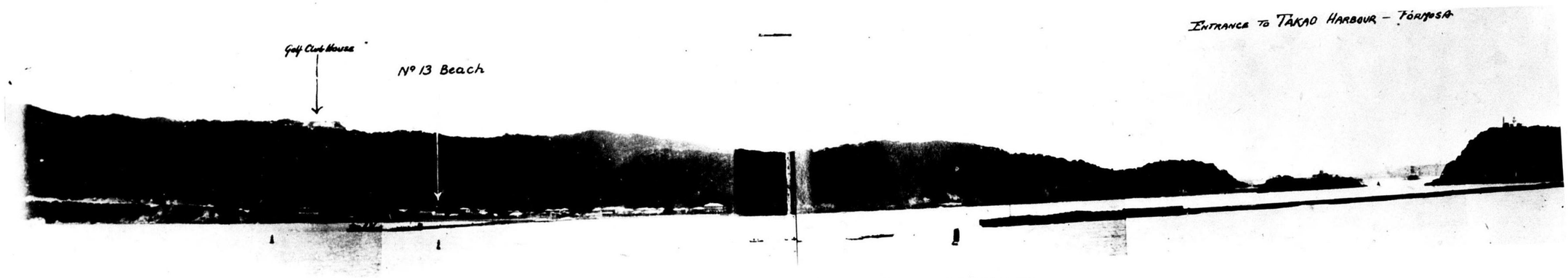
INTER-SERVICE TOPOGRAPHICAL DEPARTMENT

JUNE 1944

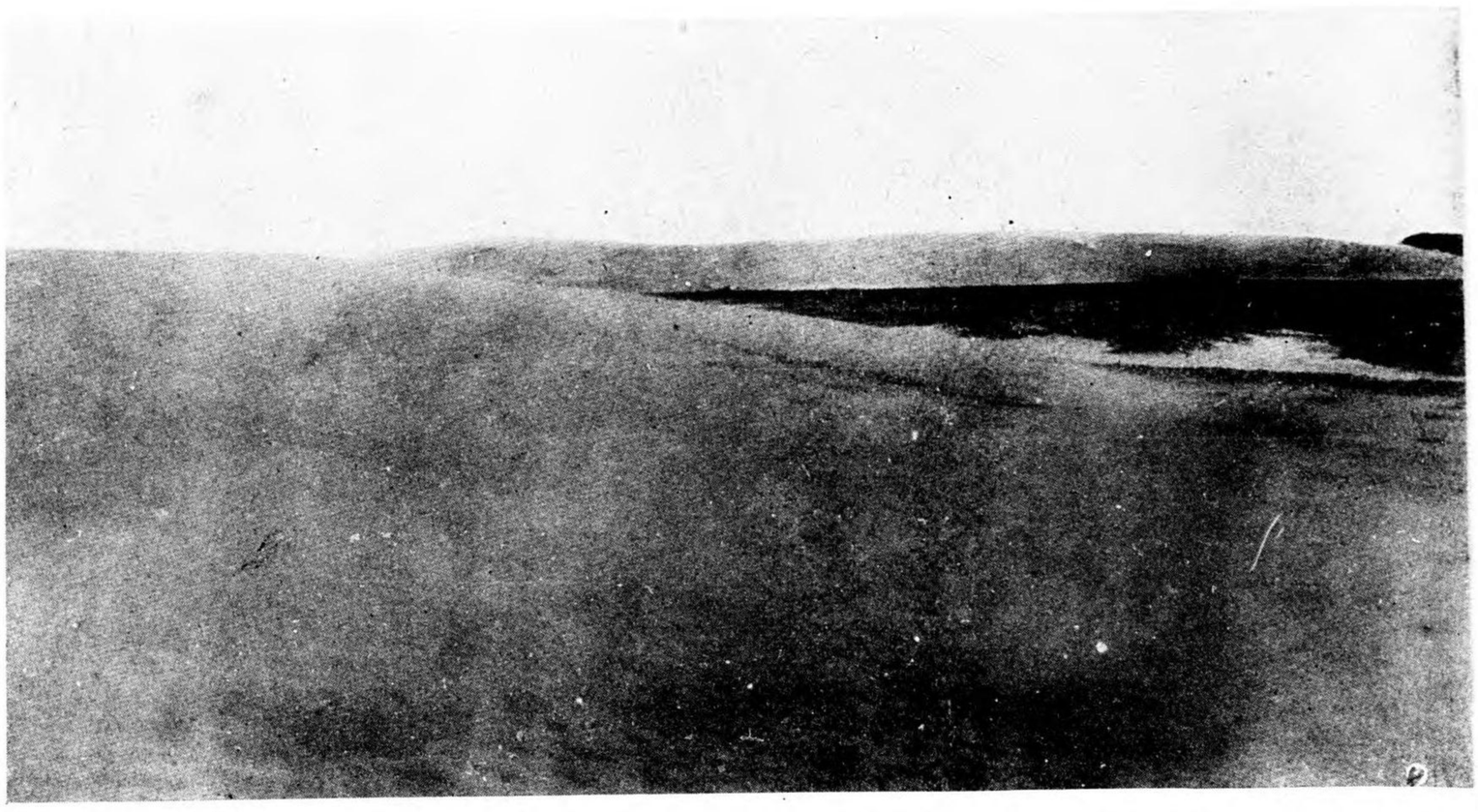
B.R.877Q

877(Q)F.386

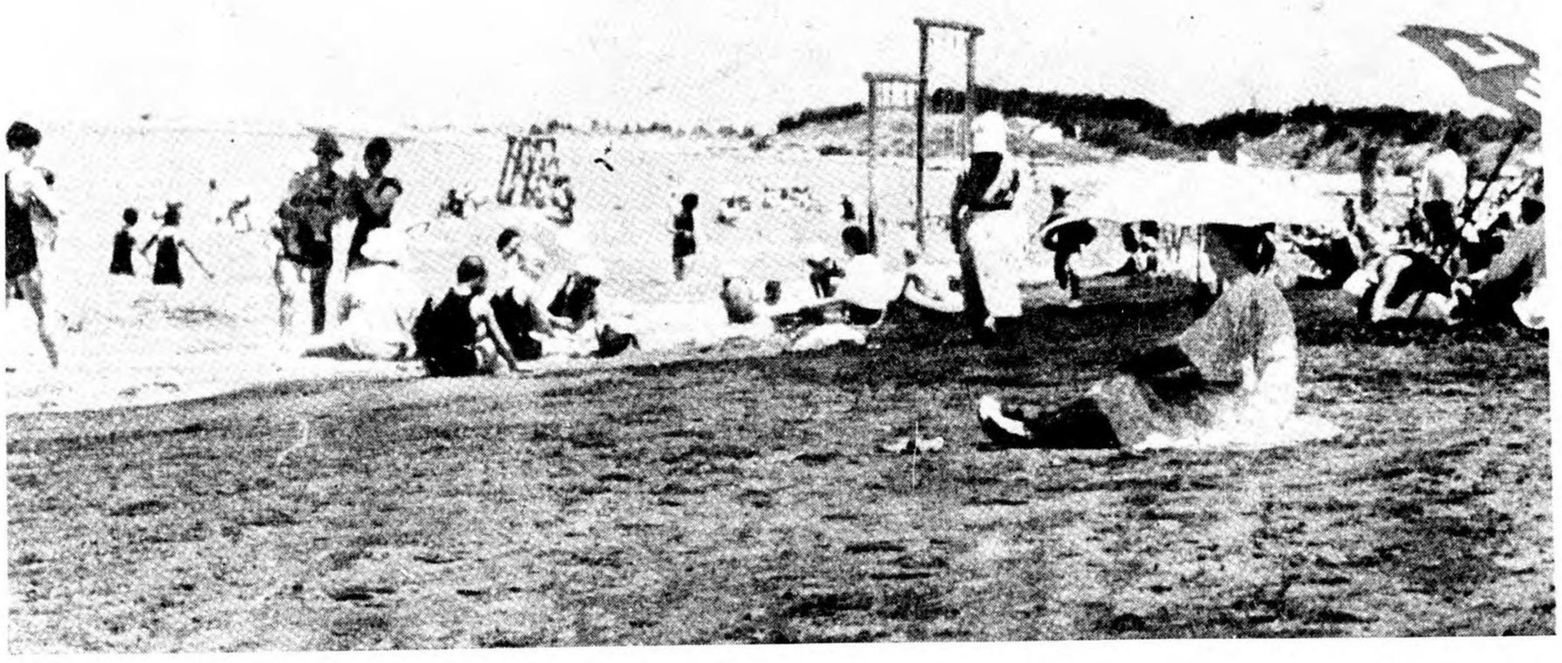
G.1. .West coast near Shajo. Probably vicinity of Shajo Kaku.



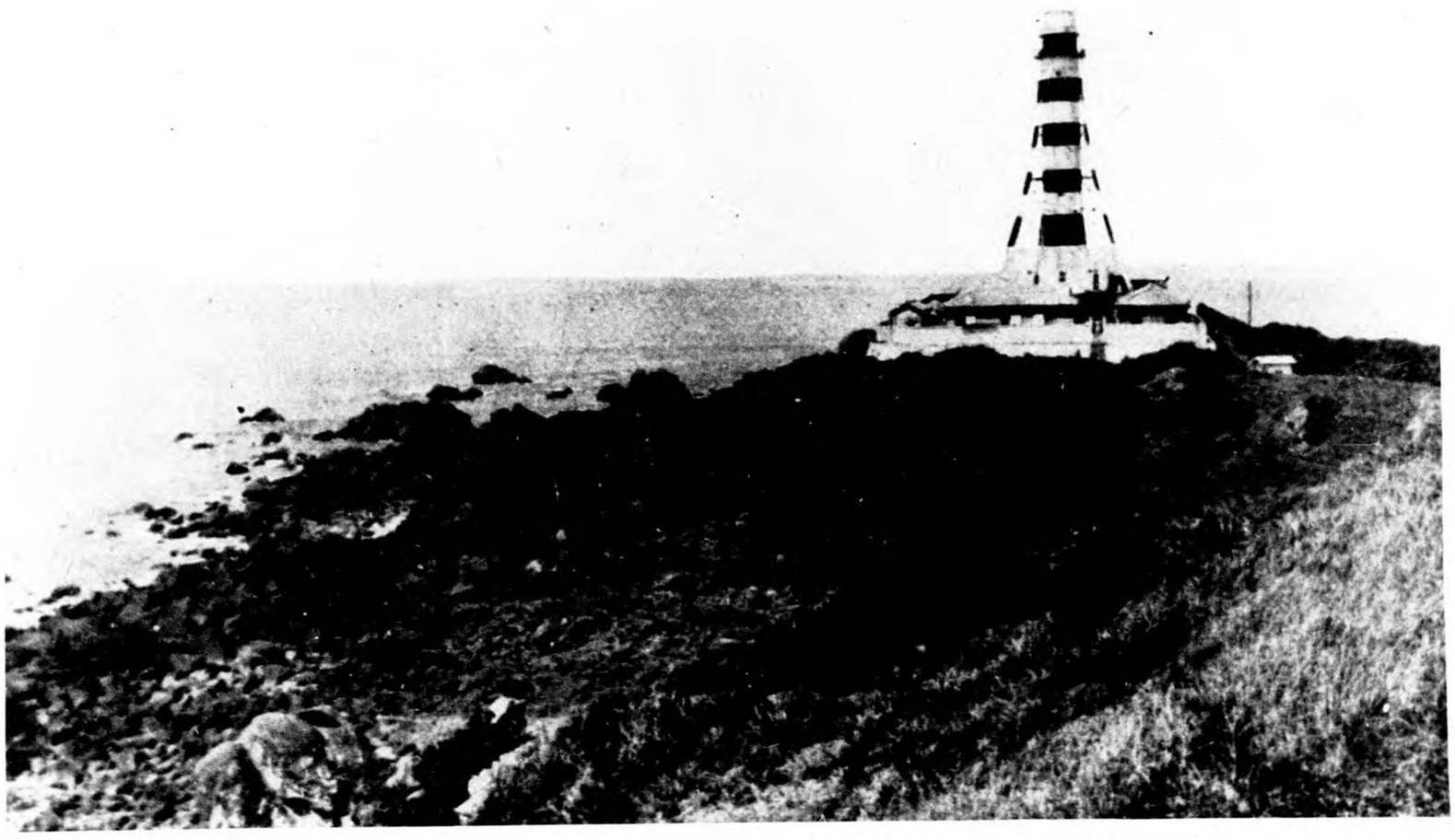
G.2. No.13 Beach. Takao: harbour entrance.



G.3. No.19 Beach. Hakushaton: sand dunes.

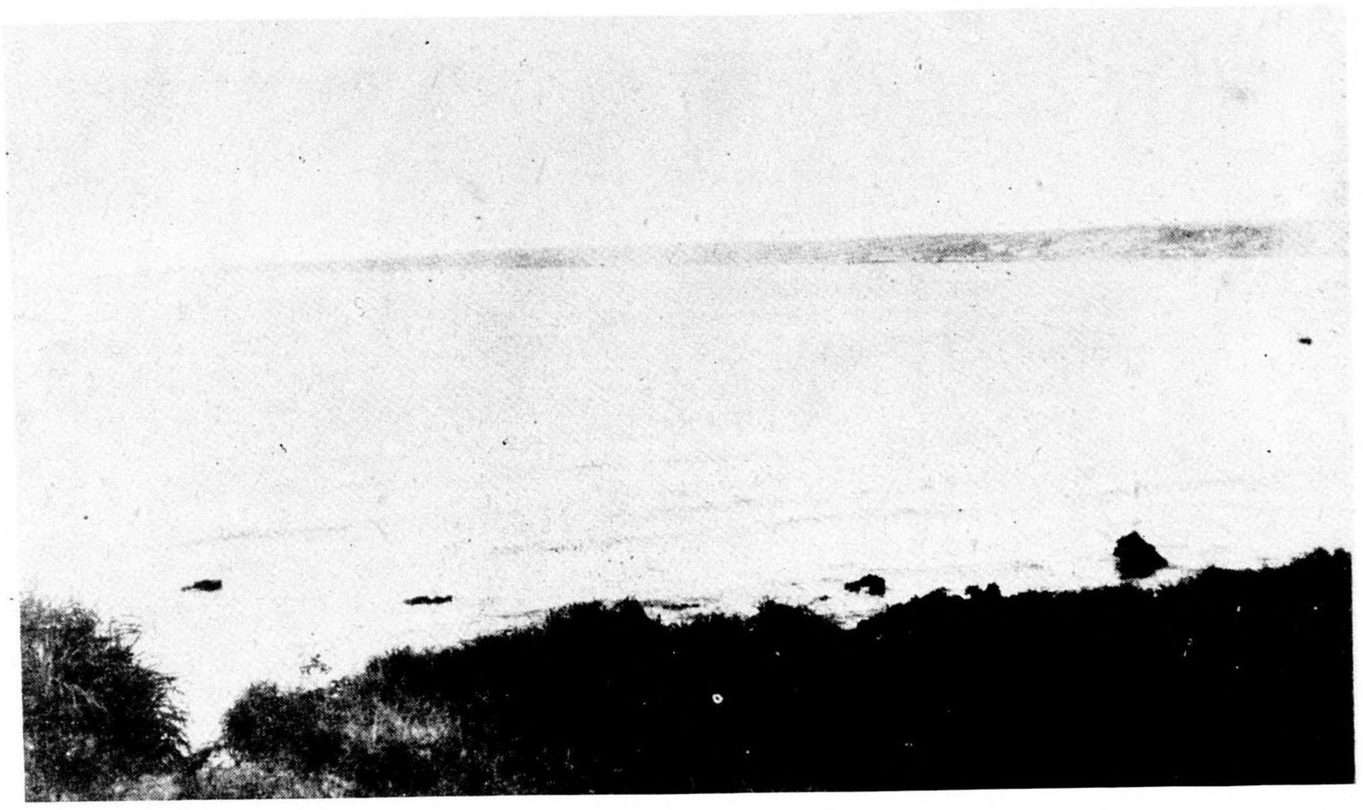


G.4. No.29 Beach. Tansui.

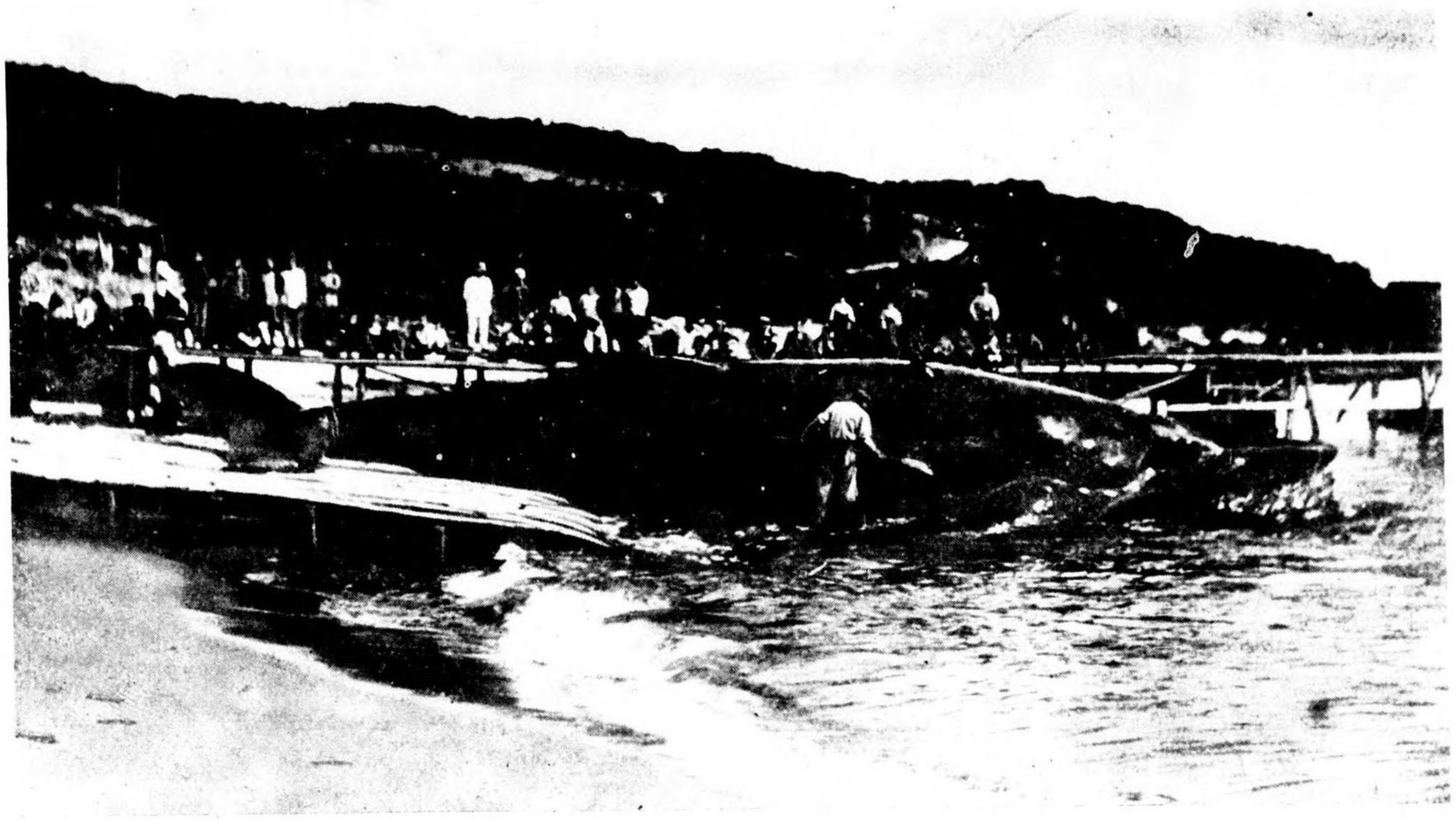


G.5. North coast. Fuki Kaku lighthouse.

877(3)F.386



G.6. Near No.37 Beach. South coast: west side of Nan Wan.



G.7. No.37 Beach. Toapanra (Daihanratsu): whaling station.

G.8. Garan Bi. South-east point of Formosa.

877(Q)F.386

G.9. Coast at Garan Bi. South-east point.

G.10. East coast. Typical view showing precipitous nature.

G.11. East coast near Taibu (Daibu).

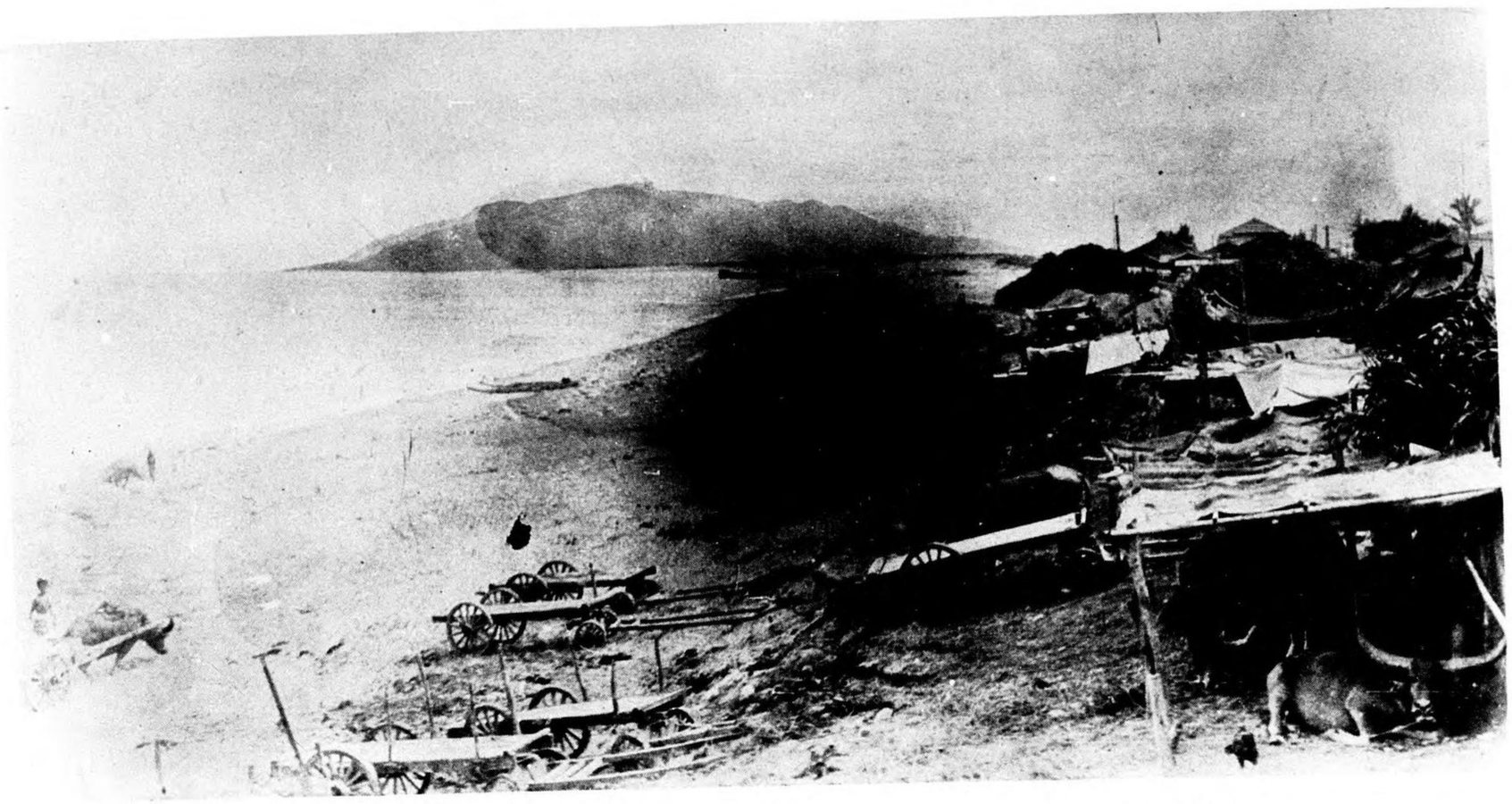
877(Q).E.286

G.12. No.40 Beach. Taito.

G.13. No.40 Beach. Taito.

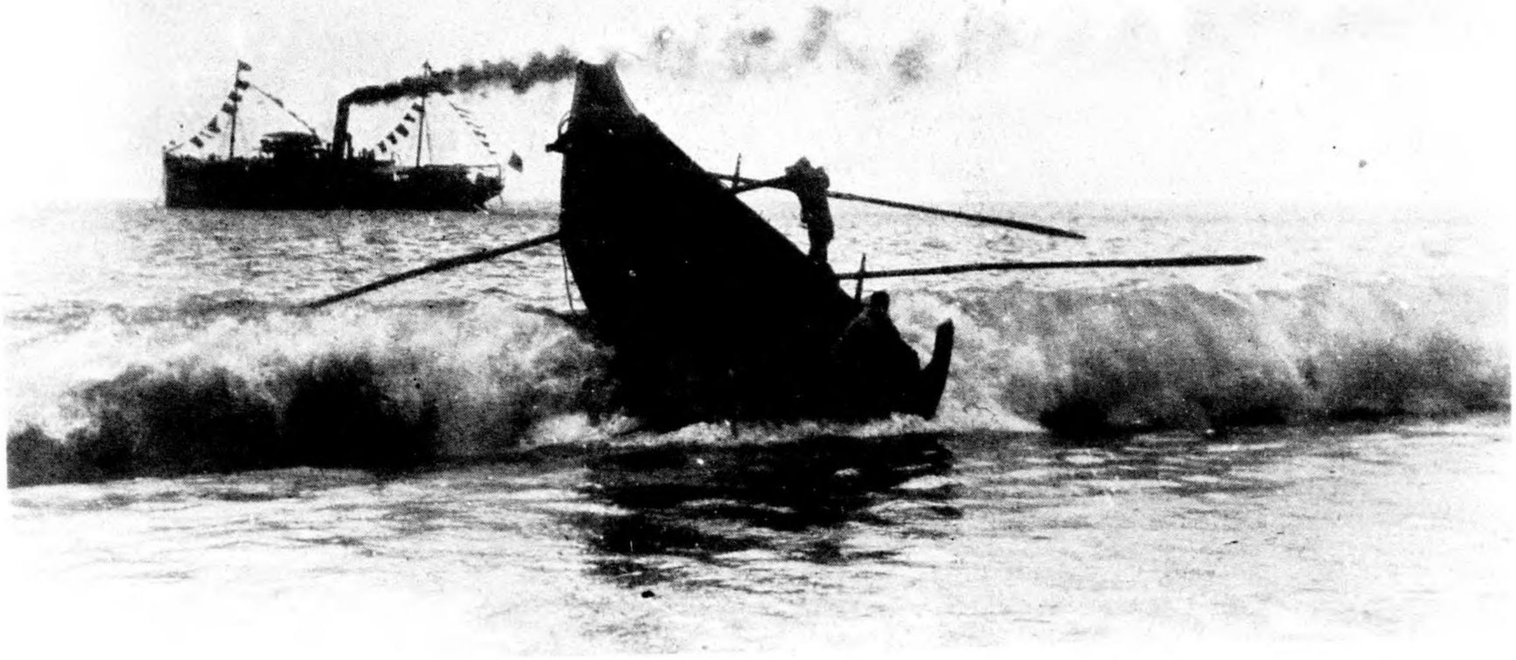
G.14. Taito. Fording the Pinan Taikei northward of town.

877(Q)F.386



G.15. No.43 Beach. Karenko, looking south.

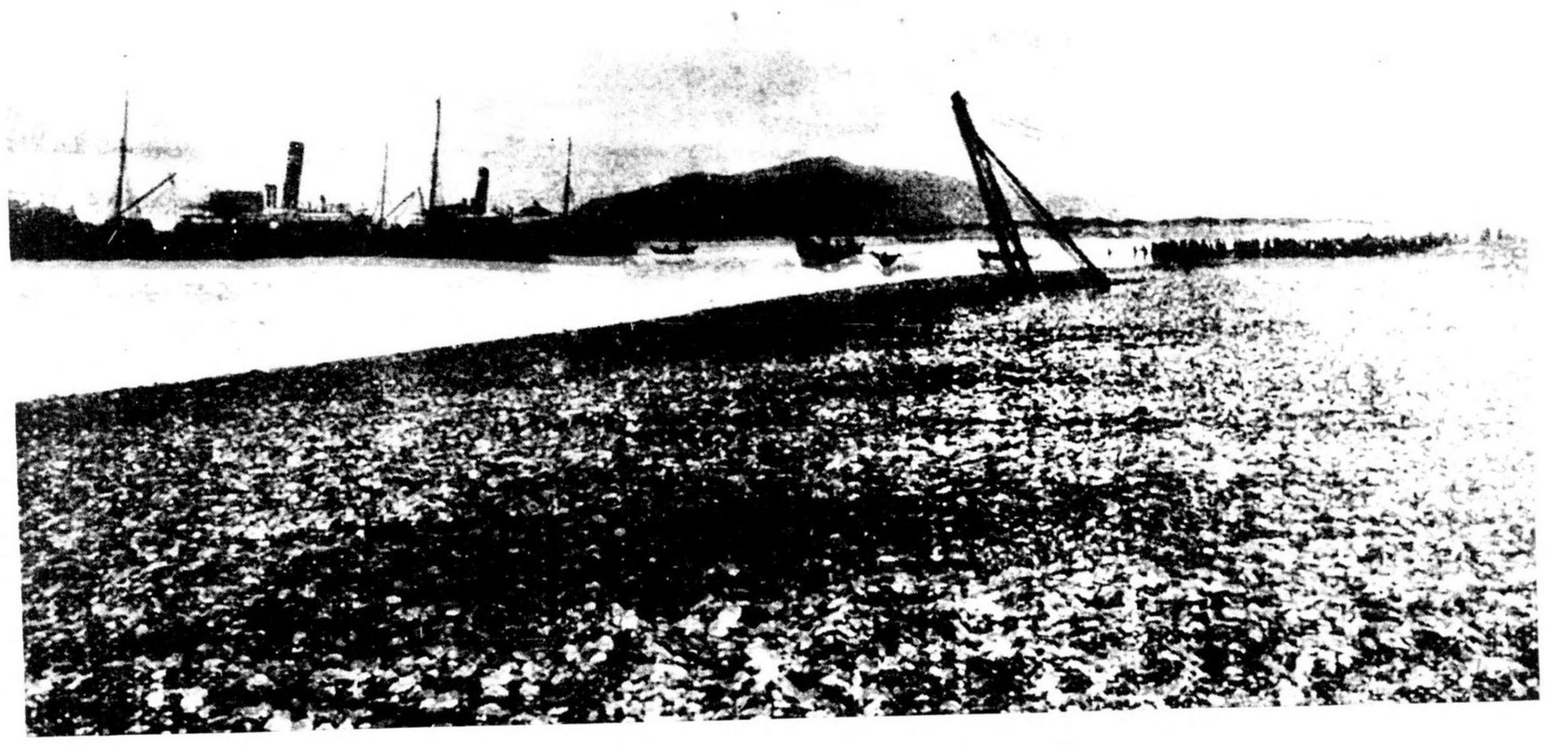
G.16. No.43 Beach. Karenko, looking south.



G.17. No.43 Beach. Karenko: surf.

877(9).E.386

G.18. No.43 Beach. Karenko.

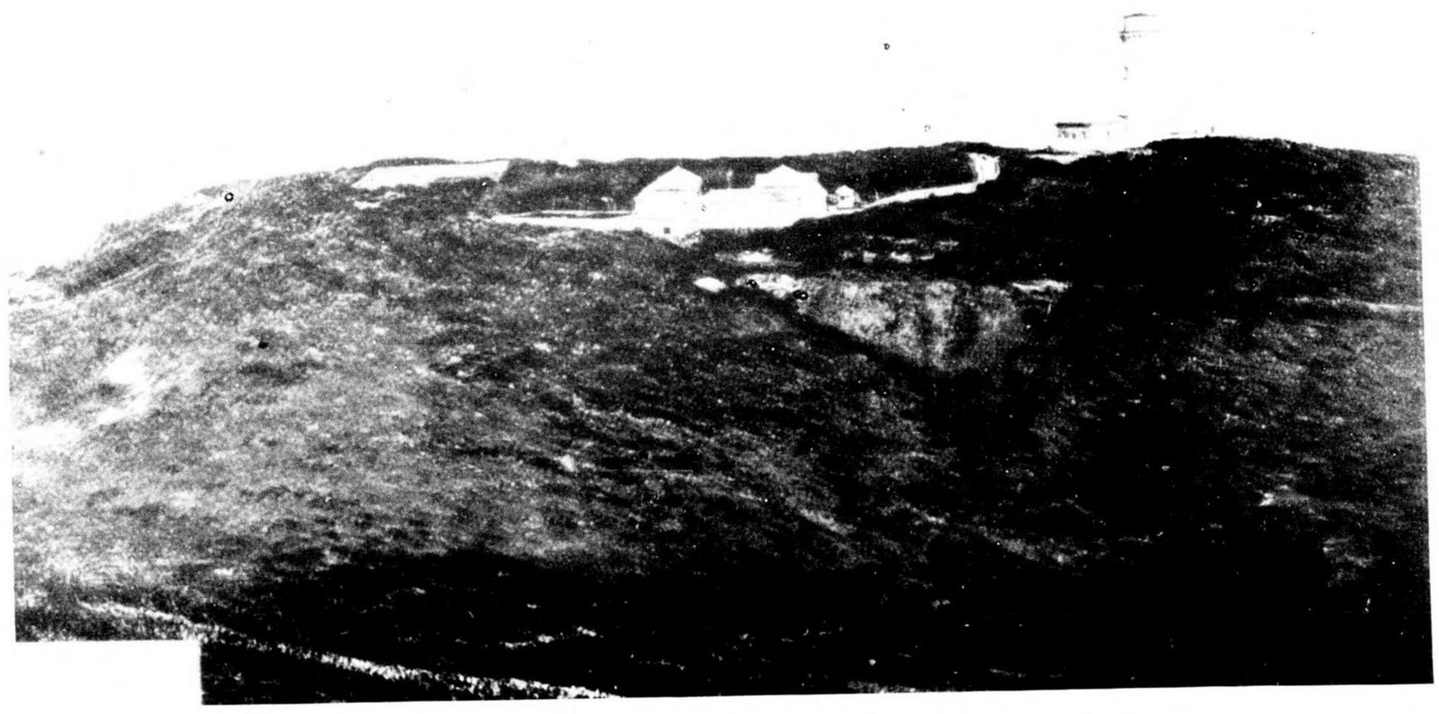


G.19. No.43 Beach. Karenko.

G.20. East coast. Between Karenko and Suo.

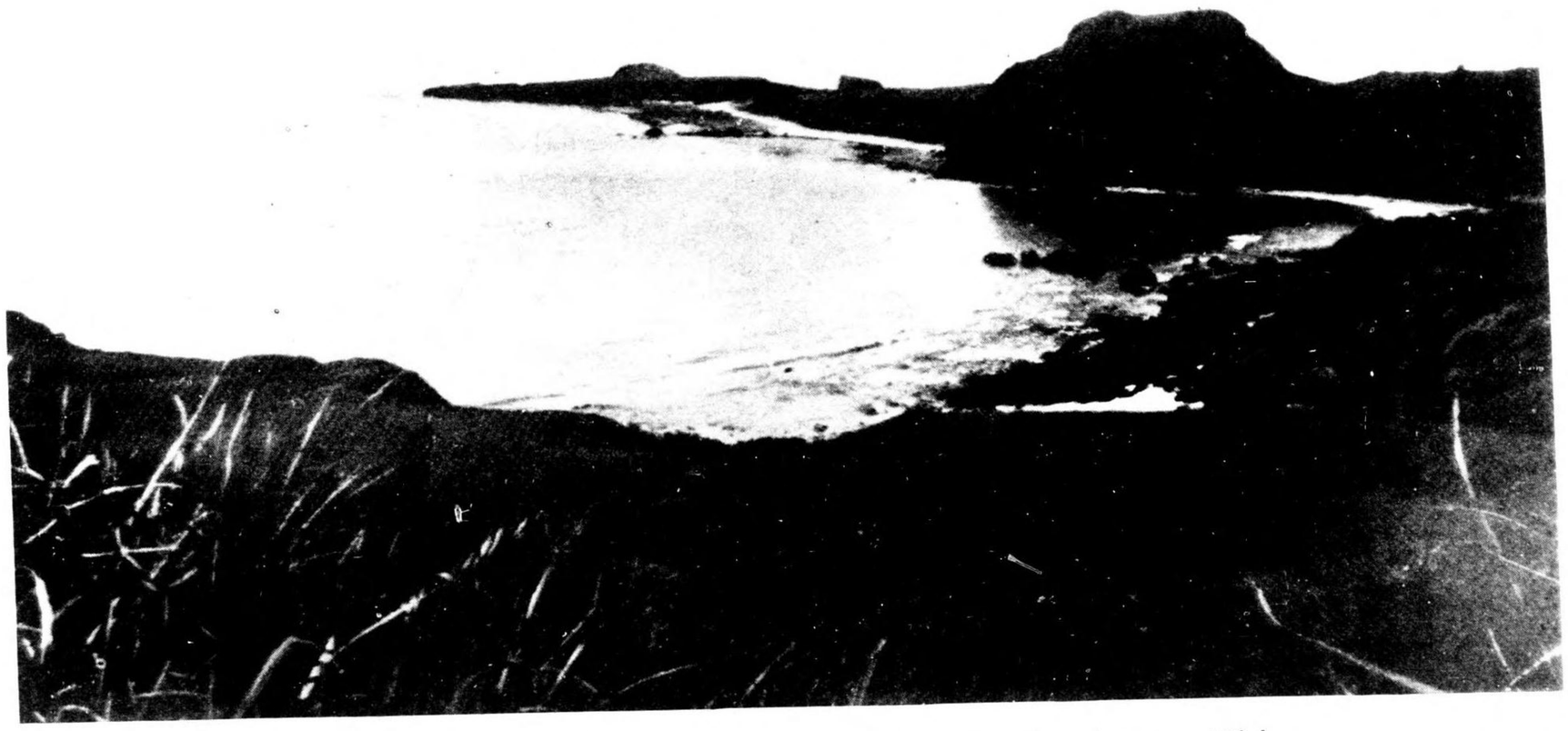
877(2)F.386

G.21. Shoryukyo To (Ryukyu Sho). Kinoshi rock and beach.



G.22. Hoka Sho (Agincourt Island).

G.23. Koto Sho (Antau Su). View of Yashiro Wan.



G.24. Kasho To. Looking towards Pantsuon Pii.

G.25. Kasho To. North coast of island.

G.26. Kisan (Kusoan) To (off north-east coast).

I.S.T.D. REPORTS ON FORMOSA

These reports are preliminary editions of the various parts of B.R. 877 Q, the I.S.I.S. report on Formosa. The list which follows is the list of plans for B.R. 877 Q and shows in which I.S.T.D. report advance copies of these plans are to be found.

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Plan No.	*Title*	*Date*	*Contained in I.S.T.D. Report*
1	General	*April* 1944	F/383
2	Geology	*April* 1944	F/383
3	Airfield Suitability	*April* 1944	F/383
4	Resources	*April* 1944	F/384
5	Key to Coast and Port Plans	*April* 1944	F/386
6	Garan Bi to the Nisoko Kei: Beaches and Landing-places	*April* 1944	F/386
7	The Nisoko Kei to Koryu Road: Beaches and Landing-places	*April* 1944	F/386
8	Koryu Road to Suo Wan: Beaches and Landing-places	*April* 1944	F/386
9	Karenko to Sancho Kaku: Beaches and Landing-places	*April* 1944	F/386
10	Garan Bi to Taito Hakuchi: Beaches and Landing-places	*April* 1944	F/386
11	Key to Roads	*April* 1944	F/385
12	South Coast: Hakikaku	*April* 1944	F/385
13	West Coast: Tainan	*April* 1944	F/385
14	West Coast: Kagi	*April* 1944	F/385
15	West Coast: Taichu	*April* 1944	F/385
16	North Coast: Taihoku	*April* 1944	F/385
17	East Coast: Giran	*April* 1944	F/385
18	East Coast: Karenko	*April* 1944	F/385
19	East Coast: Koto Sho	*April* 1944	F/385
20A	Takao: Mosaic	*December* 1943	F/387
21A	Toshien: Mosaic	*January* 1944	F/387
23	Tansui: Port	*April* 1944	F/387
24	Kiirun: Port	*April* 1944	F/387
25A	Suo: Mosaic	*November* 1943	F/387
26	Karenko: Port and Town	*April* 1944	F/387
27A	Heito: Mosaic	*January* 1944	F/387
28A	Tainan: Mosaic	*January* 1944	F/387
29A	Kagi: Mosaic	*January* 1944	F/387
30A	Taichu: Mosaic	*January* 1944	F/387
31A	Shinchiku: Mosaic	*November* 1943	F/387
32	Taihoku: Town	*April* 1944	F/387
33	Submarine Cables: Tansui Ko	*April* 1944	F/385
34	Submarine Cables: Pescadores Channel	*April* 1944	F/385
35	Kato: Seaplane base	*November* 1942	F/385
36-40	Not issued		
41	Pescadores: Mosaic	*December* 1943	F/440
42	Pescadores: Topography	*June* 1944	F/440
43	Pescadores: Beaches and Landing-places	*May* 1944	F/440
44	Pescadores: Roads	*June* 1944	F/440

INTER-SERVICE TOPOGRAPHICAL DEPARTMENT

MAY 1944

FROM ADMIRALTY CHART No. F. 0443

GARAN BI TO THE NISOKO KEI

BEACHES AND LANDING PLACES

REFERENCE

16 — Refers to Beach described in text

5 — Refers to Landing Place described in text

PORT — Refers to Port described in text

T A I N A N

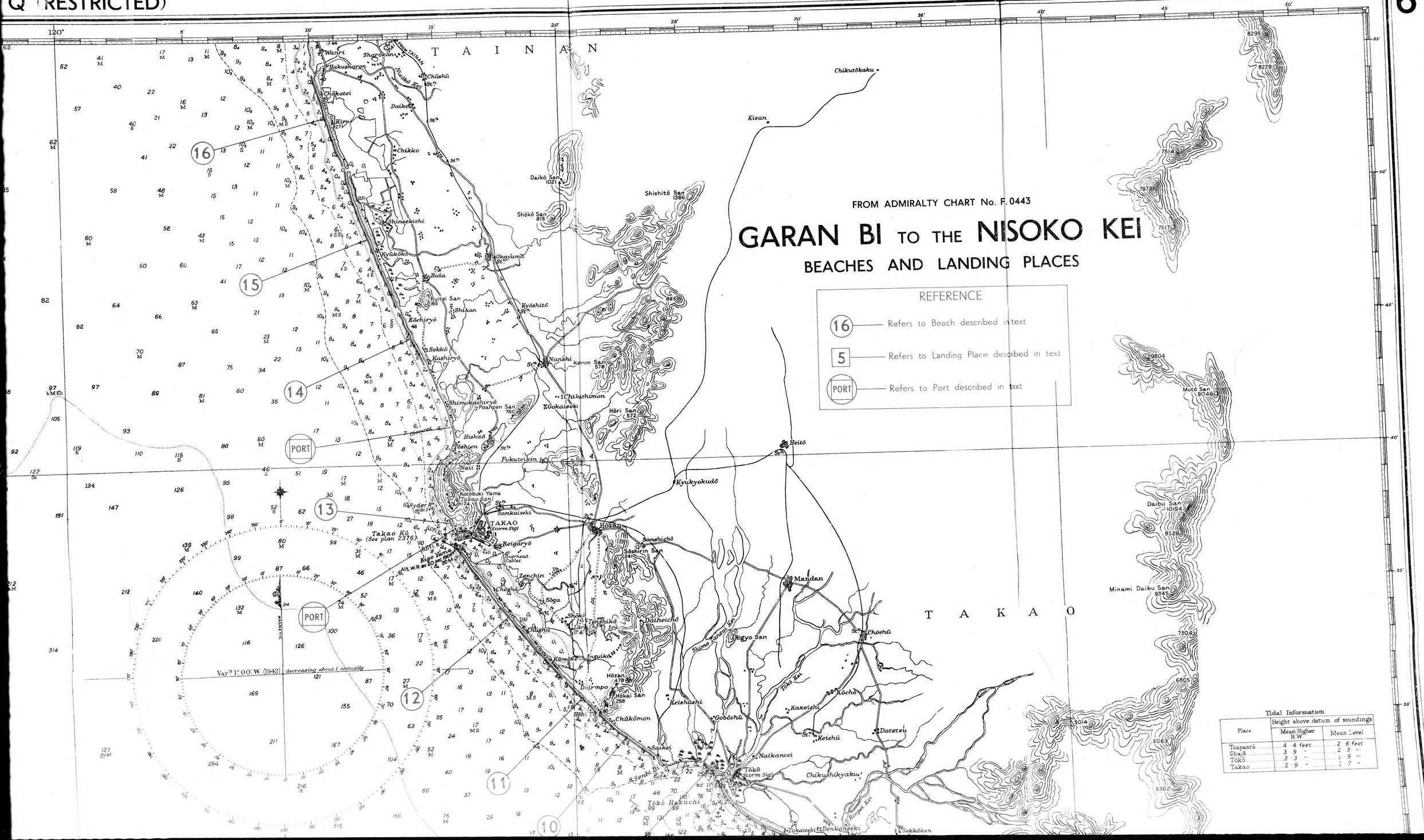
T A K A O

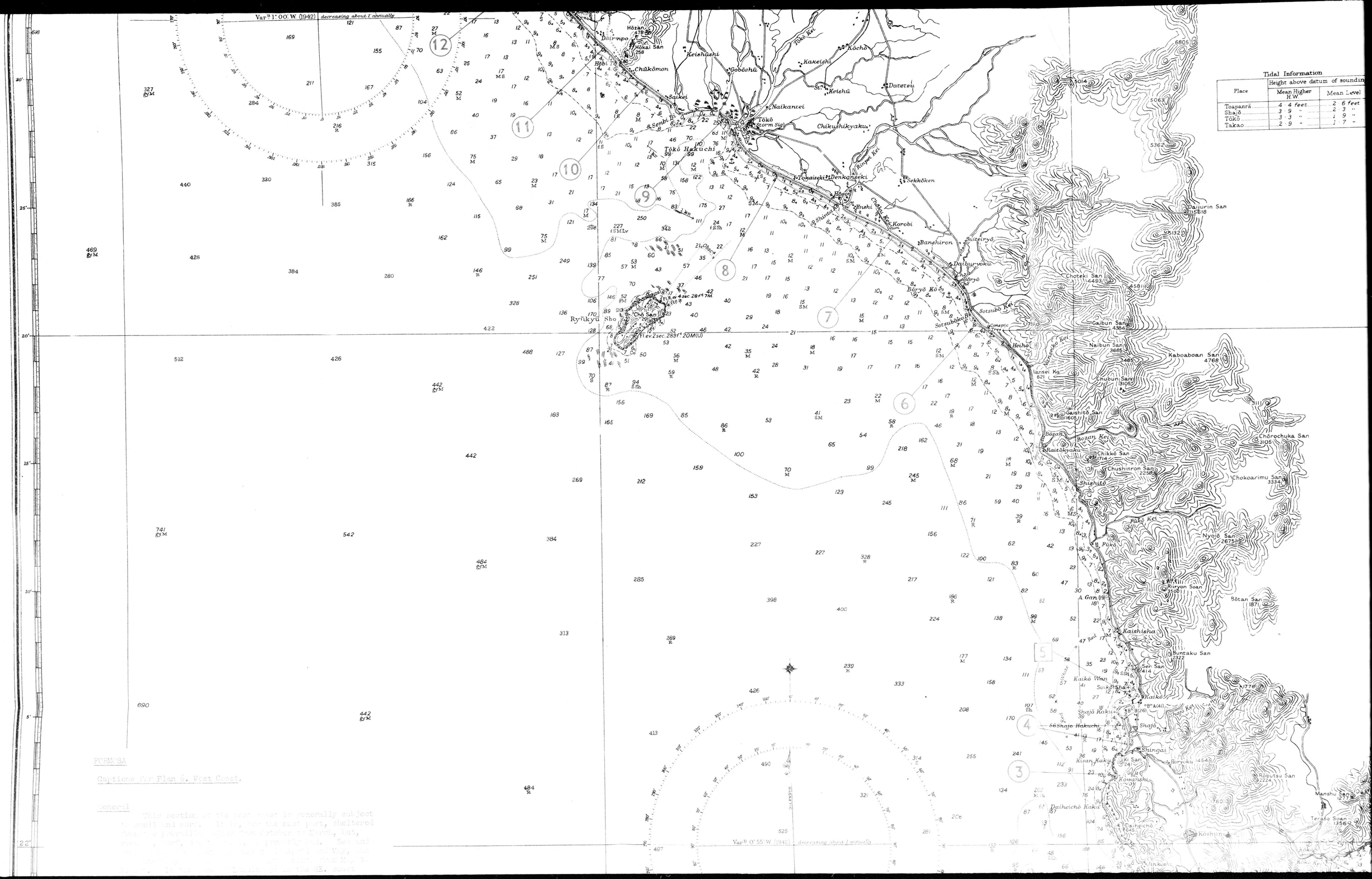
Wanri
Shandkan
Hakusharan
Chūshū
Nanshō Kōtō
Chōkatei
Daikō
Kiryū
Chikko
Daikō San 1021
Shishitō San 1386
Shōkō San 815
Shinsekishi
Kyūkōkō
Okayama
Bida
Ruitei San 165
Shikan
Kyōshitō
Kōchiryō
Sekkō
Kashiryō
Nanshi
Kinon San 578
Chikushimon
Gokaiseki
Shimokashiryō
Poshipen San 760
Hōri San 572
Hishitō
Toshien
Fukuteikin
Nait
Heitō
Kyukyokudō
Kotobuki Yama
Takao Sch
Sankaiseki
TAKAO (Storm Sig)
Takao Kō (See plan 2376)
Hōzan
Reigaryō
Overhead Cables
Kigo Yama
Alt. W.R.
Zenchin
Shōgyō
Sōga
Shōkō
Tenshikō
Kiushū
Sanshichō
Sōshirin San 241
Mandan
Daiheichō
Rigyo San
Shima Tateiwa Kei
Chōshū
Kōmokō
Ensuikō
Hōzan 478
Dairinpo
Hōkai San 258
Hōbi
Chūkōmon
Keishūshi
Tōkō Kei
Kōchō
Kakeishi
Goboshū
Datetsu
Keishū
Saikei
Naikanrei
Tōkō (Storm Sig)
Chikushikyaku
Tōkō Hokuchi
Senbi Pt
Rinpei Kei
Tokaiseki
Denkanseki
Sekkōken
Chikutōkaku
Kisan
8295
8229
7514
7973
7517
9604
Mutō San 9046
Daibu San 10194
9529
Minami Daibu San 9345
7304
6805
5014
5063
5362

Tidal Information

Place	Height above datum of soundings	
	Mean Higher H.W.	Mean Level
Toapanrā	4 4 feet	2 6 feet
Shajō	3 9 "	2 3 "
Tōkō	3 3 "	1 9 "
Takao	2 9 "	1 7 "

Var^n 1° 00' W. (1942) decreasing about 1' annually


FROM ADMIRALTY CHART No. F. 0443
GARAN BI TO THE NISOKO KEI
BEACHES AND LANDING PLACES
REFERENCE
16 Refers to Beach described in text
5 Refers to Landing Place described in text
PORT Refers to Port described in text
T A I N A N
T A K A O
Chikutōkaku
Kisan
Daikō San 1021
Shishitō San 1386
Shōkō San 815
Nanshi
Kinnon San 578
Chikushimon
Gokaiseki
Hōri San 572
Heitō
Kyukyokudō
Hōzan
Sanshichō
Sōshirin San 241
Mandan
Chōshū
Rigyo San
Daiheichō
Keishūshi
Gobōshū
Kakeishi
Kōchō
Datetsu
Keishū
Naikantei
Tōkō (Storm Sig)
Chikushikyaku
Tōkō Hakuchi
Tokaiseki
Denkanseki
Sekkōken
Takao Kō (See plan 2376)
TAKAO (Storm Sig)
Reigaryō
Sankaiseki
Kotobuki Yama (Takao San) 1174
Naii
Fukuteikin
Hishitō
Tōshien
Shimokashiryō
Poanpen San 780
Kashiryō
Sekkō
Kōchiryō
Shikan
Ruitei San 165
Bida
Kyūkōkō
Shinsekishi
Chikko
Daikō
Chūshū
Kiro
Chōkatei
Hakusharon
Wanri
Sharokan
Chūshū
Kyōshitō
Okayama
Var^n 1° 00' W. (1942) decreasing about 1' annually
Tidal Information
Place
Height above datum of soundings
Mean Higher H.W.
Mean Level
Toapanrā 4·4 feet 2·6 feet
Shajō 3·9 " 2·3 "
Tōkō 3·3 " 1·9 "
Takao 2·9 " 1·7 "



Tidal Information

Place	Height above datum of soundin	
	Mean Higher H.W.	Mean Level
Toapanrā	4 · 4 feet	2 · 6 feet
Shajō	3 · 9 "	2 · 3 "
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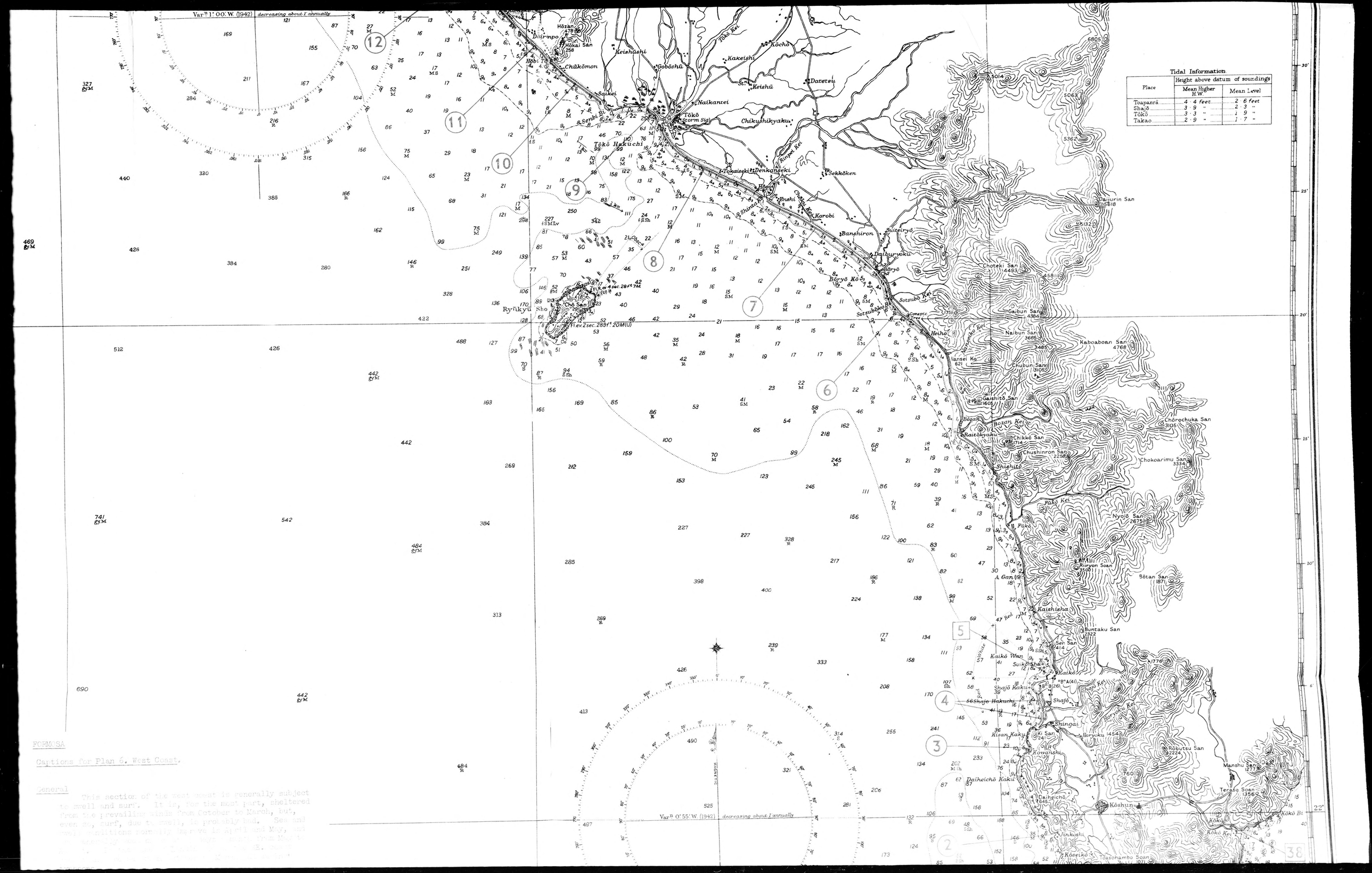
FORMOSA

Captions for Plan 6. West Coast.

General

This section of the west coast is generally subject to swell and surf. It is, for the most part, sheltered from the prevailing [illegible] from October to March, but, even [illegible] in [illegible] and [illegible] from May to [illegible] the SE. coast



Tidal Information

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This section of the west coast is generally subject to swell and surf. It is, for the most part, sheltered from the prevailing winds from October to March, but, even so, surf, due to swell, is probably bad. Sea and swell conditions normally improve in April and May, and [illegible]

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General

This section of the west coast is generally subject to swell and surf. It is, for the most part, sheltered from the prevailing winds from October to March, but, even so, surf, due to swell, is probably bad. Sea and swell conditions normally improve in April and May, and are generally good on about 25 days a month from May to August. In the case of Landing 38 on the SE. coast conditions are bad from October to March and during typhoons.

Beaches Nos. 1 to 3 inclusive

Small, sandy beaches on high and rocky or reef-fringed shore. Landing of small forces should be possible in fair weather, or with an offshore wind.

Tracks afford access inland but the hinterland is hilly.

Beaches and Landing Place Nos. 4 and 5

Beach 4 is sandy. Landing should be possible in fair weather, at all states of the tide, but suitable for infantry only. Length, 1¼ miles, with gradual inshore gradient. Approaches, clear. No known paths or tracks from shore to road. Cross-country movement over low-lying ground, much of which is marshy or paddy fields.

Landing 5 at the boat-harbour, Kaiko, should be practicable for infantry and light M/T. The sandy beach north-eastward of the boat-harbour might also be used. Easy access to the main road from both harbour and beach.

Beaches Nos. 6 to 11 (inclusive)

Sandy or pebbly beaches fronting a wide, alluvial plain, and forming an almost continuous front. Approaches clear, but coast exposed to swell and surf.

Access to the main road exists throughout, by means of tracks or earth roads. Beach 8 is backed by lagoons and Beach 9 by swampy land. The hinterland is a flat, cultivated plain, with a fair proportion of paddy, except that a ridge of low hills runs southward from Hozan, touching the coast between Beaches 10 and 11.

Beaches Nos. 12 and 13

Sandy beaches on either side of the port of Takao. Beach 12 fronts the spit enclosing the lagoon on which the port stands.

Approaches are clear, with gradual inshore gradient, but the shore is liable to surf.

Easy access to roads in both cases.

Beaches Nos. 14 to 16 (inclusive)

Almost continuous sandy shore, with gradual inshore gradient. Approaches clear, but some surf possible. Much of this front is backed by lagoons, but exits in the form of tracks and paths exist, except for Beach 15, from which there are no exits. A flat, cultivated plain backs the whole front, with a few rivers and many small streams.

Beach No. 37.

Two small sandy (or sand and pebble) beaches at the head of Nan Wan. Numerous off-lying dangers, rocks, shoals, and foul ground. In each case access to the road should present little difficulty.

Landing Place No. 38.

It may be possible for small craft to enter the

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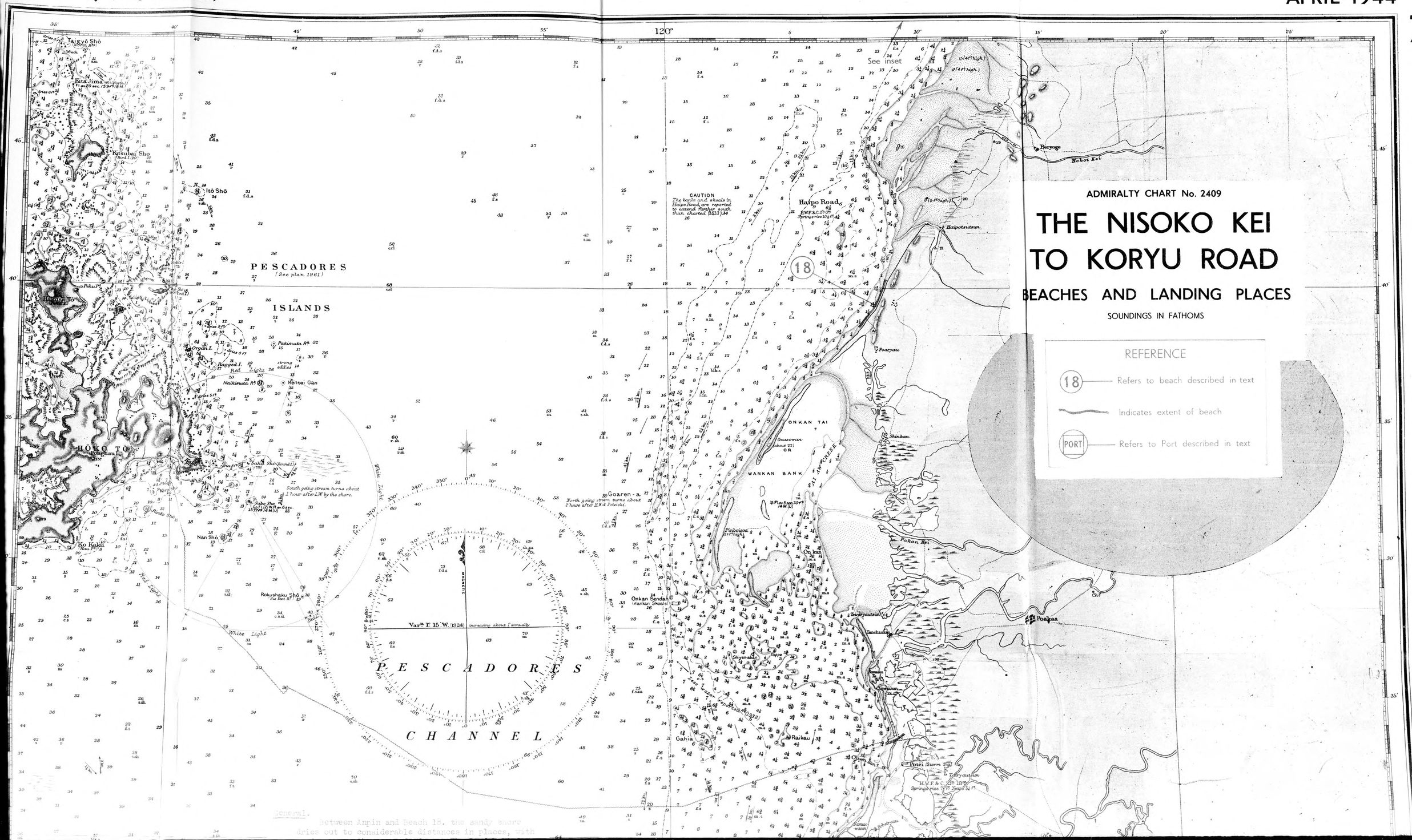
General. Between Anpin and Beach 18. the sandy shore dries out to considerable distances in places, with



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P E S C A D O R E S

C H A N N E L

General.

Between Anpin and Beach 18. the sandy shore dries out to considerable distances in places, with sand cays on the seaward edge. The land behind is very low and intersected by numerous streams.

From Haipo Road to Taian Kan the coast is low, with sand-dunes and small hillocks, and fronted by drying mud-and-sand flats, extending as much as 3 miles in places. Tidal streams are strong. There is always a current setting inshore.

Sea and swell conditions exist along this coast, but improve in April and May. Conditions are generally good on about 25 days a month from May to August.

The newly-developed port of Gosei is included in this area.

No. 17 Beach. (Anpin).

Three miles of sandy shore, leading SSE. from the entrance to Anpin. Shoal patches close inshore and a very gradual inshore gradient. There is probably surf with westerly winds or with swell.

Beach backed by salt-pans, fishponds and swamp. Exits very poor and appear to be confined to two tracks leading inland from small coastal villages.

No. 18 Beach. (Haipo Road).

Two miles of sandy shore, very gradual inshore gradient, shallow banks and shoals off-lying. Beach backed by sand-dunes, with low, flat, and possibly rough and swampy ground beyond, together with cultivation, including paddy. Earth road from village at centre and tracks and paths from other parts of the front, give access inland.

No. 19 Beach. (Hakushaton).

Eight miles of sand and possibly pebbles. Clear approaches with variable, but gradual, inshore gradient. Boulders at the south, centre, and north of beach.

Backing the shore is a single-track line of railway. Main road follows the railway northward to Hakushaton, and then trends inland. Hills rise close behind road and railway.

Seikitsu Sho

Tokchi Sho

Shyen-alan

Raikau

Gahia

Potei (Storm Sig)

H.W.F.& C. 7h 18m
Springs rise 14 feet
Neaps 9 ft.

Tokyautsun

Sumaowatan

Shimentsun

Iyantsuikan

Katsuragi Su

Ongo Kan

Tayau

Tsukumoisutsun

Shoseiryo

Chinraku

Pesowakó

Uryo

Monkausoa

Shorange

Sowaryo

Western Sand Bars

Toahyan Tai

Oryo

Sofuri ke

Kokuhain Hana

Southern Sand Bars

Dojó su

Kokuhain Tsuno

ANPIN

TAINAN

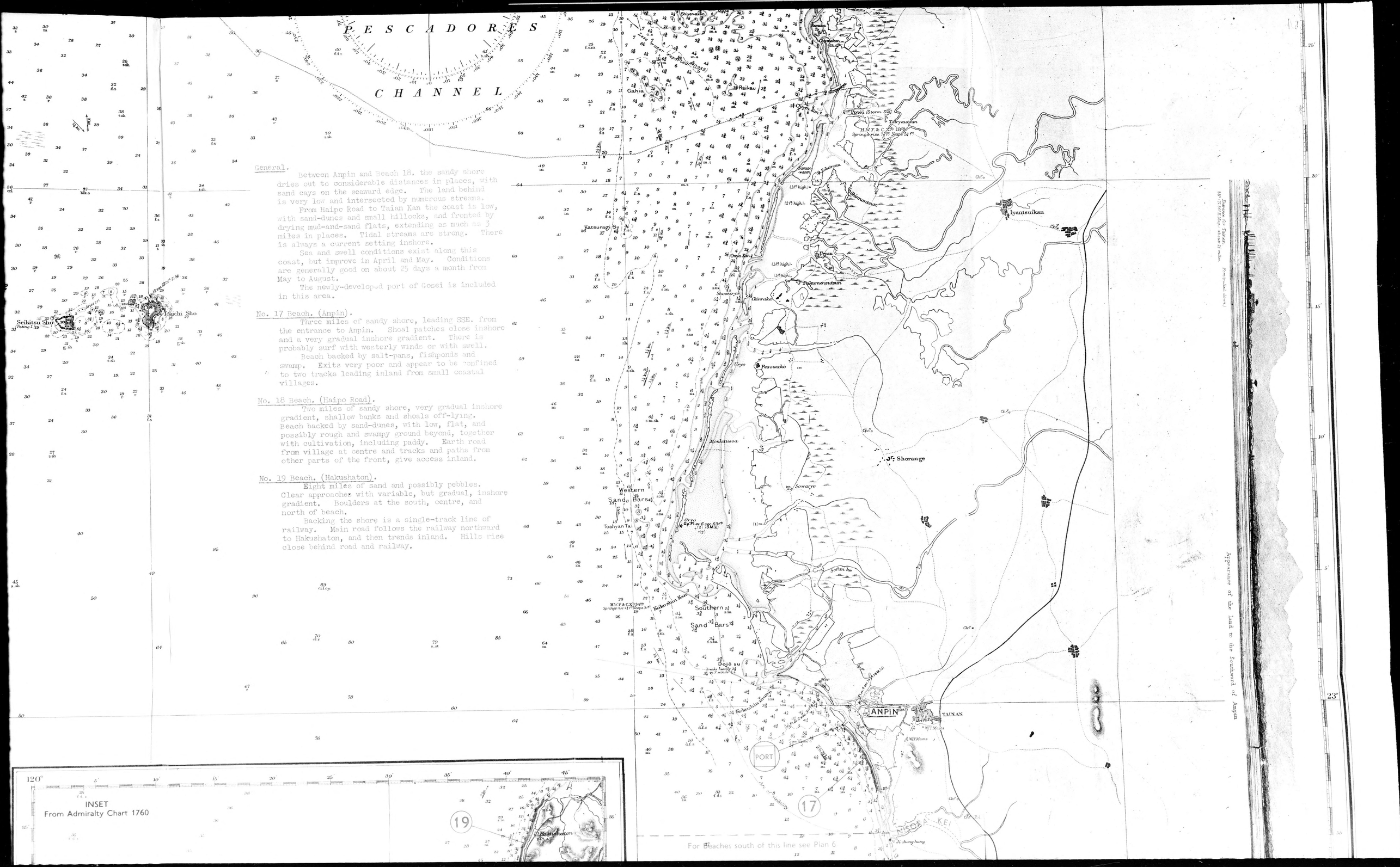
PORT

17

19

For Beaches south of this line see Plan 6

INSET
From Admiralty Chart 1760



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INSET
From Admiralty Chart 1760

For Beaches south of this line see Plan 6.

NOTE
To agree with larger scale Admiralty plan 2376, the latitude of Takao should be increased by about 30 seconds.

INSET
From Admiralty Chart 1760

For Beaches south of this line see Plan 6.

NOTE
To agree with larger scale Admiralty plan 2376, the latitude of Takao should be increased by about 30 seconds.

Prepared by Inter-Service Topographical Department as regards superimposed work.

Produced under the Superintendence of Vice-Admiral Sir John Edgell, K.B.E., C.B., F.R.S., Hydrographer.

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Produced under the Superintendence of Vice-Admiral Sir John Edgell, K.B.E., C.B., F.R.S., Hydrographer.

FROM ADMIRALTY CHART 3658

KŌRYU ROAD to SO O WAN
(AURAN)

BEACHES AND LANDING PLACES

SOUNDINGS IN FATHOMS

REFERENCE

(24) — Refers to beach described in text

[22] — Refers to landing described in text

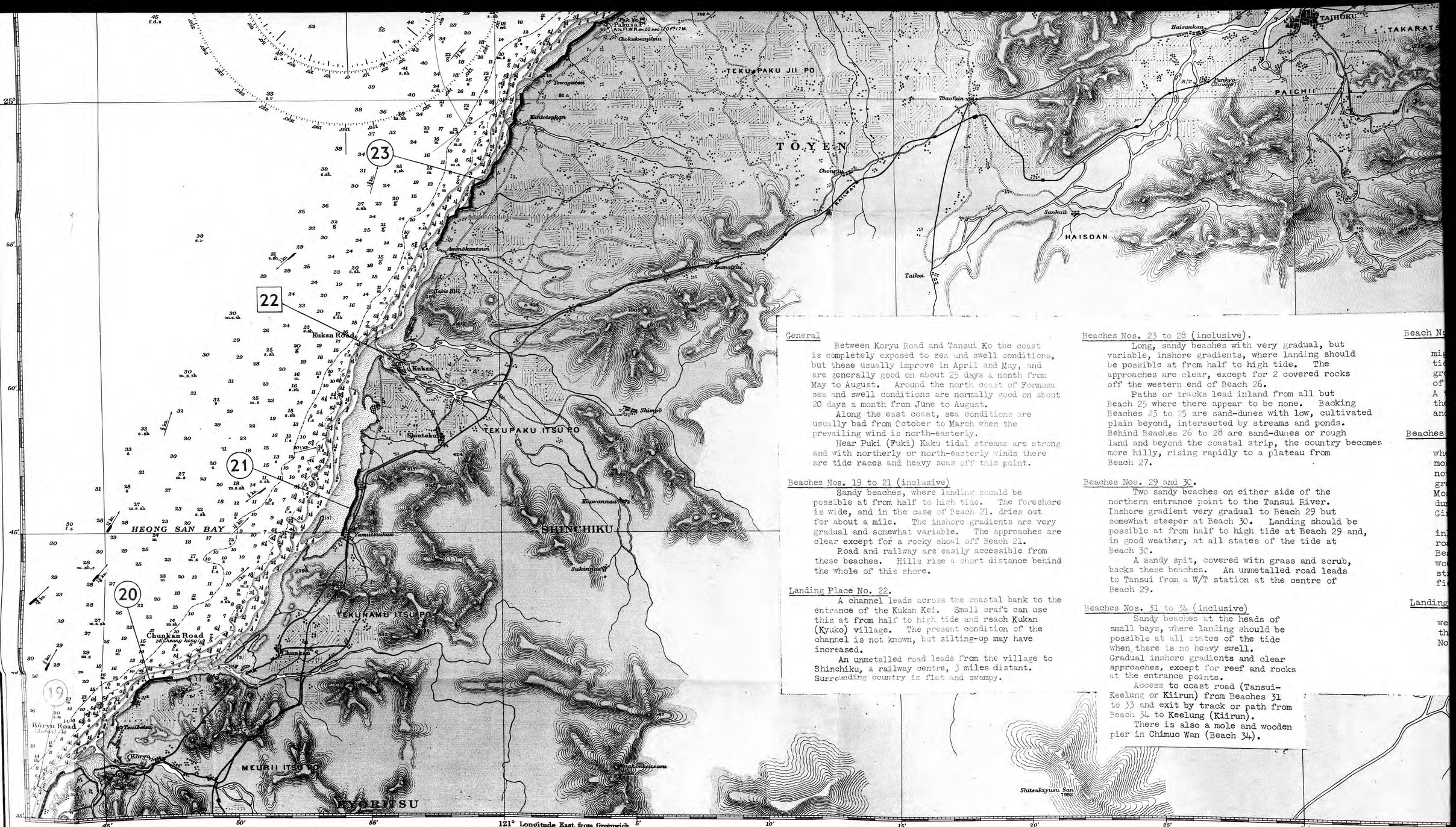
(PORT) — Refers to port described in text

Indicates extent of beach

Table for Conversion of FATHOMS – METRES

Fathoms	Metres	Fathoms	Metres	Fathoms	Metres
¼	0·4	4½	8·2	8¾	16·0
½	0·9	4¾	8·7	9	16·4
¾	1·3	5	9·1	9¼	16·9
1	1·8	5¼	9·6	9½	17·3
1¼	2·3	5½	10·0	9¾	17·8
1½	2·7	5¾	10·5	10	18·3
1¾	3·2	6	10·9	20	36·2
2	3·6	6¼	11·4	30	54·5
2¼	4·1	6½	11·9	40	72·7
2½	4·5	6¾	12·3	50	91·0
2¾	5·0	7	12·8	60	109·3
3	5·5	7¼	13·2	70	127·6
3¼	5·9	7½	13·7	80	145·9
3½	6·4	7¾	14·1	90	164·2
3¾	6·8	8	14·6	100	182·5
4	7·3	8¼	15·1		
4¼	7·7	8½	15·5		

Tidal Streams
At (A) East going stream begins about 2 hours after H.W. at Kiirun
West 20 minutes L.W.
Arc of Light
Var^n 1° 55' W. (1924) increasing about 1' annually
PORT
TANSUI
HOBEI
TANSUI KO
CHIRAN SAA-PO
KIMPAURI
Masu B.
KIIRUN
KIIRAN
Chinno Wan
Peitan Kaku
For Beaches south of this line see also Plan 9
Arc of visibility
CHIRAN JI PO
CHIRAN ITSU PO
PARIFUN
TŌKAN
TAIHOKU
TAKARATSU
Aerodrome
TEUTE
PAICHII
SHINKO
BUNSOAN
SAMUCHO
Siang-ke-ts'ui
Samucho Kaku
Nankankan
JII PO
25
26
27
28
29
30
31
32
33
34
35
36



General

Between Koryu Road and Tansui Ko the coast is completely exposed to sea and swell conditions, but these usually improve in April and May, and are generally good on about 25 days a month from May to August. Around the north coast of Formosa sea and swell conditions are normally good on about 20 days a month from June to August.

Along the east coast, sea conditions are usually bad from October to March when the prevailing wind is north-easterly.

Near Puki (Fuki) Kaku tidal streams are strong and with northerly or north-easterly winds there are tide races and heavy seas off this point.

Beaches Nos. 19 to 21 (inclusive)

Sandy beaches, where landing should be possible at from half to high tide. The foreshore is wide, and in the case of Beach 21. dries out for about a mile. The inshore gradients are very gradual and somewhat variable. The approaches are clear except for a rocky shoal off Beach 21.

Road and railway are easily accessible from these beaches. Hills rise a short distance behind the whole of this shore.

Landing Place No. 22.

A channel leads across the coastal bank to the entrance of the Kukan Kei. Small craft can use this at from half to high tide and reach Kukan (Kyuko) village. The present condition of the channel is not known, but silting-up may have increased.

An unmetalled road leads from the village to Shinchiku, a railway centre, 3 miles distant. Surrounding country is flat and swampy.

Beaches Nos. 23 to 28 (inclusive).

Long, sandy beaches with very gradual, but variable, inshore gradients, where landing should be possible at from half to high tide. The approaches are clear, except for 2 covered rocks off the western end of Beach 26.

Paths or tracks lead inland from all but Beach 25 where there appear to be none. Backing Beaches 23 to 25 are sand-dunes with low, cultivated plain beyond, intersected by streams and ponds. Behind Beaches 26 to 28 are sand-dunes or rough land and beyond the coastal strip, the country becomes more hilly, rising rapidly to a plateau from Beach 27.

Beaches Nos. 29 and 30.

Two sandy beaches on either side of the northern entrance point to the Tansui River. Inshore gradient very gradual to Beach 29 but somewhat steeper at Beach 30. Landing should be possible at from half to high tide at Beach 29 and, in good weather, at all states of the tide at Beach 30.

A sandy spit, covered with grass and scrub, backs these beaches. An unmetalled road leads to Tansui from a W/T station at the centre of Beach 29.

Beaches Nos. 31 to 34 (inclusive)

Sandy beaches at the heads of small bays, where landing should be possible at all states of the tide when there is no heavy swell. Gradual inshore gradients and clear approaches, except for reef and rocks at the entrance points.

Access to coast road (Tansui-Keelung or Kiirun) from Beaches 31 to 33 and exit by track or path from Beach 34 to Keelung (Kiirun).

There is also a mole and wooden pier in Chimuo Wan (Beach 34).

Beach No

Beaches

Landing

Prepared by Inter-Service Topographical Department as regards superimposed work.

Produced under the Superintendence of Vice-Admiral Sir John Edgell, K.B.E., C.B., F.R.S., Hydrographer.

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Access to coast road (Tansui-Keelung or Kiirun) from Beaches 31 to 33 and exit by track or path from Beach 34 to Keelung (Kiirun).

There is also a mole and wooden pier in Chimuo Wan (Beach 34).

Beach No. 36.

Firm, sandy beach where infantry might be landed at all states of the tide. Approaches clear, except for group of rocks off north-western end of beach. Gradual inshore gradient. A track, 100 to 200 yards inland from the beach, leads southward to the road and railway.

Beaches Nos. 45 to 47 (inclusive)

Succession of long, sandy beaches where landing should be possible at most states of the tide when surf is not too heavy. Gradual inshore gradients and clear approaches. Most of this front is backed by sand-dunes with the low, alluvial plain of Giran beyond.

Tracks and paths afford access inland, with almost direct access to road and railway at the north end of Beach 47. Movement across country would be hampered by the numerous streams, irrigation canals and rice-fields.

Landing Place No. 35.

Small boat harbour on the north-western side of Peitau (Bito) Kaku, at the village of Peitau (Bito). No details available.

Produced under the Superintendence of Vice-Admiral Sir John Edgell, K.B.E., C.B., F.R.S., Hydrographer.

FROM ADMIRALTY CHART F.0446

KARENKŌ TO SANCHŌ KAKU

BEACHES AND LANDING PLACES

SOUNDINGS IN FATHOMS

REFERENCE

- (36) — Refers to beach described in text
- [35] — Refers to landing place described in text
- (PORT) — Refers to port described in text
- Indicates extent of beach

34 35 36 47 46 45

Hoto Kaku Fl.w.30sec.220ft.21M.

Bussobyō Bi

Kubyōkyō

Butankō

Bunsenkō

Taikaikei Shō (I)

Gobun San

Saishirei San

Daichikurin San

Kubunkō

Daiheirin San

Chashiko

Enyō

Shan

Hyōshichu San

Nishiki

Rōran Shō

Sanchō Kaku Gp Fl.(2)WR.ec.20sec.130ft.25M

Byōbu

Tōkan

Tosen San

Gyokuri Bō

Wankō San

Santoku San

Wantan San

Tanshan

Sekiteikyoku

Taikei (P.O.)

Shisaikei

Kotosei San

Kōrochi San

Hakkan Bi

Kempen

Shito San

Kinmen San

Tōi Storm Sig.

Bashiko

Kuo Gan

Kuan To

Kuo Gan (79ft)

Kirin Iwa (27)

Sankakuron San

Kashi San

Korochi San

Chūron

Sanpōkku

Tenryō San

Akyoku San

Kōrukikatsan

Shiketsu

Shibi

Diahikki

Shinjō

Karei

Giran Storm Sig.

Kōsai San

Sanshindo San

Kenrokketsu

Mukan

Tōkō

Keishō

Nikotsu

Bōkiryō

Kagokotsu

Ratō Kei.

Sansei

Ritakkan

Kōkō

TAIHOKU

Var^n 1° 45' W. (1942) decreasing about 1 annually

MAGNETIC

FROM ADMIRALTY CHART F.0446

KARENKŌ TO SANCHŌ KAKU

HES AND LANDING PLACES

SOUNDINGS IN FATHOMS

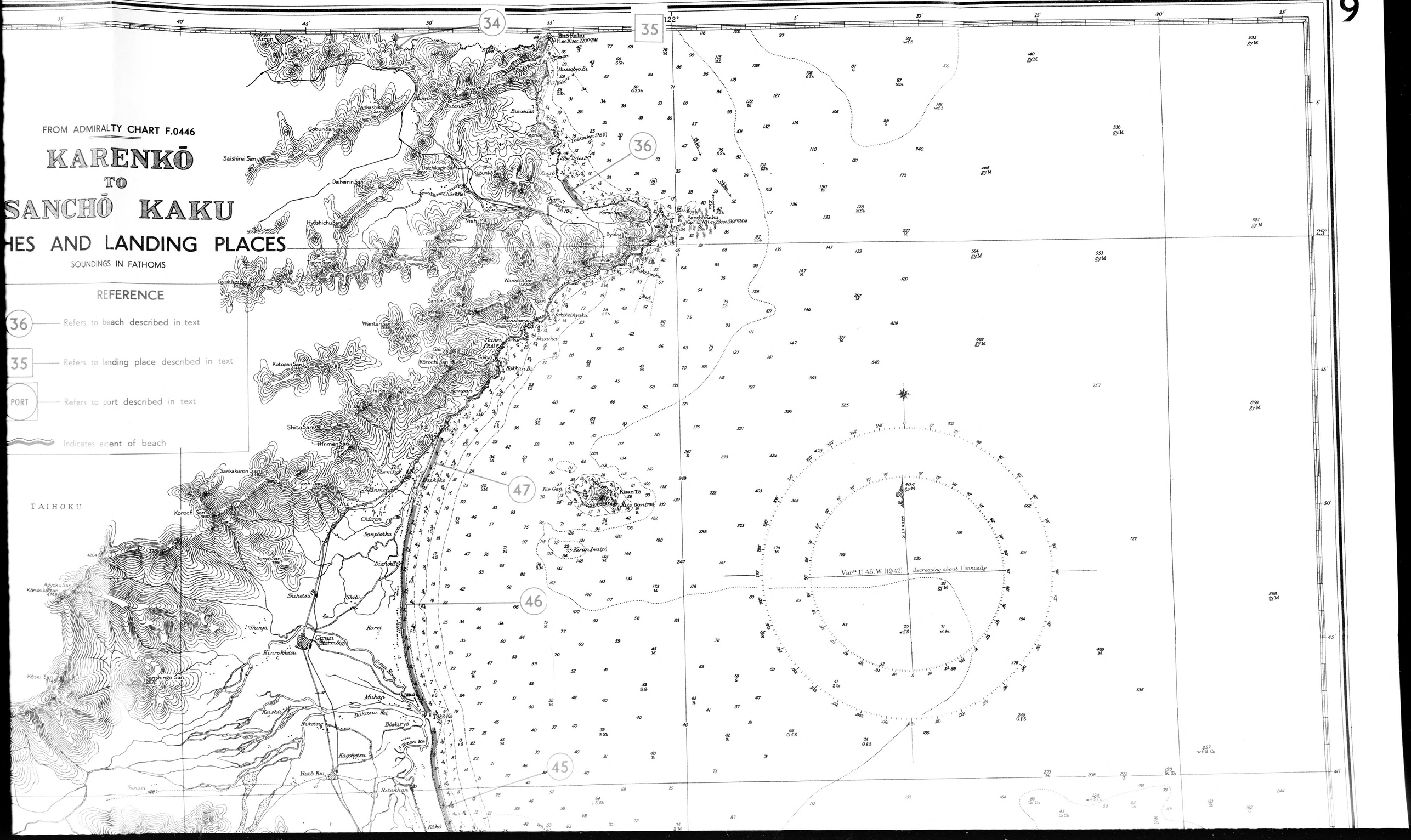
REFERENCE

36 — Refers to beach described in text

35 — Refers to landing place described in text

PORT — Refers to port described in text

Indicates extent of beach



Tidal Information

Place	Height above datum of soundings	
	Mean Higher H.W.	Mean level
Sudō Wan	5.5 feet	3.2 feet

PORT

CURRENT
See Note under Title

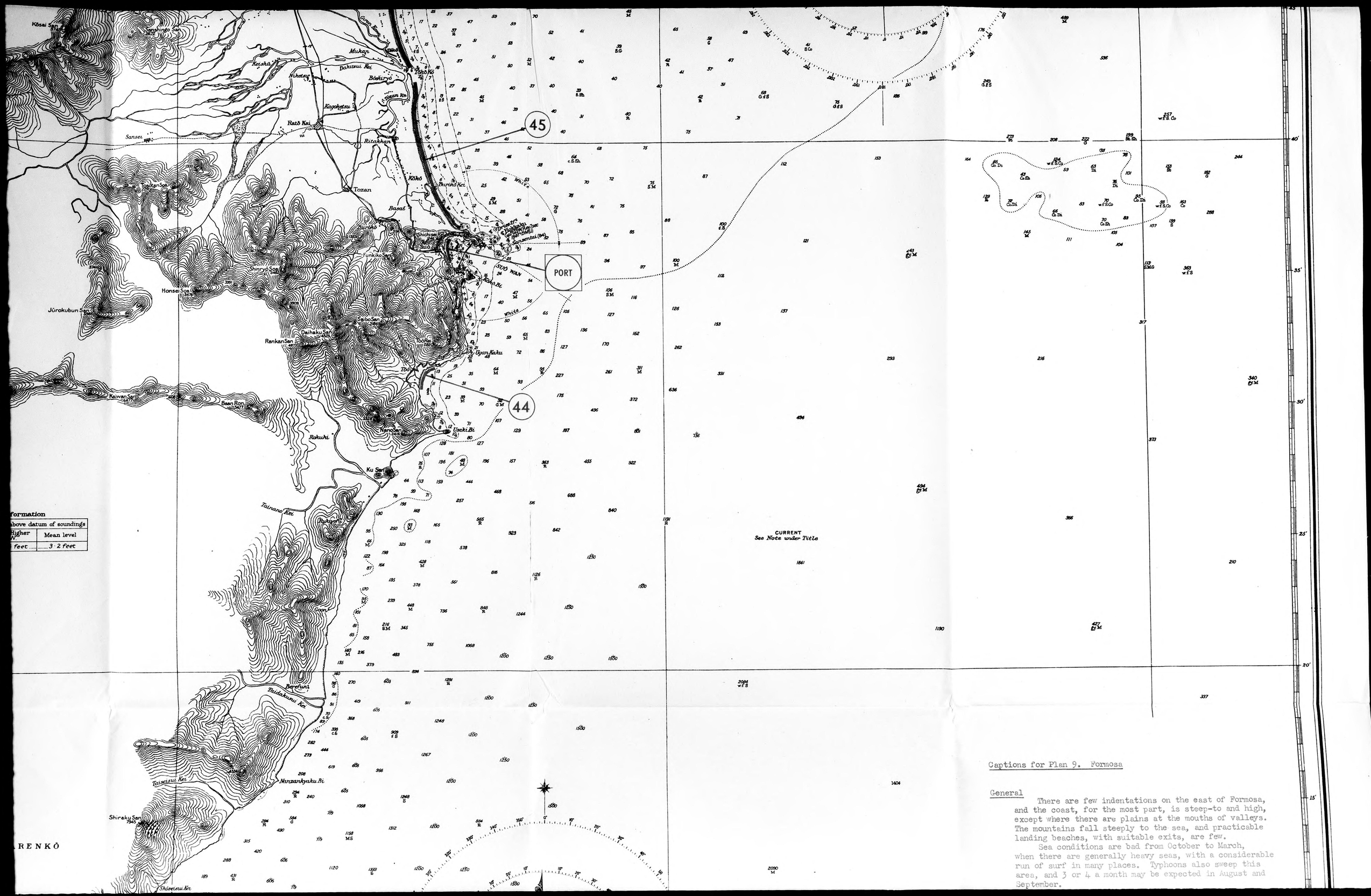
KARENKŌ

Captions for Plan 9. Formosa

General

There are few indentations on the
and the coast, for the most part, is s
except where there are plains at the m
The mountains fall steeply to the sea,
landing beaches, with suitable exits,

Sea conditions are bad from Octob
when there are generally heavy seas, w
run of surf in many places. Typhoons
area, and 3 or 4 a month may be expect
September.



formation

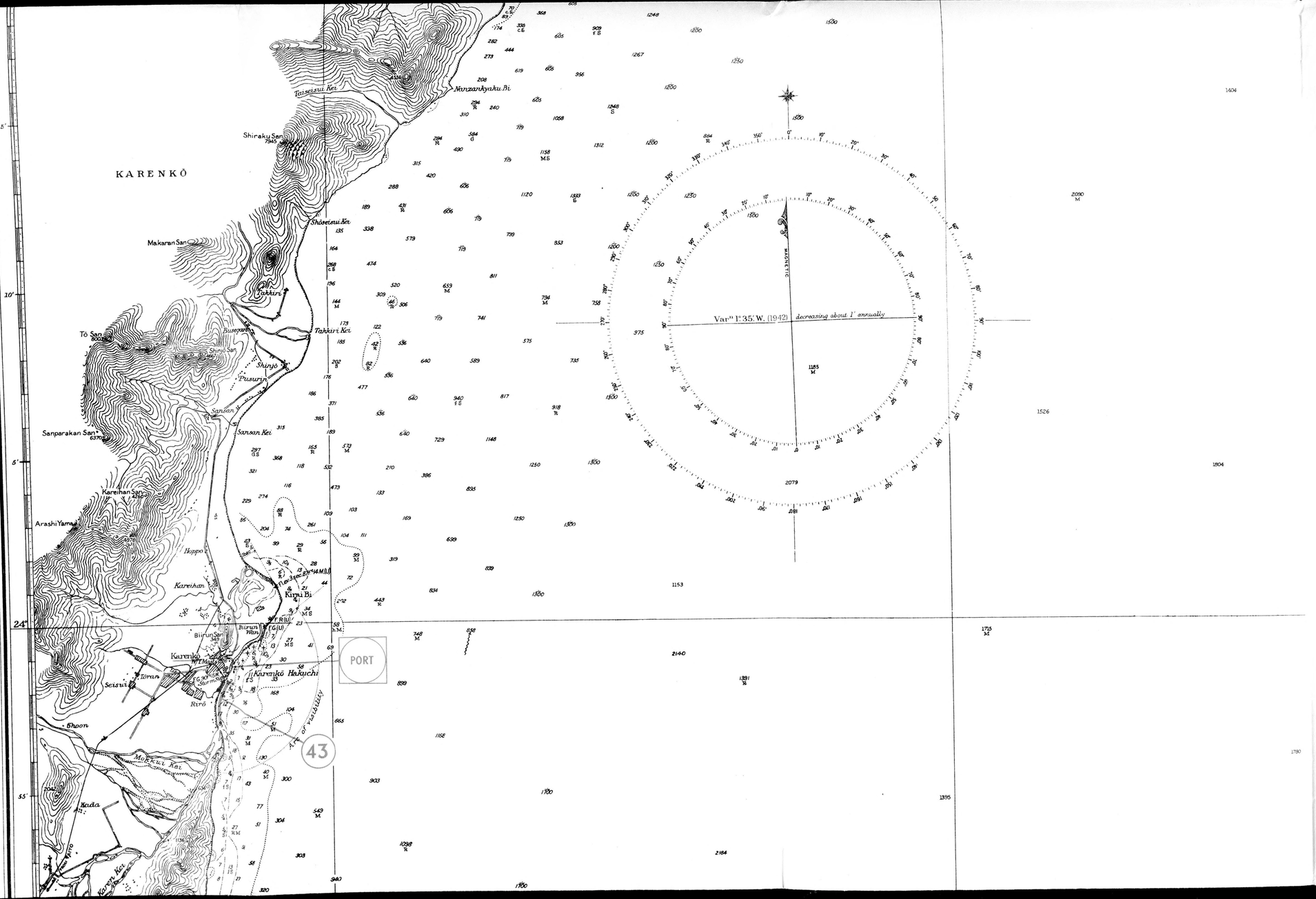
above datum of soundings	
Higher W.	Mean level
feet	3·2 feet

Captions for Plan 9. Formosa

General

There are few indentations on the east of Formosa, and the coast, for the most part, is steep-to and high, except where there are plains at the mouths of valleys. The mountains fall steeply to the sea, and practicable landing beaches, with suitable exits, are few.

Sea conditions are bad from October to March, when there are generally heavy seas, with a considerable run of surf in many places. Typhoons also sweep this area, and 3 or 4 a month may be expected in August and September.



Captions for Plan 9. Formosa

General

There are few indentations on the east c
and the coast, for the most part, is steep-t
except where there are plains at the mouths
The mountains fall steeply to the sea, and p
landing beaches, with suitable exits, are fe
Sea conditions are bad from October to
when there are generally heavy seas, with a
run of surf in many places. Typhoons also s
area, and 3 or 4 a month may be expected in
September.

Beach No. 34

Two short, sandy beaches on the west an
shores of Chimuo Wan (Sin-o-wan). Landing s
possible at all states of the tide.
Gradual inshore gradient. Reef and rock
from the entrance points and there are reefs
shore at both ends of each beach.
A track or path behind the beaches lea
to Kiirun (Keelung) and eastward to Peitau K
Kaku). A track is also believed to lead fro
corner of the bay to Kiiran, from whence a r
push-car line lead to Kiirun (Keelung).
A mole and a wooden pier are reported t
this bay, and to be used by the local mining
for the export of ore.
The hinterland is wild and mountainous.

Landing Place No. 35

Small boat harbour on the north-west si
Peitau (Bito) Kaku, at the village of Peitau
No details available.

Beach No. 36

Firm, sandy beach where infantry might
at all states of the tide. Approaches clear,
for a group of rocks off the north-western e
beach. Gradual inshore gradient.
A track, 100 to 200 yards inland from th
leads southward to the road and railway.

Beach No. 43

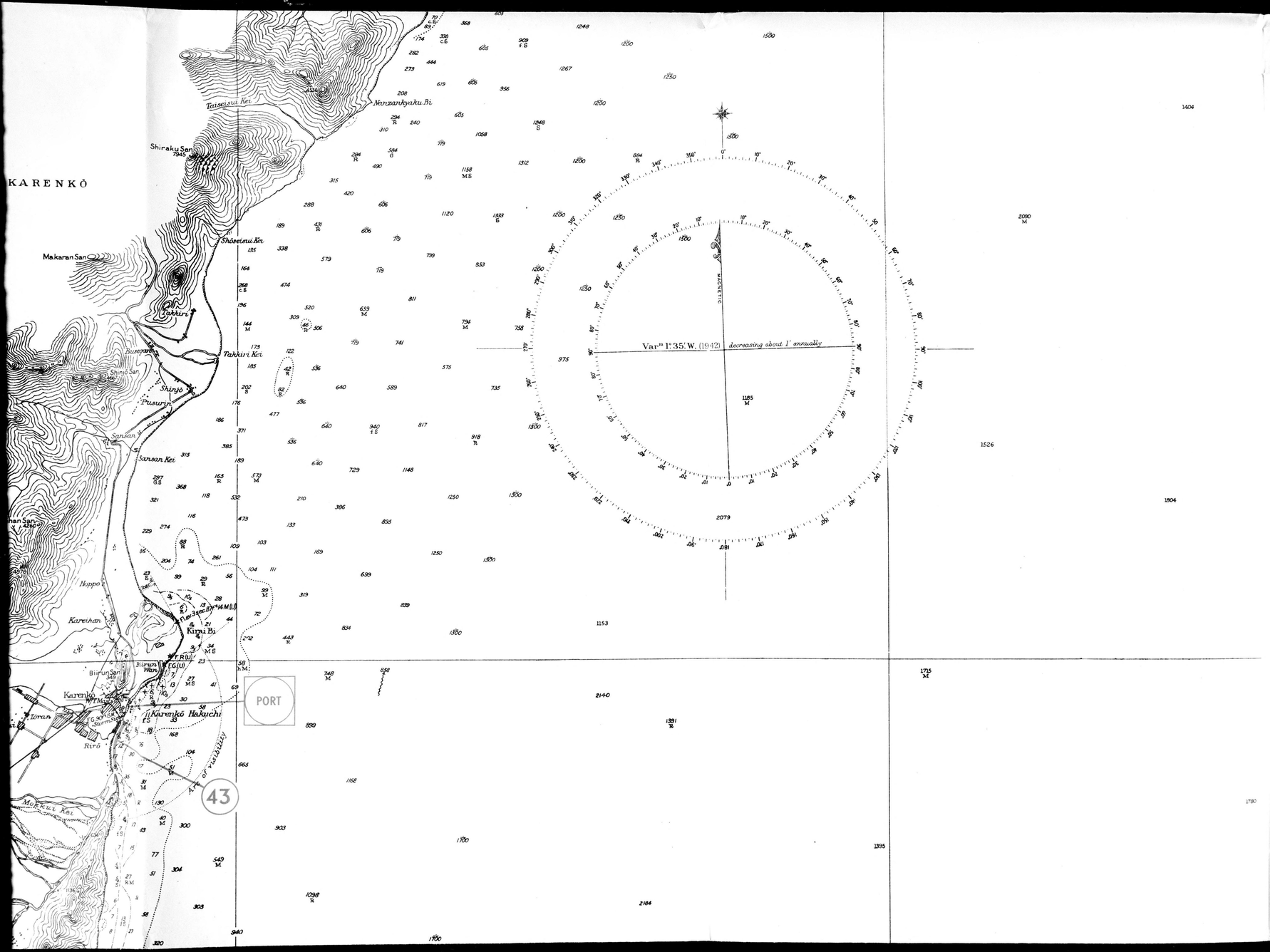
Two and a half miles of sand and pebble
Landing difficult, even in fair weather, owi
Inshore gradient variable but mostly steep wi
water close offshore. Approaches clear.
A track behind the beach leads to road
at Karenko. Sand-dunes back the shore with
cultivation on the flat plain beyond.

Beach No. 44

One mile of firm, sandy beach. Landing,
weather, should be possible at all states of
Approaches are clear.
About 600 yards from the shore is Tang-
from whence a tortuous mountain track leads
Suo. The surrounding country is wild and mo

Beaches Nos. 45 to 47

Succession of long, sandy beaches where
might be possible at most states of the tide
is not too heavy. Gradual inshore gradients
approaches.
Most of the front is backed by sand-dun
the low, alluvial plain of Giran beyond.
Tracks and paths afford limited access
with almost direct access to road and railw
north end of Beach 47.



Captions for Plan 9. Formosa

General

There are few indentations on the east of Formosa, and the coast, for the most part, is steep-to and high, except where there are plains at the mouths of valleys. The mountains fall steeply to the sea, and practicable landing beaches, with suitable exits, are few.

Sea conditions are bad from October to March, when there are generally heavy seas, with a considerable run of surf in many places. Typhoons also sweep this area, and 3 or 4 a month may be expected in August and September.

Beach No. 34

Two short, sandy beaches on the west and SW. shores of Chimuo Wan (Sin-o-wan). Landing should be possible at all states of the tide.

Gradual inshore gradient. Reef and rocks extend from the entrance points and there are reefs off the shore at both ends of each beach.

A track or path behind the beaches leads westward to Kiirun (Keelung) and eastward to Peitau Kaku (Bito Kaku). A track is also believed to lead from the SE. corner of the bay to Kiiran, from whence a road and push-car line lead to Kiirun (Keelung).

A mole and a wooden pier are reported to exist in this bay, and to be used by the local mining company for the export of ore.

The hinterland is wild and mountainous.

Landing Place No. 35

Small boat harbour on the north-west side of Peitau (Bito) Kaku, at the village of Peitau (Bito). No details available.

Beach No. 36

Firm, sandy beach where infantry might be landed at all states of the tide. Approaches clear, except for a group of rocks off the north-western end of the beach. Gradual inshore gradient.

A track, 100 to 200 yards inland from the beach, leads southward to the road and railway.

Beach No. 43

Two and a half miles of sand and pebble beach. Landing difficult, even in fair weather, owing to surf. Inshore gradient variable but mostly steep with deep water close offshore. Approaches clear.

A track behind the beach leads to road and railway at Karenko. Sand-dunes back the shore with paddy cultivation on the flat plain beyond.

Beach No. 44

One mile of firm, sandy beach. Landing, in fair weather, should be possible at all states of the tide. Approaches are clear.

About 600 yards from the shore is Tang-o village from whence a tortuous mountain track leads northward to Suo. The surrounding country is wild and mountainous.

Beaches Nos. 45 to 47

Succession of low, sandy beaches where landing might be possible at most states of the tide, when surf is not too heavy. Gradual inshore gradients and clear approaches.

Most of the front is backed by sand-dunes with the low, alluvial plain of Giran beyond.

Tracks and paths afford limited access inland, with almost direct access to road and railway at the north end of Beach 47.

FROM ADMIRALTY CHART F.0444

GARAN BI TO TAITŌ HAKUCHI

BEACHES AND LANDING PLACES

SOUNDINGS IN FATHOMS
(Under Eleven in Fathoms and Feet.)
reduced approximately to the level of Indian Spring Low Water.

Natural Scale 1/150,000 *(at Lat. 24° N.)*

Tidal Information

Place	Height above datum of soundings	
	Mean Higher H.W.	Mean Level
Karoran	5·0 feet	3·0 feet
Kasho Tō (Nanryō Wan)	4·8 "	2·8 "
Kotō Sho (Yashuro Wan)	5·0 "	2·9 "
Toapanrā	4·4 "	2·6 "

CURRENTS
Attention is called to note on currents in Admiralty Sailing Directions.

TAITŌ

Shikan
Hoshihai
Hokushikyū
Tsuran San 4020
Hachiribo 4839
Karimoan
Tsuran
Chibaanawa Bi.
Tsuran Wan
Pizan Tōdai
Ranman
Karoran San 411
Karan Bi.
Koto San 647
Byō San 488
Pinan
Roka
Taitō
Rigyo San 246
Taitō Hakuchi
Asahi
Sugar refinery railway
Tsunan Kei
Chipon
Chipon Kei
Miwa
Barasarasaku San 4033
Daibu San 10194
Minami Daibu San 9345
Tomari
Tomari Kei
Kosharan
Butaku San 3426
Karun
Karun Kei
Dashakudaran San 3068
Tachiukou Kei
Tachiukou
Tachiukou Soan 1586
Nanryō Wan
Kiwan Bi.
Kasho San
KASHŌ TŌ
Kasho Pt.
Kasho Wan
Kasho Iwa (151)
Tobi Iwa (16)
Butō Kokuu
Fl.ev.12sec.15M
W.T.Mast
Kotō Wan
Yashuro Wan
Yashuro Pt.
Yashuro Iwa
Yashuro Kei
Yashuro Wan
Yashuro Pt.
Yashuro Iwa
Yashuro Kei

REFERENCE

40 — Refers to beach described in text

38 — Refers to landing place described in text

Refers to extent of beach

40

Var^n 1°10'W.(1942) *decreasing ab^t 1'annually*

MAGNETIC

CURRENT
See note under title

FROM ADMIRALTY CHART F.0444

GARAN BI TO TAITŌ HAKUCHI

[B]EACHES AND LANDING PLACES

SOUNDINGS IN FATHOMS
(Under Eleven in Fathoms and Feet.)
reduced approximately to the level of Indian Spring Low Water.

Natural Scale $\frac{1}{150,000}$ *(at Lat. 24° N.)*

Tidal Information

Place	Height above datum of soundings	
	Mean Higher H.W.	Mean Level
Karoran	5·0 feet.	3·0 feet.
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Toapanrā	4·4 "	2·6 "

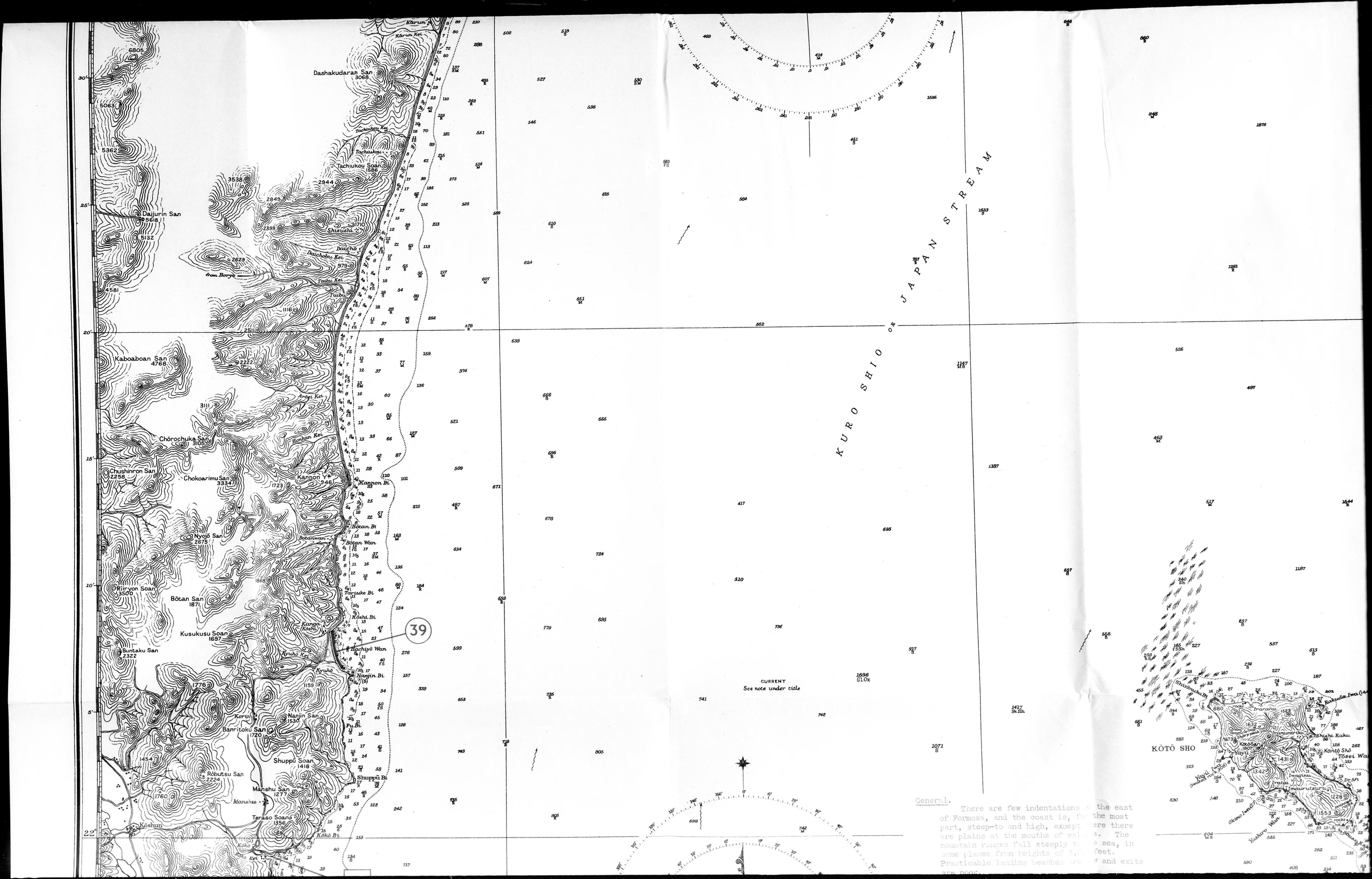
CURRENTS
Attention is called to note on currents in Admiralty Sailing Directions.

REFERENCE

(40) Refers to beach described in text

[38] Refers to landing place described in text

(wavy line) Refers to extent of beach

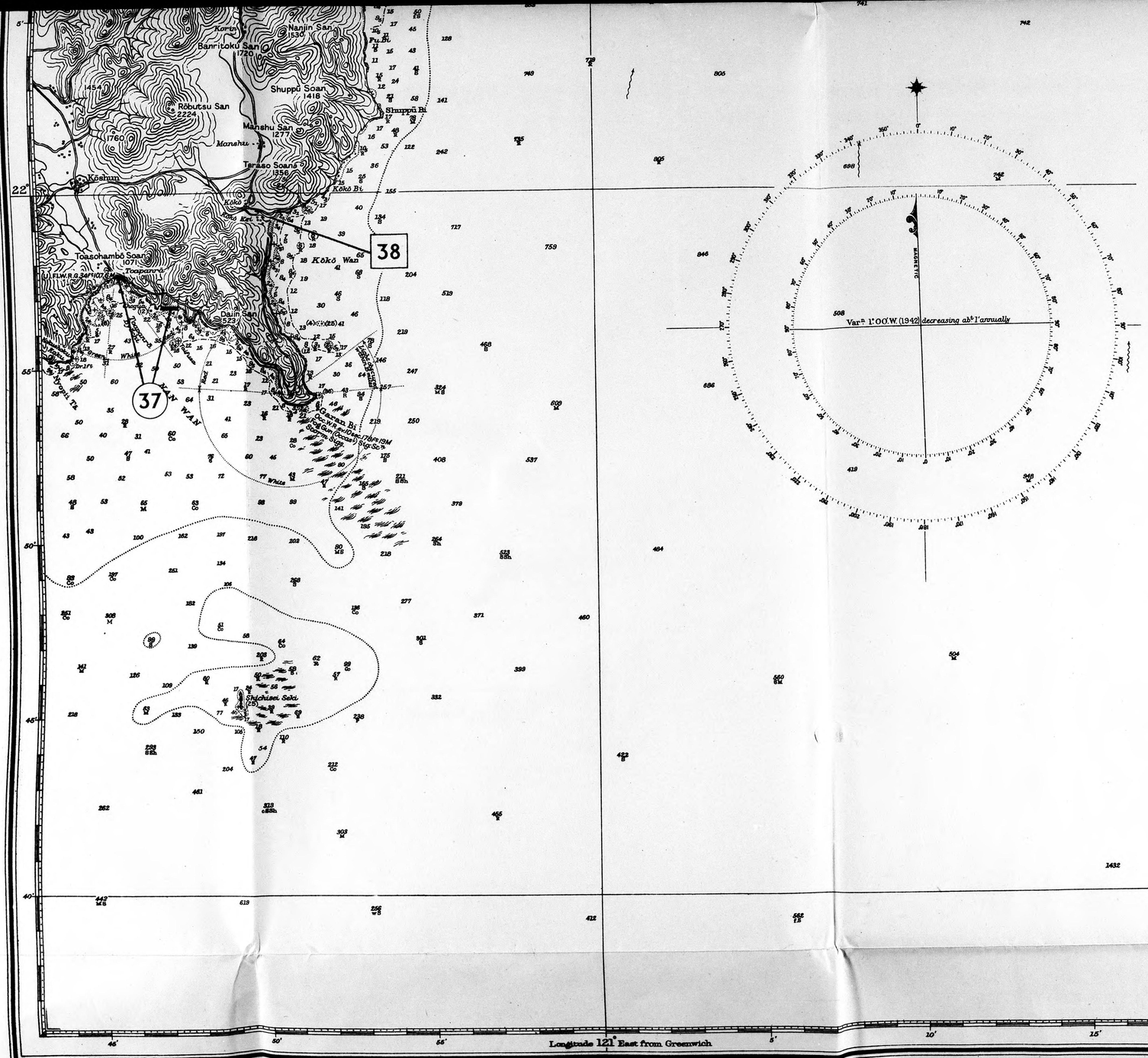


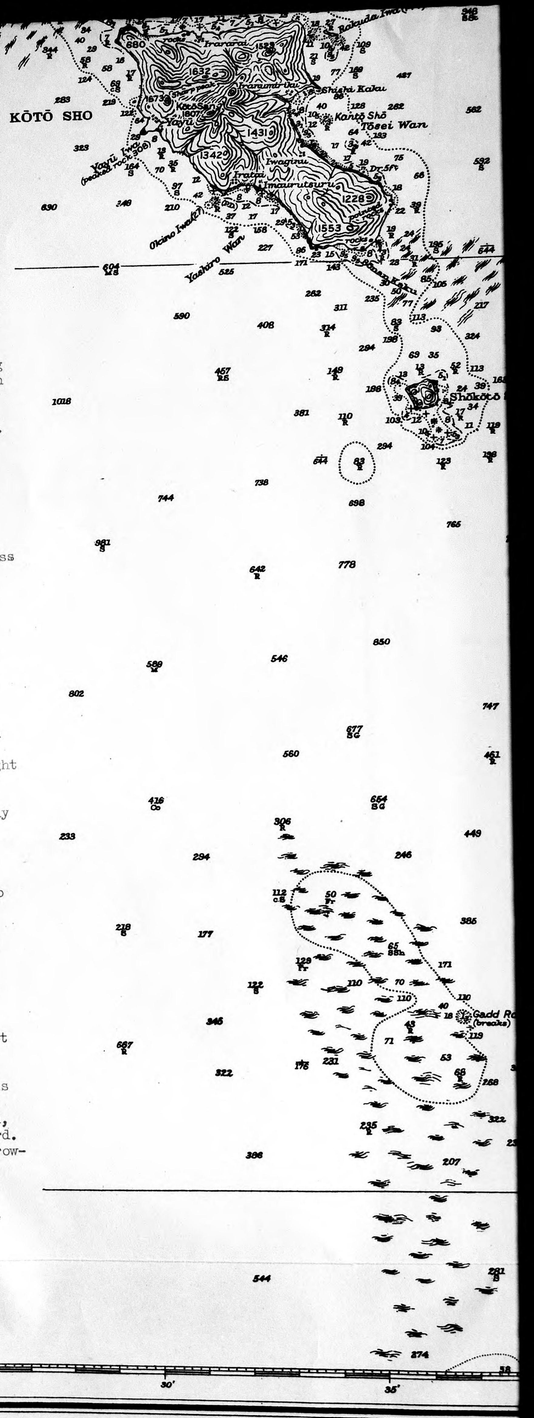
General.

There are few indentations [illegible] the east of Formosa, and the coast is, for the most part, steep-to and high, except [illegible]ere there are plains at the mouths of val[illegible]s. The mountain ranges fall steeply t[illegible] sea, in some places from heights of 3,[illegible] feet. Practicable landing beaches are [illegible] and exits are poor.

General.

There are few indentations on the east of Formosa, and the coast is, for the most part, steep-to and high, except where there are plains at the mouths of valleys. The mountain ranges fall steeply to the sea, in some places from heights of 3,000 feet. Practicable landing beaches are few and exits are poor.





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Sea conditions on the south and east coasts are bad from October to March. During this period there is usually a heavy sea, with a considerable run of surf in many places. Typhoons also sweep this area and 3 or 4 a month may be expected in August and September. Otherwise winds are generally light and variable from June to September.

Beach No. 37.

Two small sandy (or sand-and-pebble) beaches at the head of Nan Wan on the south coast. Numerous off-lying dangers, rocks, shoals, and foul ground. In each case, access to the road should be easy.

Landing Place No. 38.

It may be possible for small craft to enter the Koko Kei at H.W. and reach Koko village. There is also a short stretch of sand on either side of the river mouth. No details available.

Beach No. 39.

One and a half miles of firm sandy beach at the head of Hachiyo Wan (Paayo Wan or Pueq-io-uan) where infantry and possibly, light M/T, should be able to land at all states of the tide.

Gradual inshore gradient, becoming fairly steep close inshore. Approaches clear, except for reef and rocks at entrance points to bay.

Coastal track behind the beach leads northward to Taito and west-south-westward to Koshun. Sand-dunes back the shore and the surrounding country is wild and mountainous.

Beach No. 40.

Eleven miles of sandy shore, fronting the coastal plain of Taito. When there is little or no surf, infantry and light arms should be able to land here. The shore is practically steep-to throughout, and the best landing would be immediately off the town.

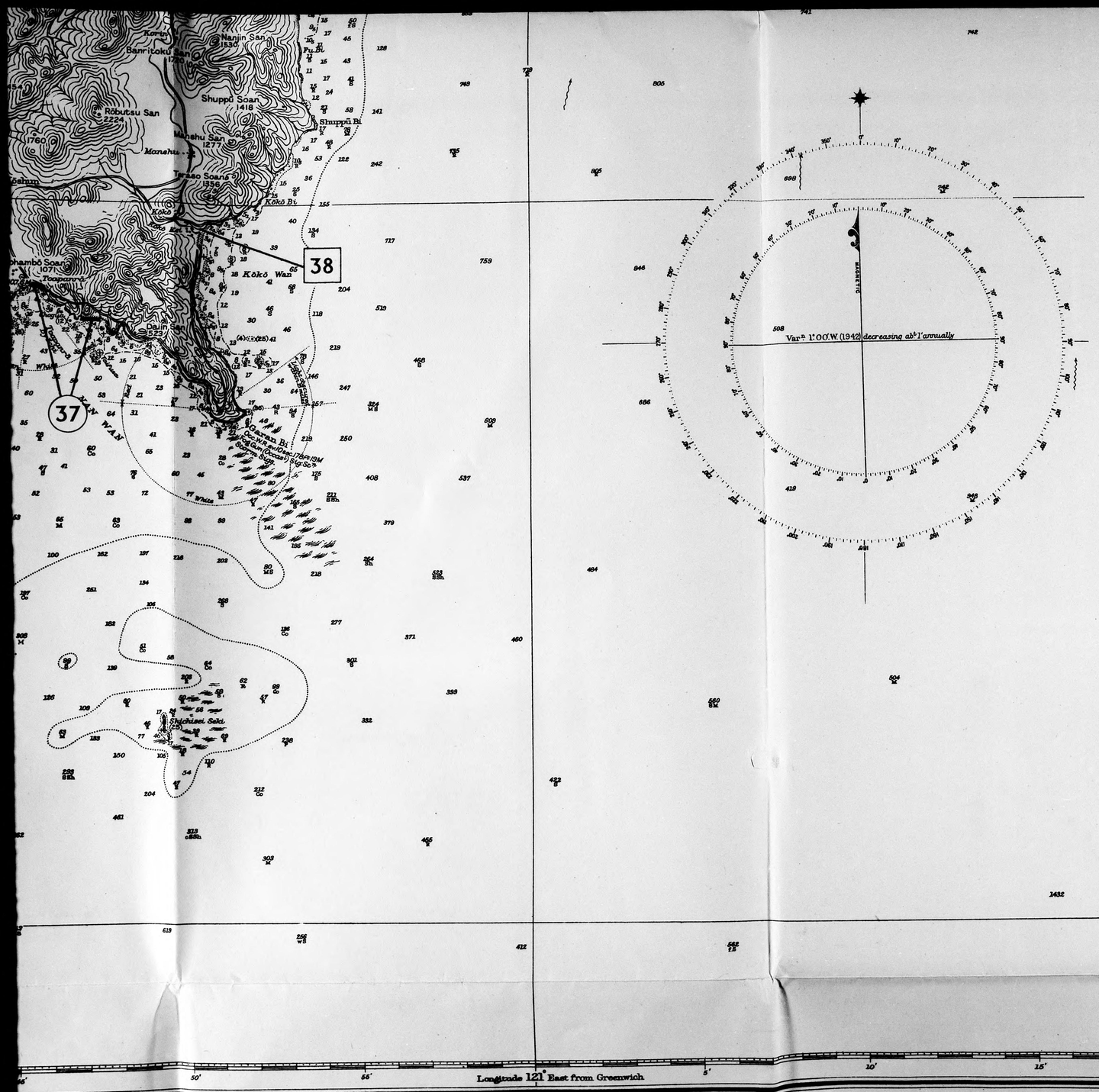
Approaches clear, but limited area for anchorage, owing to the great depths off this shore.

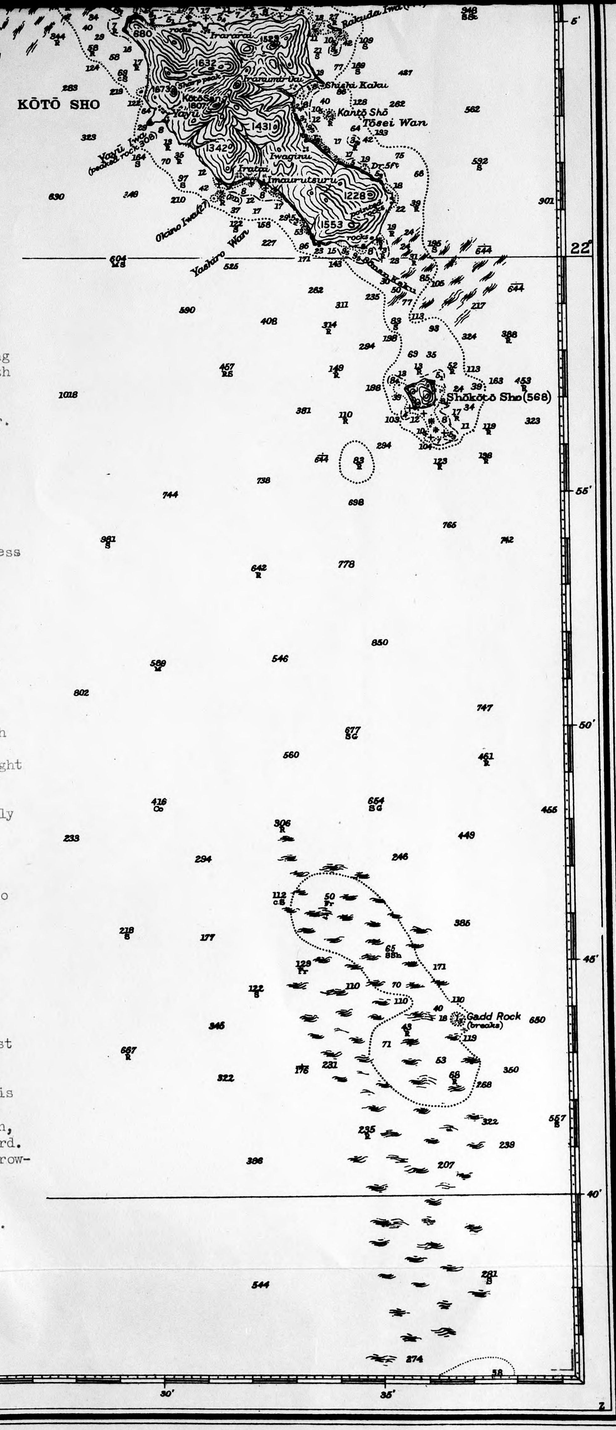
A road leads from the shore to the town, from which roads lead northward and southward. Taito is the terminus of the East coast narrow-gauge railway.

Behind this shore is an alluvial plain which extends for about 6 miles westward to the hills. Paddy cultivation predominates.

Prepared by Inter-Service Topographical Department as regards superimposed work.

Produced under the Superintendence of Vice-Admiral Sir John Edgell, K.B.E., C.B., F.R.S., Hydrographer.





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Service Topographical Department as regards superimposed work.

Produced under the Superintendence of Vice-Admiral Sir John Edgell, K.B.E., C.B., F.R.S., Hydrographer.

(From Admiralty Chart 1968)
FORMOSA
KEY TO COAST AND PORT PLANS
CHART PLANS
MAP PLANS
23 Indicates beach described in text.
22 Indicates landing place described in text.
PORT Indicates port described in text.
Indicates extent of beach.
Plan 16
Plan 8
See Plan 21
Plan 9
Inset to Plan 7
Plan 15
Plan 17
FORMOSA
TAIWAN
Tansui
Kirun
Taihoku
Suo
Gosei
Karenko
Taichu
PESCADORES ISLANDS
Tidal Streams

Prepared by Inter-Service Topographical Department as regards superimposed work

Produced under the Superintendence of Vice-Admiral Sir John Edgell K.B.E., C.B., F.R.S., Hydrographer

I.S.T.D. REPORTS ON FORMOSA

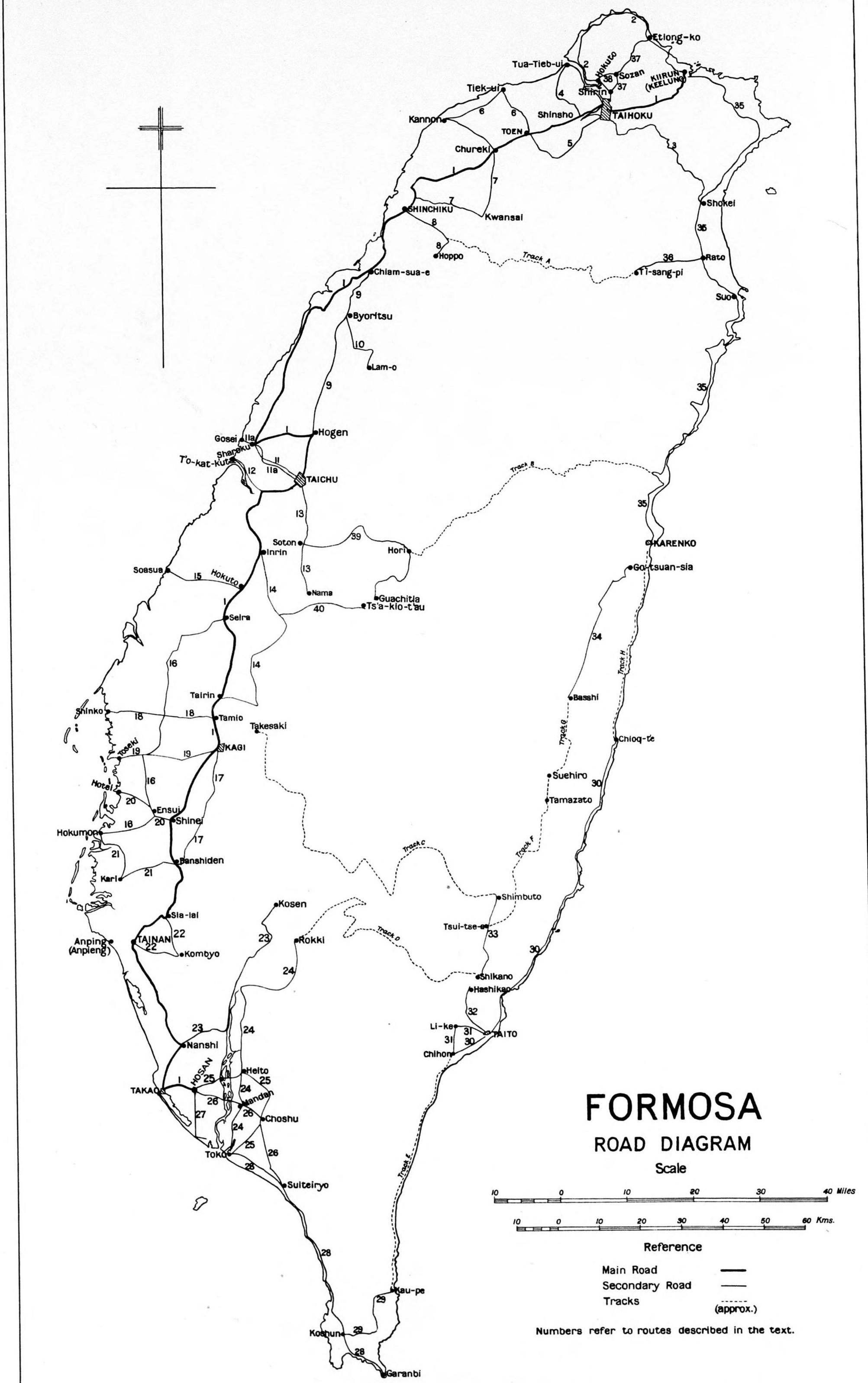
These reports are preliminary editions of the various parts of B.R. 877 Q, the I.S.I.S. report on Formosa. The list which follows is the list of plans for B.R. 877 Q and shows in which I.S.T.D. report advance copies of these plans are to be found.

LIST OF PLANS

Plan No.	*Title*	*Date*	*Contained in I.S.T.D. Report*
1	General	*April* 1944	F/383
2	Geology	*April* 1944	F/383
3	Airfield Suitability	*April* 1944	F/383
4	Resources	*April* 1944	F/384
5	Key to Coast and Port Plans	*April* 1944	F/386
6	Garan Bi to the Nisoko Kei: Beaches and Landing-places	*April* 1944	F/386
7	The Nisoko Kei to Koryu Road: Beaches and Landing-places	*April* 1944	F/386
8	Koryu Road to Suo Wan: Beaches and Landing-places	*April* 1944	F/386
9	Karenko to Sancho Kaku: Beaches and Landing-places	*April* 1944	F/386
10	Garan Bi to Taito Hakuchi: Beaches and Landing-places	*April* 1944	F/386
11	Key to Roads	*April* 1944	F/385
12	South Coast: Hakikaku	*April* 1944	F/385
13	West Coast: Tainan	*April* 1944	F/385
14	West Coast: Kagi	*April* 1944	F/385
15	West Coast: Taichu	*April* 1944	F/385
16	North Coast: Taihoku	*April* 1944	F/385
17	East Coast: Giran	*April* 1944	F/385
18	East Coast: Karenko	*April* 1944	F/385
19	East Coast: Koto Sho	*April* 1944	F/385
20A	Takao: Mosaic	*December* 1943	F/387
21A	Toshien: Mosaic	*January* 1944	F/387
23	Tansui: Port	*April* 1944	F/387
24	Kiirun: Port	*April* 1944	F/387
25A	Suo: Mosaic	*November* 1943	F/387
26	Karenko: Port and Town	*April* 1944	F/387
27A	Heito: Mosaic	*January* 1944	F/387
28A	Tainan: Mosaic	*January* 1944	F/387
29A	Kagi: Mosaic	*January* 1944	F/387
30A	Taichu: Mosaic	*January* 1944	F/387
31A	Shinchiku: Mosaic	*November* 1943	F/387
32	Taihoku: Town	*April* 1944	F/387
33	Submarine Cables: Tansui Ko	*April* 1944	F/385
34	Submarine Cables: Pescadores Channel	*April* 1944	F/385
35	Kato: Seaplane base	*November* 1942	F/385
36-40	Not issued		
41	Pescadores: Mosaic	*December* 1943	F/440
42	Pescadores: Topography	*June* 1944	F/440
43	Pescadores: Beaches and Landing-places	*May* 1944	F/440
44	Pescadores: Roads	*June* 1944	F/440

INTER-SERVICE TOPOGRAPHICAL DEPARTMENT

MAY 1944



FORMOSA

ROAD DIAGRAM

Scale

10 0 10 20 30 40 Miles

10 0 10 20 30 40 50 60 Kms.

Reference

Main Road ——

Secondary Road ——

Tracks ------ (approx.)

Numbers refer to routes described in the text.

Compiled and drawn by Inter-Service Topographical Department

Printed under the Superintendence of Vice-Admiral Sir John Edgell, K.B.E., C.B., F.R.S., Hydrographer.

B.R.877 Q(Restricted)

April, 1944.

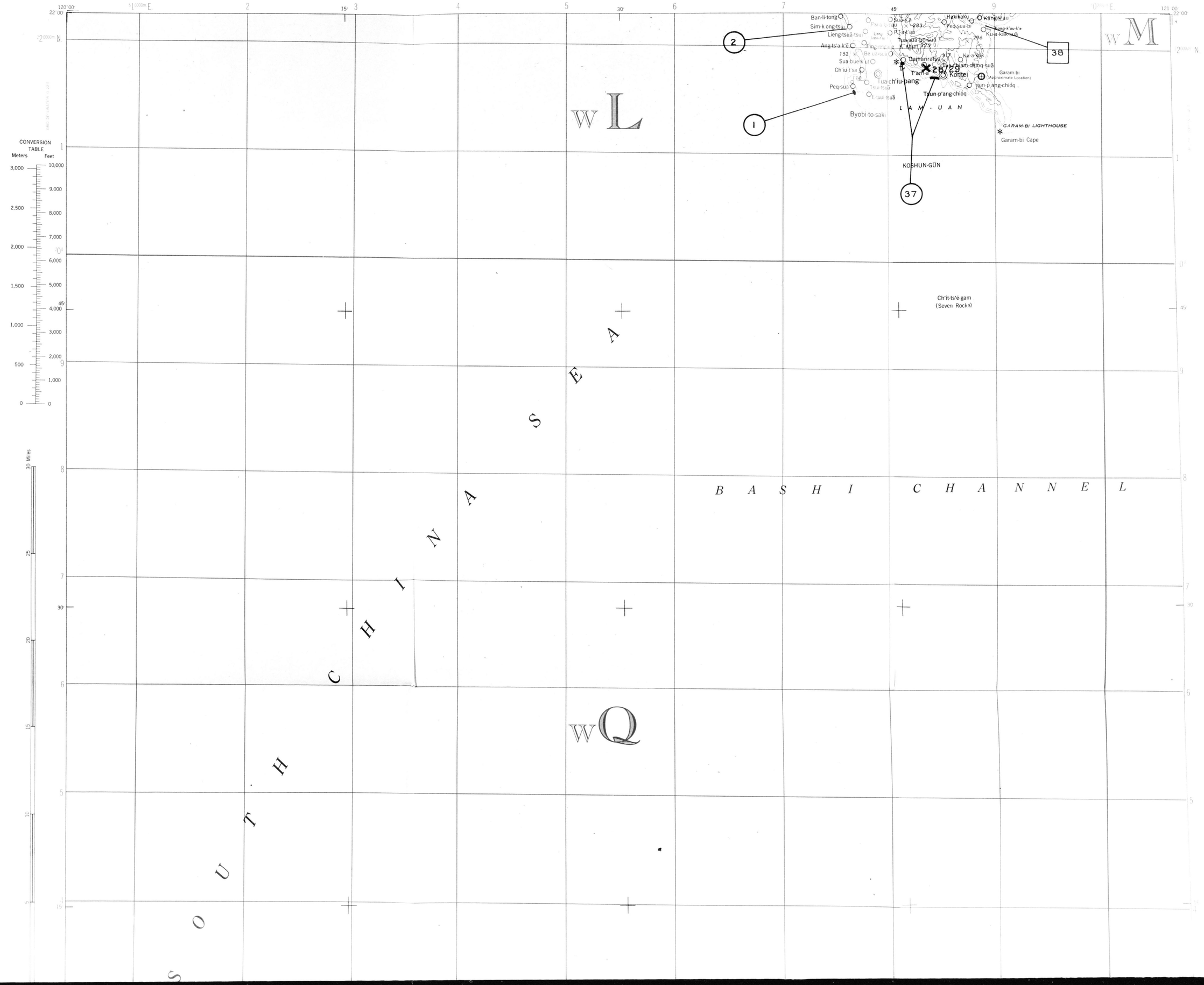
FORMOSA (TAIWAN) 1:250,000

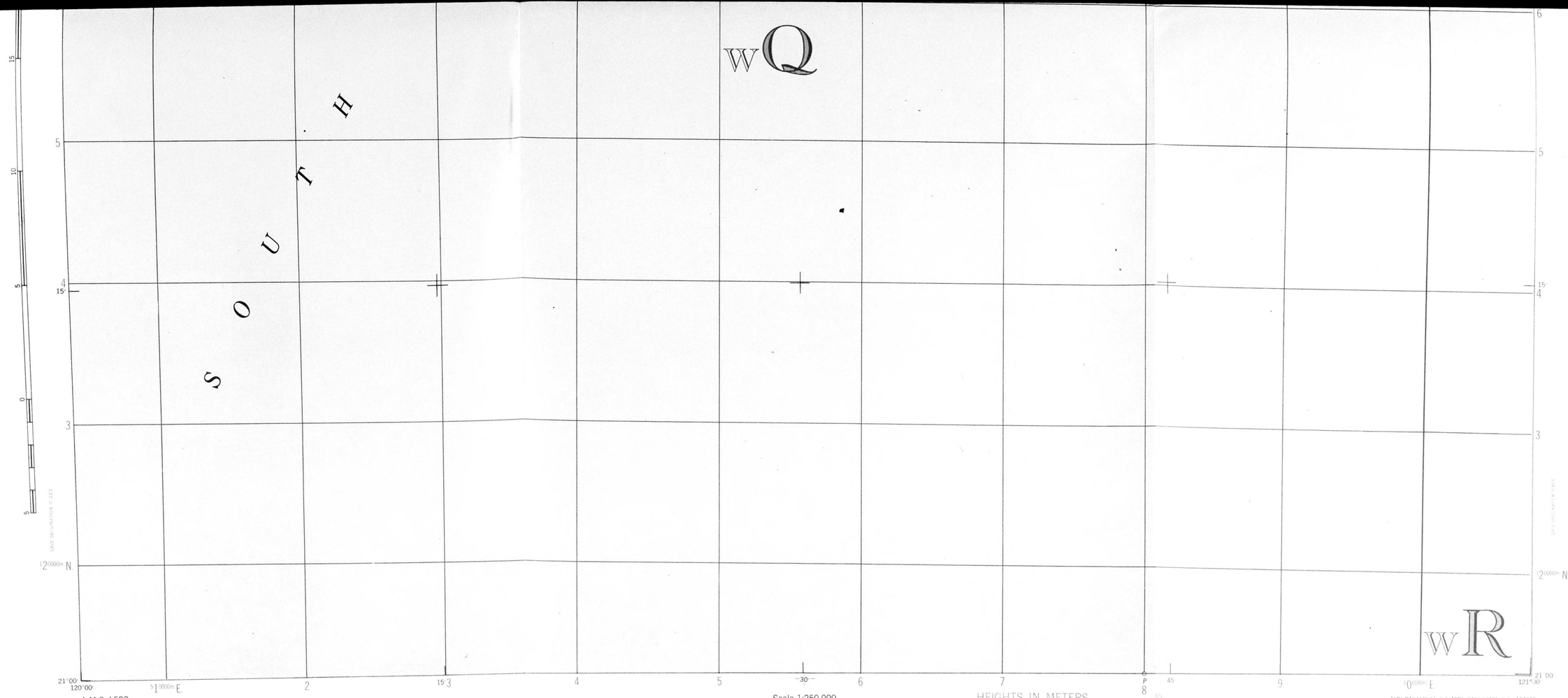
For use by War and Navy Department Agencies only
Not for sale or distribution

HAKIKAKU

FIRST EDITION - AMS 1

SHEET 15




SOUTH
WQ
WR
INDEX TO ADJOINING SHEETS
119°
122°
23°
20°
TAINAN
13
KAGI
14
HAKAKU
15
SHIN-KYŌSEN
16
BASH ISLANDS
17
18
19
20
Scale 1:250,000
5 0 5 10 Miles
5 0 5 10 15 Kilometers
5000 0 5000 10000 15000 Yards
CONTOUR INTERVAL 100 METERS
POLYCONIC PROJECTION
HEIGHTS IN METERS
1°30' OR 27 MILS
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION FOR CENTER OF SHEET
ANNUAL MAGNETIC CHANGE
Use diagram only to obtain numerical values. To determine magnetic north line, connect the pivot point "P" on the south edge of the map with the value of the angle between grid and magnetic north, as plotted on the degree scale at the north edge of the map.
CHINA BELT | GRID Red
Projection: Transverse Mercator
Spheroid: Clarke 1866
Origin: Equator & 119° East
False Co-ordinates of Origin: 250,000 meters East; 2,210,000 meters North
Scale Factor: 0.9994
A.M.S. L592
First Edition 1943
Prepared under the direction of the Chief of Engineers, U. S. Army, Washington, D. C.
Compiled by the Army Map Service from the following sources:
Formosa 1:200,000, Japanese Imperial Land Survey, Garambi, 1934;
Japanese Hydrographic Charts 250A, 250B.
Major place names are transliterated according to the Modified Hepburn (Romaji) system.
All other names are transliterated from the Chinese (Amoyan Dialect) based on an expansion of the Wades-Giles system.
LEGEND
Cities over 100,000 Population
" 20,000-100,000 "
" 5,000-20,000 "
Towns 2,000-5,000 "
Villages under 2,000 "
Primary Highways: With Railroad
Width 24 Ft. or more
Improved Roads: Width 18 Ft. to 24 Ft.
Unimproved Roads: Width 6 Ft. to 18 Ft.
Trails
Boundary: Shu or Cho (Prefecture)
Boundary: Shicho or Gun (District or County)
Lighthouses
Railroads: Standard Gage 3'6"
Double Track
Single Track
Railroads: Narrow Gage 2'6" or less
Single or Double Track
Railroad: (Electric)
Railroad: (Abandoned)
Topographic Control Points:
Triangulation Points X 317
Elevations
Field Anchorage
Government, Army, Navy
Municipal or Commercial
Auxiliary or Emergency
Unclassified
GLOSSARY
-chiō͘q - rock, stone
-chiu - island
-dake - mountain
-gam - rock, stone
-gun - county
-hae - rock
-hai - sea
-hamo - beach
-hana - point
-hó - river
-hong - peak
-huan - tribe
-hun - divide
-iā - tents, barracks
-ió - kiln
-iwa - rock
-jima - island
-kak - cape
-k'am - valley
-kang - harbor
-kau - ditch
-k'au - mouth, estuary
-kawa - river
-ke - city
-k'ē - depression
-k'e - river, water
-kei - river
-kī - beach
-kió - bridge
-kng - mound
-kō - lake
-kō - harbor
-k'u - locality, region
-k'ut - cave
-li - village
-liau - hut, house
-lo - road
-minato - harbor
-mine - mtn., mtn. range
-mura - township
-nā - woods, forest
-ne - rock, stone
-niā - mtn., mtn. range
-o - lake
-ó - cove
-pī, p'ī - promontory
-po - plain
-p'ó - slope
-saka - hillside
-saki - cape
-sawa - marsh, swamp
-se - shoal, slope
-shima - island
-sho - island
-sia - village
-siā - city
-su - island
-suā - mtn., railroad
-ta - reef
-take - mtn., mtn. range
-t'am - pool
-tang - cave
-tieng - summit
-tin - town
-tó, -tō - island
-ts'ān - field
-tsng - farm
-tsuā - spring, source
-tsui - water
-ts'ui - river
-tua - great
-uan - bay
-uat - road
-ura - mouth, estuary
-wa - river
-wan - bay
-yama - mtn., mtn. range
-zan - mountain
island - -chiu, -jima, -shima, -sho, -su, -tó, -tō
mtn. - -dake, -mine, -niā, -suā, -take, -yama, -zan
river - -hó, -kawa, -k'e, -kei, -ts'ui, -wa
NOTE: USERS DESIRING DATA FROM THIS MAP SHALL MAKE APPROPRIATE CONVERSIONS AND CORRECTIONS WHICH MAY BE REQUIRED BY THE DATA AVAILABLE AT THE TIME OF THEIR SURVEYS. WASHINGTON D.C. 1944
REFERENCE TO SUPERIMPOSED MATTER
Landing place No. 5
Beach No. 6
Additional road
Track described in text
River-crossing: the first figure (e.g. 28) is the number of the route described in the text, the second figure is the number of the crossing. X 28/7
ARMY MAP SERVICE U.S. ARMY WASHINGTON D.C. 114065
1943
8-4.3
TO GIVE A GRID REFERENCE ON THIS SHEET
LETTER - Must be used for this sheet. Obtain from face of map or from diagram.
FIGURES - IGNORE the SMALLER figures printed near the sheet corners. These are for finding the full co-ordinates, viz: 12000m
USE ONLY THE LARGER FIGURES PRINTED IN THE MARGIN OR ON THE FACE OF THE MAP. Viz: 12000
POINT - KONTEI
LETTERS - WL
East - Take West edge of square in which point lies, and read the figure printed opposite this line on North or South margin or on the line itself on the face of the map. Estimate tenths Eastwards. 8 5 85
North - Take South edge of square in which point lies, and read the figure printed opposite this line on East or West margin or on the line itself on the face of the map. Estimate tenths Northwards. 1 7 17
REFERENCE - WL 8517
To nearest 1,000 meters
Line - - - - - - Miles
Square - - - - - - 10,000 metres
HAKIKAKU, FORMOSA (TAIWAN)
N2100-E12000/100

B.R.877 Q(Restricted)

April, 1944.

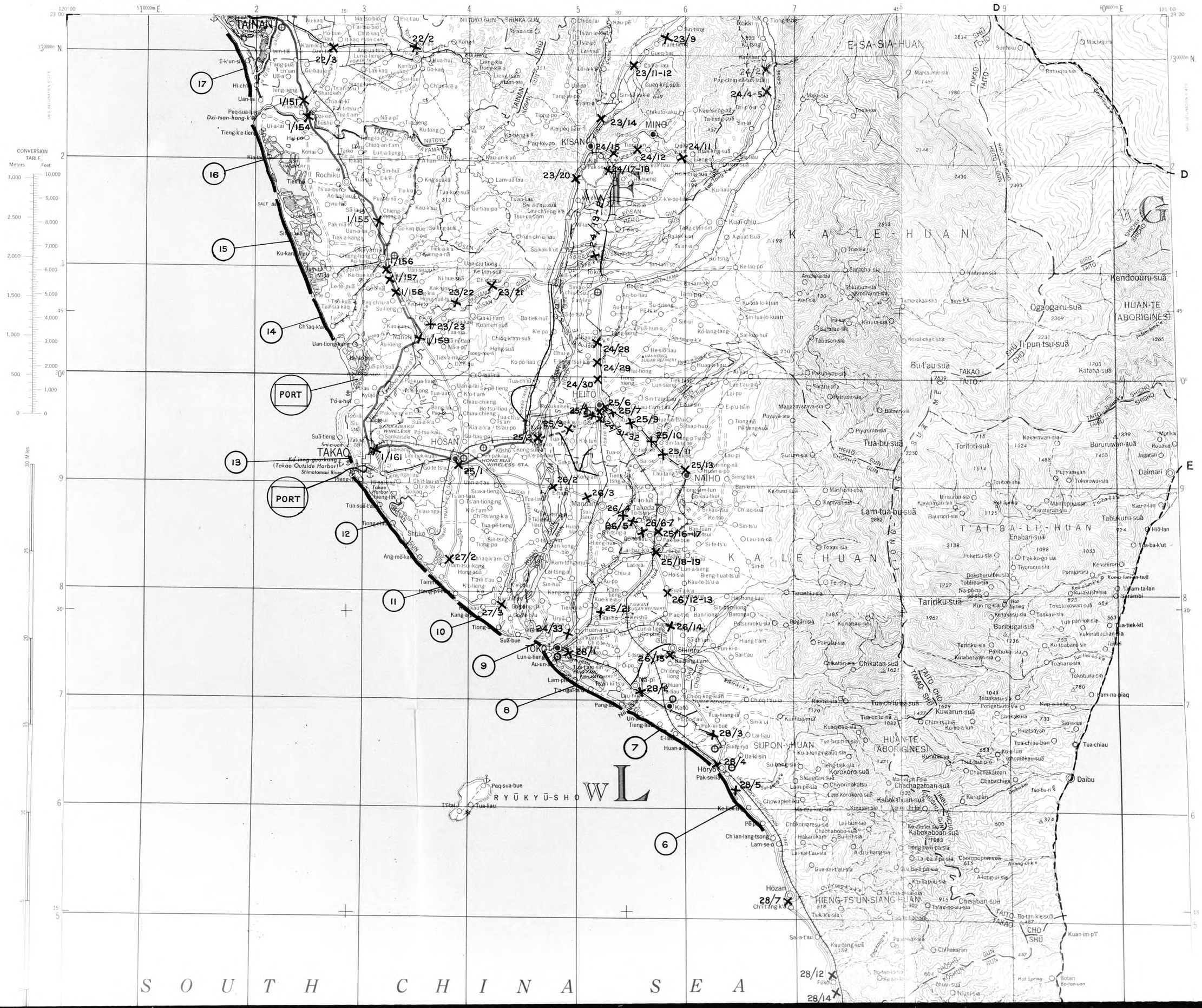
FORMOSA (TAIWAN) 1:250,000

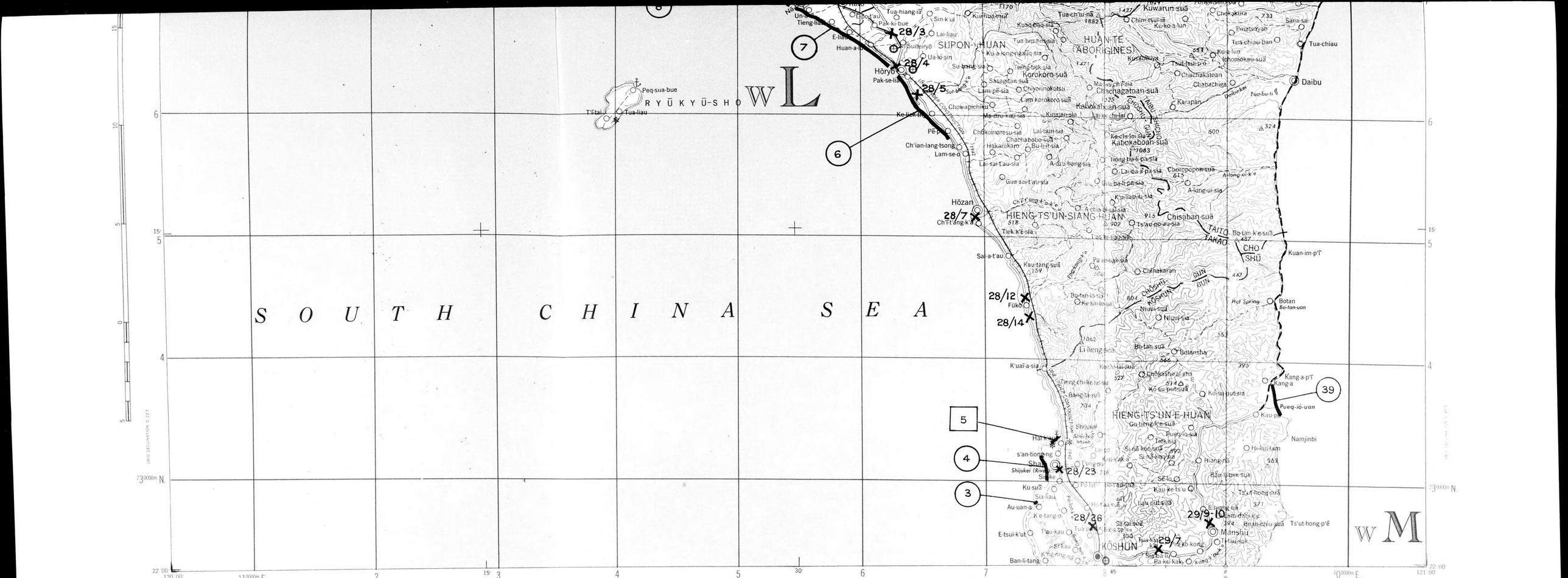
For use by War and Navy Department Agencies only
Not for sale or distribution

TAINAN

FIRST EDITION-AMS 1

SHEET 13

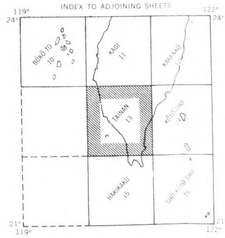




A.M.S. L592
First Edition 1943

Prepared under the direction of the Chief of Engineers, U. S. Army, Washington, D. C.
Compiled by the Army Map Service from the following sources:
Formosa 1:200,000, Japanese Imperial Land Survey, Tainan, 1938; Takao, 1934;
Japan 1:50,000, Japanese Imperial Land Survey, Taijurinzan, Bozan, Sheet F51-XXXII-3, Sheet F51-XXXII-8; Geologic Map of Formosa 1:300,000, 1911;
Formosa 1:300,000, 1919, Japanese Hydrographic Charts 250A; 250B.
Major place names are transliterated according to the Modified Hepburn (Romaji) system.
All other names are transliterated from the Chinese (Amoyan Dialect) based on an expansion of the Wade-Giles system.

INDEX TO ADJOINING SHEETS



LEGEND

Cities over 100,000 Population
" 20,000-100,000 "
" 5,000-20,000 "
Towns 2,000-5,000 "
Villages under 2,000 "
Primary Highways: With Railroad
Improved Roads: Width 18 Ft. or more
Width 18 Ft. to 24 Ft.
Unimproved Roads: Width 6 Ft. to 18 Ft.
Trails
Boundary: Shu or Cho (Prefecture)
Boundary: Shicho or Gun (District or County)
Lighthouses

Railroads: Standard Gage 3'6"
Double Track
Single Track
Railroads: Narrow Gage 2'6" or less
Single or Double Track
Railroad: (Electric)
Railroad: (Abandoned)
Topographic Control Points:
Triangulation Points △
Elevations × 367
Field Anchorage
Government, Army, Navy
Municipal or Commercial
Auxiliary or Emergency
Unclassified

Scale 1:250,000

5 0 5 10 Miles
5 0 5 10 15 Kilometers
5000 0 5000 10000 15000 Yards

CONTOUR INTERVAL 100 METERS
POLYCONIC PROJECTION

HEIGHTS IN METERS

ARMY MAP SERVICE U. S. ARMY, WASHINGTON, D. C. 114063
1943

APPROXIMATE MEAN DECLINATION 1943
FOR CENTER OF SHEET
ANNUAL MAGNETIC CHANGE 1' DECREASE
Use diagram only to obtain numerical values. To determine magnetic north line, connect the pivot point "P" on the south edge of the map with the value of the angle between grid and magnetic north, as plotted on the degree scale of the north edge of the map.

CHINA BELT GRID (Red)

Projection	Transverse Mercator
Spheroid	Clarke 1880
Origin	Equator & 119° East
False Co-ordinates	400,000 meters East 2,700,000 meters North
Scale Factor	0.9996

TO GIVE A GRID REFERENCE ON THIS SHEET
LETTER - Must be used for this sheet. Obtain from face of map or from diagram.
FIGURES - IGNORE the SMALLER figures printed near the sheet corners. These are for finding the full co-ordinates, viz. - 230000
USE ONLY THE LARGER FIGURES PRINTED IN THE MARGIN OR ON THE FACE OF THE MAP. Viz. - 23 0000

POINT TAKAO — LETTERS wL

East		North	
Take West edge of square in which point lies, and read the figure printed opposite this line on North or South margin or on the line itself on the face of the map.	3	Take South edge of square in which point lies, and read the figure printed opposite this line on East or West margin or on the line itself on the face of the map.	9
Estimate tenths Eastwards.	1	*Estimate tenths Northwards*	3
East	31	North	93

REFERENCE wL 319 3 — To nearest 1,000 meters.

Unit Square	Metre (1,000 metres)

GLOSSARY

chióq - rock, stone	-iwa - rock	-ko - lake	-pī, p'ī - promontory	-t'am - pool	-ts'ui - river
-chiu - island	-jima - island	-kō - harbor	-po - plain	-tang - cave	-tua - great
-dake - mountain	-kak - cape	-k'u - locality, region	-p'ō - slope	-tieng - summit	-uan - bay
-gam - rock, stone	-k'am - valley	-k'ut - cave	-saka - hillside	-tin - town	-uat - road
-gun - county	-kang - harbor	-li - village	-saki - cape	-tó, tō - island	-ura - mouth, estuary
-hae - rock	-kau - ditch	-liau - hut, house	-sawa - marsh, swamp	-ts'an - field	-wa - river
-hai - sea	-k'au - mouth, estuary	-lo - road	-se - shoal, slope	-tsing - farm	-wan - bay
-hama - beach	-kawa - river	-minato - harbor	-shima - island	-tsuā - spring, source	-yama - mtn., mtn. range
-hana - point	-ke - city	-mine - mtn., mtn. range	-sho - island	-tsui - water	-zan - mountain
-hō - river	-k'ē - depression	-mura - township	-sia - village		
-hong - peak	-k'e - river, water	-nā - woods, forest	-siā - city		
-huan - tribe	-kei - river	-ne - rock, stone	-su - island		
-hun - divide	-kī - beach	-niā - mtn., mtn. range	-suā - mtn., railroad	island - -chiu, -jima, -shima, -sho, -su, -tó, -tō	
-iā - tents, barracks	-kió - bridge	-o - lake	-ta - reef	mtn. - -dake, -mine, -niā, -suā, take, yama, zan	
-iō - kiln	-kng - mound	-ó - cove	-take - mtn., mtn. range	river - - - - -hó, -kawa, -k'e, -kei, -ts'ui, -wa	

NOTE. OFFICERS USING THIS MAP WILL MARK HEREON CORRECTIONS AND ADDITIONS WHICH COME TO THEIR ATTENTION AND MAIL DIRECT TO THE CHIEF OF ENGINEERS, WASHINGTON, D. C.
REFERENCE TO SUPERIMPOSED MATTER

Landing place No. 5 — 5
Beach No. 6 — 6
Additional road
Track described in text

River crossing: the first figure (e.g. 28) is the number of the route described in the text, the second figure is the number of the crossing. × 28/7

TAINAN, FORMOSA (TAIWAN)

N2200-E12000/100

B.R. 877 Q (Restricted)

April, 1944.

FORMOSA (TAIWAN) 1:250,000

For use by War and Navy Department Agencies only
Not for sale or distribution

KAGI

FIRST EDITION-AMS 1

SHEET 11

AMS L592
First Edition 1943

Prepared under the direction of the Chief of Engineers, U. S. Army, Washington, D. C.
Compiled by the Army Map Service from the following sources:
Formosa, 1:200,000, Japanese Imperial Land Survey, Kagi, 1934; Tainan, 1938.
Geological Map of Formosa, 1:300,000, 1911; Formosa, 1:300,000, 1919;
Japanese Hydrographic Chart 236.
Major place names are transliterated according to the Modified Hepburn (Romaji) system.
All other names are transliterated from the Chinese (Amoyan Dialect)
based on an expansion of the Wade-Giles system.

LEGEND

Cities over 100,000 Population
" 20,000-100,000 "
" 5,000-20,000 "
Towns 2,000-5,000 "
Villages under 2,000 "
Primary Highways: Width 24 Ft. or more — With Railroad
Improved Roads: Width 18 Ft. to 24 Ft.
Unimproved Roads: Width 6 Ft. to 18 Ft.
Trails
Boundary: Shū or Cho (Prefecture)
Boundary: Shicho or Gun (District or County)
Lighthouses

Railroads: Standard Gage 3' 6"
Double Track
Single Track
Railroads: Narrow Gage 2' 6" or less
Single or Double Track
Railroad: (Electric)
Railroad: (Abandoned)
Topographic Control Points:
Triangulation Points
Elevation 410

	Field	Anchorage
Government, Army, Navy		
Municipal or Commercial		
Auxiliary or Emergency		
Unclassified		

INDEX TO ADJOINING SHEETS

Scale 1:250,000

5 0 5 10 Miles
5 0 5 10 15 Kilometers
5000 0 5000 10000 15000 Yards

CONTOUR INTERVAL 100 METERS
POLYCONIC PROJECTION

GLOSSARY

-chióq - rock, stone
-chiu - island
-dake - mountain
-gam - rock, stone
-gun - county
-hae - rock
-hai - sea
-hama - beach
-hana - point
-hó - river
-hong - peak
-huan - tribe
-hun - divide
-iā - tents, barracks
-ió - kiln
-iwa - rock
-jima - island
-kak - cape
-k'am - valley
-kang - harbor
-kau - ditch
-k'au - mouth, estuary
-kawa - river
-ke - city
-k'ē - depression
-k'e - river, water
-kei - river
-kī - beach
-kió - bridge
-khg - mound
-ko - lake
-kō - harbor
-k'u - locality, region
-k'ut - cave
-li - village
-liau - hut, house
-lo - road
-minato - harbor
-mine - mtn., mtn. range
-mura - township
-nā - woods, forest
-ne - rock, stone
-niā - mtn., mtn. range
-o - lake
-ó - cove
-pī, p'ī - promontory
-po - plain
-p'ó - slope
-saka - hillside
-saki - cape
-sawa - marsh, swamp
-se - shoal, slope
-shima - island
-sho - island
-sia - village
-siā - city
-su - island
-suā - mtn., railroad
-ta - reef
-take - mtn., mtn. range
-t'am - pool
-tang - cave
-tieng - summit
-tin - town
-tó, tō - island
-ts'an - field
-tsng - farm
-tsuā - spring, source
-tsui - water
-ts'ui - river
-tua - great
-uan - bay
-uat - road
-ura - mouth, estuary
-wa - river
-wan - bay
-yama - mtn., mtn. range
-zan - mountain

island - -chiu, -jima, -shima, -sho, -su, -tó, -tō
mtn. - -dake, -mine, -niā, -suā, -take, -yama, -zan
river - -hó, -kawa, -k'e, -kei, -ts'ui, -wa

KAGI, FORMOSA (TAIWAN)
N2300-E12000/100

NOTE: OFFICERS USING THIS MAP WILL MARK HEREON CORRECTIONS AND ADDITIONS WHICH COME TO THEIR ATTENTION AND MAIL DIRECT TO THE CHIEF OF ENGINEERS, WASHINGTON, D. C.

REFERENCE TO SUPERIMPOSED MATTER

Landing place No. 5 — 5

Beach No. 6 — 6

Additional road

Track described in text - - - - - - - -

River-crossing: the first figure (e.g. 28) is the number of the route described in the text, the second figure is the number of the crossing. ✕ 28/7

B.R. 877 Q(Restricted)

April, 1944.

FORMOSA (TAIWAN) 1:250,000

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TAICHŪ

FIRST EDITION-AMS 1

SHEET 4

TAICHŪ, FORMOSA (TAIWAN)

N2400-E12000/100

A.M.S. L592
First Edition 1943

Scale 1:250,000

HEIGHTS IN METERS

CONTOUR INTERVAL 100 METERS
POLYCONIC PROJECTION

Prepared under the direction of the Chief of Engineers, U. S. Army, Washington, D. C.
Compiled by the Army Map Service from the following sources:
Formosa 1:200,000, Japanese Imperial Land Survey, Taichū, 1934; Shinchiku, 1932;
Japanese Hydrographic chart 234; U. S. Hydrographic chart 2500.
Major place names are transliterated according to the modified Hepburn (Romaji) system.
All other names are transliterated from the Chinese (Amoyan Dialect)
based on an expansion of the Wade-Giles system.

LEGEND

Cities over 100,000 Population
" 20,000-100,000 "
" 5,000-20,000 "
Towns 2,000-5,000 "
Villages under 2,000 "
Primary Highways: Width 24 Ft. or more — With Railroad
Improved Roads: Width 18 Ft. to 24 Ft.
Unimproved Roads: Width 6 Ft. to 18 Ft.
Trails
Boundary: Shū or Cho (Prefecture)
Boundary: Shicho or Gun (District or County)
Lighthouses

Railroads: Standard Gage 3'6"
Double Track
Single Track
Railroads: Narrow Gage 2'6" or less
Single or Double Track
Railroad: (Electric)
Railroad: (Abandoned)
Topographic Control Points:
Triangulation Points — 367
Elevations

	Field	Anchorage
Government, Army, Navy		
Municipal or Commercial		
Auxiliary or Emergency		
Unclassified		

INDEX TO ADJOINING SHEETS

GLOSSARY

·chióq · rock, stone	·iwa · rock	·ko · lake	·pT, p'T· promontory	·t'am · pool	·ts'ui · river
·chiu · island	·jima · island	·kō · harbor	·po · plain	·tang · cave	·tua · great
·dake · mountain	·kak · cape	·k'u · locality, region	·p'ō · slope	·tieng · summit	·uan · bay
·gam · rock, stone	·k'am · valley	·k'ut · cave	·saka · hillside	·tin · town	·uat · road
·gun · county	·kang · harbor	·li · village	·saki · cape	·tó, tō · island	·ura · mouth, estuary
·hae · rock	·kau · ditch	·liau · nut, house	·sawa · marsh, swamp	·ts'an · field	·wa · river
·hai · sea	·k'au · mouth, estuary	·lo · road	·se · shoal, slope	·tsng · farm	·wan · bay
·hama · beach	·kawa · river	·minato · harbor	·shima · island	·tsuā · spring, source	·yama · mtn., mtn. range
·hana · point	·ke · city	·mine · mtn., mtn. range	·sho · island	·tsui · water	·zan · mountain
·hó · river	·k'ē · depression	·mura · township	·sia · village		
·hong · peak	·k'e · river, water	·nā · woods, forest	·siā · city		
·huan · tribe	·kei · river	·ne · rock, stone	·su · island		
·hun · divide	·kī · beach	·niā · mtn., mtn. range	·suā · mtn., railroad	island · ·chiu, ·jima, ·shima, ·sho, ·su, ·tó, ·tō	
·iā · tents, barracks	·kió · bridge	·o · lake	·ta · reef	mtn. · ·dake, ·mine, ·niā, ·suā, take, yama, zan	
·ió · kiln	·kng · mound	·ó · cove	·take · mtn., mtn. range	river · · · · ·hó, ·kawa, ·k'e, ·kei, ·ts'ui, ·wa	

NOTE: OFFICERS USING THIS MAP WILL MARK DEFECTIONS AND OMISSIONS WHICH COME TO THEIR ATTENTION AND MAIL DIRECT TO THE CHIEF OF ENGINEERS, WASHINGTON, D. C.

REFERENCE TO SUPERIMPOSED MATTER

Landing place No. 5 — 5

Beach No. 6 — 6

Additional road

Track described in text

River-crossing: the first figure (e.g. 28) is the number of the route described in the text, the second figure is the number of the crossing. ✕ 28/7

APPROXIMATE MEAN DECLINATION 1943
FOR CENTER OF SHEET
ANNUAL MAGNETIC CHANGE 1' DECREASE

Use diagram only to obtain numerical values. To determine magnetic north line, connect the pivot point "P" on the south edge of the map with the value of the angle between grid and magnetic north, as plotted on the degree scale at the north edge of the map.

MAGNETIC NORTH

2°15' OR 40 MILS — 0°37' OR 11 MILS

CHINA BELT I GRID (Red)

Projection:	Transverse Mercator
Spheroid:	Clarke 1880
Origin:	Equator & 119° East
False Co-ordinates of Origin:	400,000 meters East 2,210,000 meters North
Scale Factor:	0.9994

TO GIVE A GRID REFERENCE ON THIS SHEET

LETTER Must be used for this sheet. Obtain from face of map or from diagram
FIGURES IGNORE the SMALLER figures printed near the sheet corners. These are for finding the full co-ordinates, viz. 450000
USE ONLY THE LARGER FIGURES PRINTED IN THE MARGIN OR ON THE FACE OF THE MAP. Viz 450000

POINT HOGEN — LETTERS wA

East Take West edge of square in which point lies, and read the figure printed opposite this line on North or South margin or on the line itself on the face of the map. *Estimate tenths Eastwards*		7	North Take South edge of square in which point lies, and read the figure printed opposite this line on East or West margin or on the line itself on the face of the map. *Estimate tenths Northwards*	7
		3		2
East		73	North	72
REFERENCE wA 7372			To nearest 1,000 metres	
Unit Square	– – – – – –		Metre 10,000 metres	

ARMY MAP SERVICE, U. S. ARMY, WASHINGTON, D. C. 114071
1943

B.R.877Q(Restricted)

FORMOSA (TAIWAN) 1:250,000

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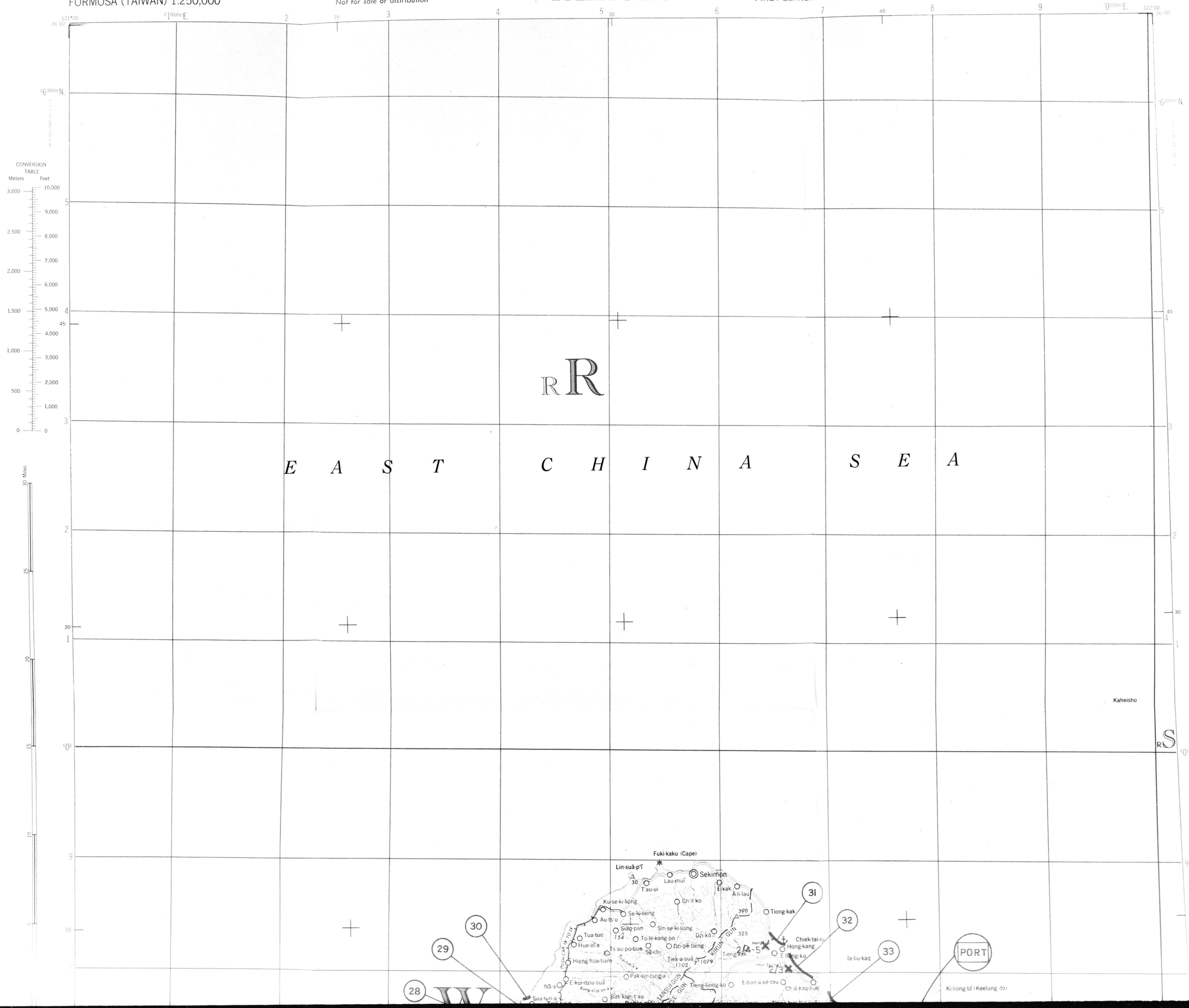
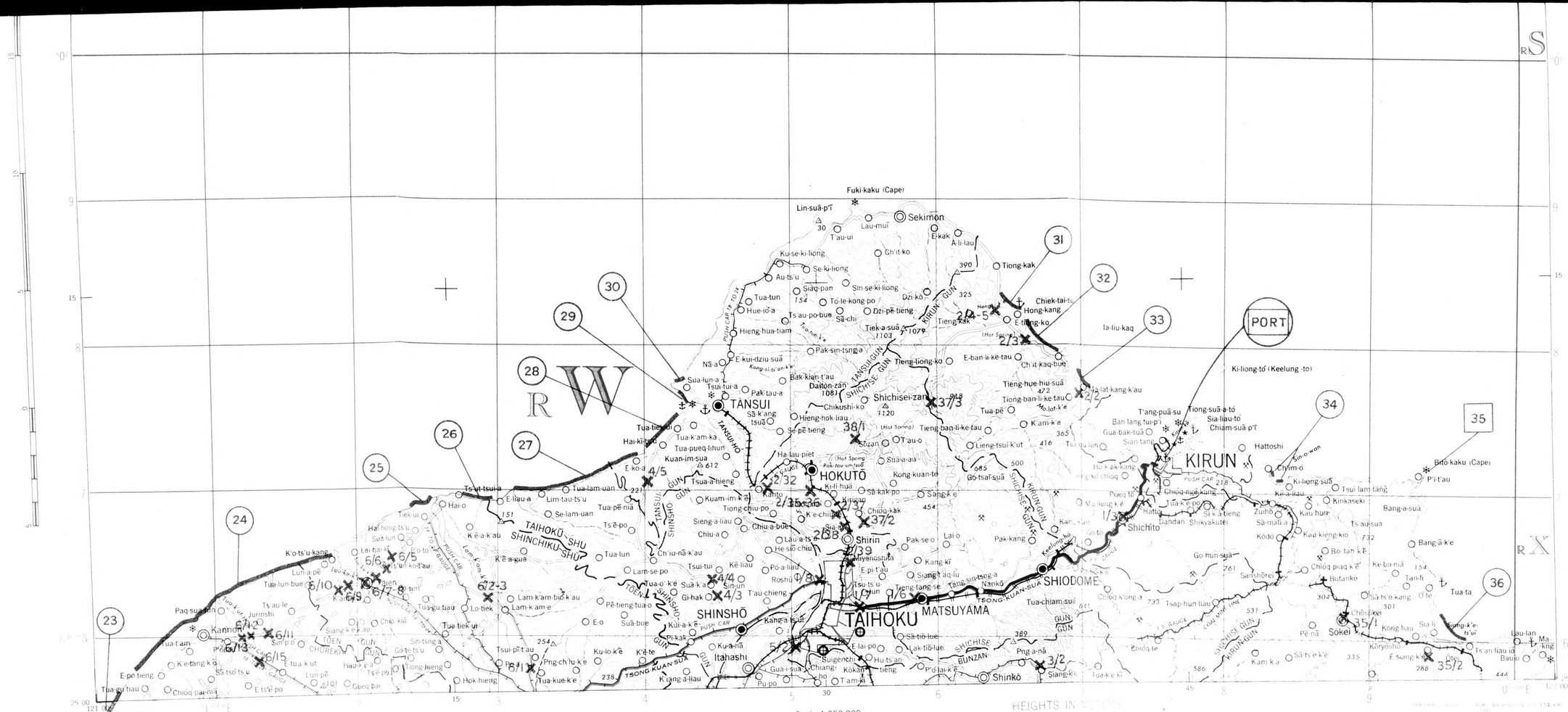
TAIHOKU

FIRST EDITION-AMS 1

April, 1944.

SHEET 1





A.M.S. L592
First Edition 1943

Prepared under the direction of the Chief of Engineers, U. S. Army, Washington, D. C.
Compiled by the Army Map Service from the following sources:
Formosa 1:200,000, Japanese Imperial Land Survey, Taihoku, 1936; Japanese Hydrographic Chart 248; U. S. Hydrographic Chart 2500; Geologic Map of Formosa 1:300,000.
Major place names are transliterated according to the Modified Hepburn (Romaji) system.
All other names are transliterated from the Chinese (Amoyan Dialect) based on an expansion of the Wades-Giles system.

Scale 1:250,000

5 0 5 10 Miles

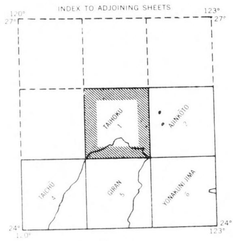
5 0 5 10 15 Kilometers

5000 0 5000 10000 15000 Yards

CONTOUR INTERVAL 100 METERS

POLYCONIC PROJECTION

INDEX TO ADJOINING SHEETS



LEGEND

Cities over 100,000 Population
" 20,000-100,000 "
" 5,000-20,000 "
Towns 2,000-5,000 "
Villages under 2,000 "
Primary Highways: Width 24 Ft. or more — With Railroad
Improved Roads: Width 18 Ft. to 24 Ft.
Unimproved Roads: Width 6 Ft. to 18 Ft.
Trails
Boundary: Shu or Cho (Prefecture)
Boundary: Shicho or Gun (District or County)
Lighthouses

Railroads: Standard Gage 3.6 Double Track
Single Track
Railroads: Narrow Gage 2.6 or less Single or Double Track
Railroad: Electric
Railroad: Abandoned
Topographic Control Points: Triangulation Points, Elevations — 367
Field — Anchorage
Government, Army, Navy
Municipal or Commercial
Auxiliary or Emergency
Unclassified

GLOSSARY

chióq - rock, stone	-iwa - rock	-ko - lake	-pī, pī - promontory	-t'am - pool	-ts'ui - river
-chiu - island	-jima - island	-kō - harbor	-po - plain	-tang - cave	-tua - great
-dake - mountain	-kak - cape	-k'u - locality, region	-p'ó - slope	-tieng - summit	-uan - bay
-gam - rock, stone	-k'am - valley	-k'ut - cave	-saka - hillside	-tin - town	-uat - road
-gun - county	-kang - harbor	-li - village	-saki - cape	-tó, tō - island	-ura - mouth, estuary
-hae - rock	-kau - ditch	-liau - hut, house	-sawa - marsh, swamp	-ts'an - field	-wa - river
-hai - sea	-k'au - mouth, estuary	-lo - road	-se - shoal, slope	-tsng - farm	-wan - bay
-hama - beach	-kawa - river	-minato - harbor	-shima - island	-tsuā - spring, source	-yama - mtn., mtn. range
-hana - point	-ke - city	-mine - mtn., mtn. range	-sho - island	-tsui - water	-zan - mountain
-hó - river	-k'ē - depression	-mura - township	-sia - village		
-hong - peak	-k'e - river, water	-nā - woods, forest	-siā - city		
-huan - tribe	-kei - river	-ne - rock, stone	-su - island		
-hun - divide	-kī - beach	-niā - mtn., mtn. range	-suā - mtn., railroad	island - chiu, -jima, -shima, -sho, -su, -tó, -tō	
-iā - tents, barracks	-kió - bridge	-o - lake	-ta - reef	mtn. - dake, -mine, -niā, -suā, -take, -yama, -zan	
-ió - kiln	-kng - mound	-ó - cove	-take - mtn., mtn. range	river - hó, -kawa, -k'e, -kei, -ts'ui, -wa	

NOTE: DIFFERENCES IN THE MAP WILL MAKE THEM IN CORRECTIONS AND ADDITIONS WHICH COME TO THE ATTENTION AND MAY BE SUBMITTED TO THE CHIEF OF ENGINEERS, WASHINGTON, D. C.

REFERENCE TO SUPERIMPOSED MATTER

Landing place No. 5 — 5

Beach No. 6 — 6

Additional road

Track described in text

River crossing: the first figure (e.g. 28) is the number of the route described in the text; the second figure is the number of the crossing. X 28/7

TAIHOKU, FORMOSA (TAIWAN)

N2500-E12100/100

B.R.877 Q(Restricted)

April, 1944.

FORMOSA (TAIWAN) 1:250,000

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GIRAN

FIRST EDITION-AMS 1

SHEET 5

A.M.S. L592
First Edition 1943
Prepared under the direction of the Chief of Engineers, U. S. Army, Washington, D. C.
Compiled by the Army Map Service from the following sources:
Japanese Imperial Land Survey, Formosa 1:200,000, So'o, 1933; Taihoku, 1936;
Formosa 1:50,000, Chikuto; Kakupanzan, 1936; Goshizan; Bonbonyama, 1936;
Nankotaizan; Buta Sha, Tabito; Gukutsu; Gokanzan; Shinjo;
Geologic Map of Formosa 1:300,000, 1911; Formosa 1:300,000, 1919;
Japanese Hydrographic Chart 231.
Major place names are transliterated according to the Modified Hepburn (Romaji) system.
All other names are transliterated from the Chinese (Amoyan Dialect) based on an expansion of the Wade-Giles system.

LEGEND

- Cities over 100,000 Population
- " 20,000-100,000 "
- " 5,000-20,000 "
- Towns 2,000-5,000 "
- Villages under 2,000 "
- Primary Highways: Width 24 Ft. or more — With Railroad
- Improved Roads: Width 18 Ft. to 24 Ft.
- Unimproved Roads: Width 6 Ft. to 18 Ft.
- Trails
- Boundary: Shū or Cho (Prefecture)
- Boundary: Shicho or Gun (District or County)
- Lighthouses
- Railroads: Standard Gage 3'6" — Double Track; Single Track
- Railroads: Narrow Gage 2'6" or less — Single or Double Track
- Railroad: (Electric)
- Railroad: (Abandoned)
- Topographic Control Points: Triangulation Points; Elevations 367
- Field / Anchorage: Government, Army, Navy; Municipal or Commercial; Auxiliary or Emergency; Unclassified

INDEX TO ADJOINING SHEETS

Scale 1:250,000

5 0 5 10 Miles

5 0 5 10 15 Kilometers

5000 0 5000 10000 15000 Yards

CONTOUR INTERVAL 100 METERS

POLYCONIC PROJECTION

GLOSSARY

-chióq - rock, stone	-iwa - rock	-ko - lake	-pī, p'ī - promontory	-t'am - pool	-ts'ui - river
-chiu - island	-jima - island	-kō - harbor	-po - plain	-tang - cave	-tua - great
-dake - mountain	-kak - cape	-k'u - locality, region	-p'ó - slope	-tieng - summit	-uan - bay
-gam - rock, stone	-k'am - valley	-k'ut - cave	-saka - hillside	-tin - town	-uat - road
-gun - county	-kang - harbor	-li - village	-saki - cape	-tó, tō - island	-ura - mouth, estuary
-hae - rock	-kau - ditch	-liau - hut, house	-sawa - marsh, swamp	-ts'an - field	-wa - river
-hai - sea	-k'au - mouth, estuary	-lo - road	-se - shoal, slope	-tsng - farm	-wan - bay
-hama - beach	-kawa - river	-minato - harbor	-shima - island	-tsuā - spring, source	-yama - mtn., mtn. range
-hana - point	-ke - city	-mine - mtn., mtn. range	-sho - island	-tsui - water	-zan - mountain
-hó - river	-k'ē - depression	-mura - township	-sia - village		
-hong - peak	-k'e - river, water	-nā - woods, forest	-siā - city		
-huan - tribe	-kei - river	-ne - rock, stone	-su - island		
-hun - divide	-kī - beach	-niā - mtn., mtn. range	-suā - mtn., railroad		
-iā - tents, barracks	-kió - bridge	-o - lake	-ta - reef		
-ió - kiln	-kng - mound	-ó - cove	-take - mtn., mtn. range		

island - -chiu, -jima, -shima, -sho, -su, -tó, -tō
mtn. - -dake, -mine, -niā, -suā, -take, -yama, -zan
river - -hó, -kawa, -k'e, -kei, -ts'ui, -wa

NOTE: OFFICERS USING THIS MAP WILL MARK HEREON CORRECTIONS AND ADDITIONS WHICH COME TO THEIR ATTENTION AND MAIL DIRECT TO THE CHIEF OF ENGINEERS, WASHINGTON, D. C.

APPROXIMATE MEAN DECLINATION 1943
FOR CENTER OF SHEET
ANNUAL MAGNETIC CHANGE 1' DECREASE

Use diagram only to obtain numerical values. To determine magnetic north line, connect the pivot point "P" on the south edge of the map with the value of the angle between grid and magnetic north, as plotted on the degree scale at the north edge of the map.

CHINA BELT I GRID (Red)

Projection	Transverse Mercator
Spheroid	Clarke 1880
Origin	Equator & 119° East
False Co-ordinates of Origin	400,000 meters East; −2,210,000 meters North
Scale Factor	0.9994

TO GIVE A GRID REFERENCE ON THIS SHEET

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FIGURES: IGNORE the SMALLER figures printed near the sheet corners. These are for finding the full co-ordinates, viz: 45000
USE ONLY THE LARGER FIGURES PRINTED IN THE MARGIN OR ON THE FACE OF THE MAP. Viz: 45000

POINT GIRAN		LETTERS rW	
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East	77	North	31
REFERENCE rW 7731		To nearest 1,000 metres	

GIRAN, FORMOSA (TAIWAN)

N2400-E12100/100

8-43

REFERENCE TO SUPERIMPOSED MATTER

- Landing place No. 5
- Beach No. 6
- Additional road
- Track described in text

River-crossing: the first figure (e.g. 28) is the number of the route described in the text, the second figure is the number of the crossing. X 28/7

B.R. 877 Q (Restricted)

April, 1944.

FORMOSA (TAIWAN) 1:250,000

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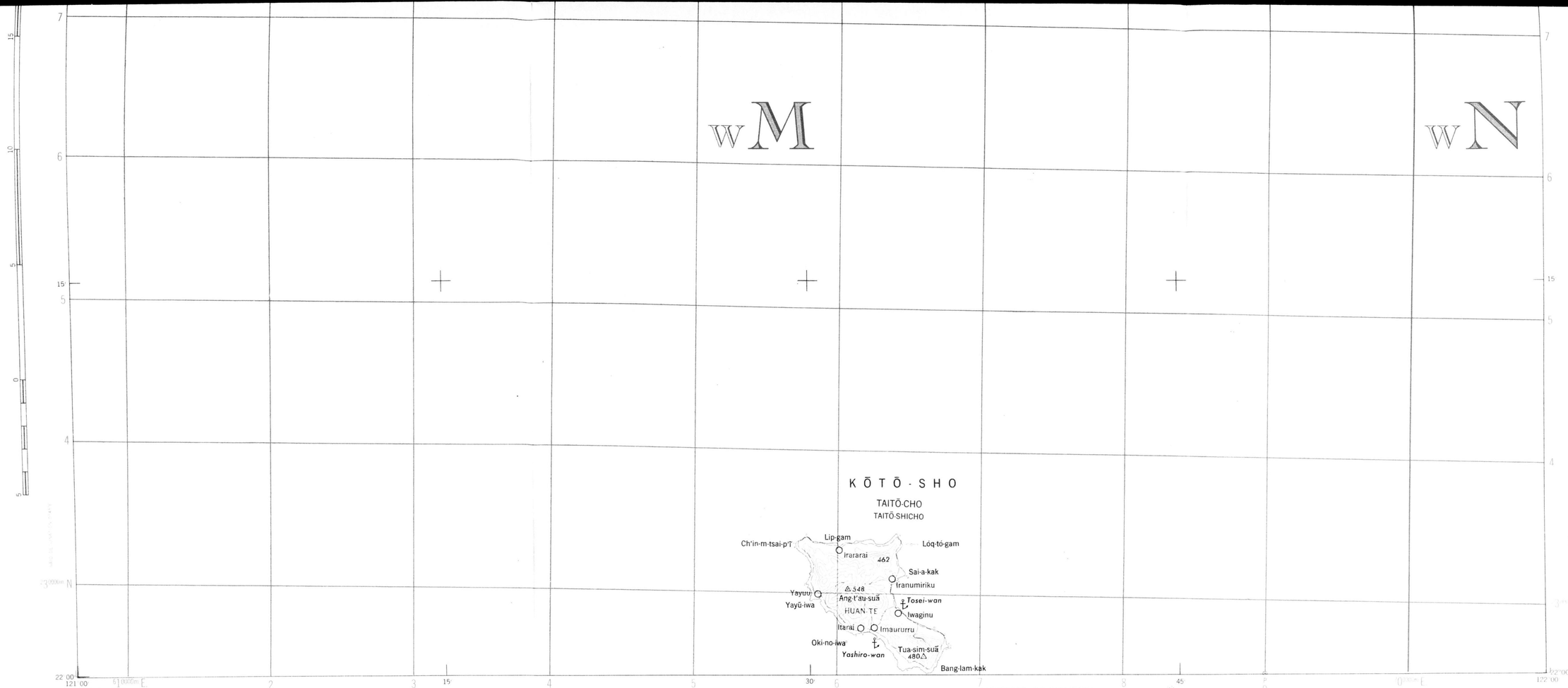
KŌTŌ-SHO

FIRST EDITION-AMS 1

SHEET 14



A.M.S. L592
First Edition 1943

Prepared under the direction of the Chief of Engineers, U. S. Army, Washington, D. C.
Compiled by the Army Map Service from the following sources:
Formosa 1:200,000 Japanese Imperial Land Survey, Taitō, Kōtō shō;
Geologic Map of Formosa 1:300,000, 1911; Formosa 1:300,000. 1919; Japanese
Hydrographic Charts 250A; 220.
Major place names are transliterated according to the Modified Hepburn (Romaji) system.
All other names are transliterated from the Chinese (Amoyan Dialect)
based on an expansion of the Wade Giles system.

LEGEND

Cities over 100,000 Population
" 20,000-100,000 "
" 5,000-20,000 "
Towns 2,000-5,000 "
Villages under 2,000 "
Primary Highways: Width 24 Ft. or more — With Railroad
Improved Roads: Width 18 Ft. to 24 Ft.
Unimproved Roads: Width 6 Ft. to 18 Ft.
Trails
Boundary: Shu or Cho (Prefecture)
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Lighthouses

Railroads: Standard Gage 3'6"
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Railroad: (Abandoned)
Topographic Control Points:
Triangulation Points △
Elevations 367

	Field	Anchorage
Government, Army, Navy	◎	⊛
Municipal or Commercial	☼	✲
Auxiliary or Emergency	+	‡
Unclassified	⊙	ţ

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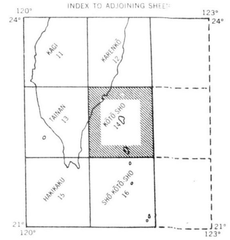

Scale 1:250,000

5 0 5 10 Miles
5 0 5 10 15 Kilometers
5000 0 5000 10000 15000 Yards

CONTOUR INTERVAL 100 METERS
POLYCONIC PROJECTION

GLOSSARY

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-gam · rock, stone	-k'am · cavity	-k'ut · cave	-saka · hillside	tin · town	uat · road
-gun · county	-kang · harbor	-li · village	-saki · cape	tō, tó · island	ura · mouth, estuary
-hae · rock	-kau · ditch	-liau · hut, house	-sawa · marsh, swamp	ts'an · field	wa · river
-hai · sea	-k'au · mouth, estuary	-lo · road	-se · shoal, slope	tsng · farm	wan · bay
-hama · beach	-kawa · river	-minato · harbor	-shima · island	tsuā · spring, source	yama · mtn., mtn. range
-hana · point	-ke · city	-mine · mtn., mtn. range	-sho · island	tsui · water	zan · mountain
-hō · river	-k'ē · depression	-mura · township	-sia · village		
-hong · peak	-k'e · river, water	-nā · woods, forest	-siā · city		
-huan · tribe	-kei · river	-ne · rock, stone	-su · island		
-hun · divide	-kī · beach	-niā · mtn., mtn. range	-suā · mtn., railroad	island · chiu, jima, shima, -sho, su, tó, tō	
-iā · tents, barracks	-kió · bridge	-o · lake	-ta · reef	mtn. · dake, mine, niā, suā, take, yama, zan	
-io · kiln	-kng · mound	-ó · cove	-take · mtn., mtn. range	river · · · · hō, kawa, k'e, kei, ts'ui, wa	

NOTE. OFFICERS USING THIS MAP WILL MARK HEREON CORRECTIONS AND ADDITIONS WHICH COME TO THEIR ATTENTION AND MAIL DIRECT TO THE CHIEF OF ENGINEERS, WASHINGTON, D. C.

REFERENCE TO SUPERIMPOSED MATTER

Landing place No. 5 — 5
Beach No. 6 — 6
Additional road
Track described in text

River crossing; the first figure (e.g. 28) is the number of the route described in the text, the second figure is the number of the crossing. ✕ 28/7

APPROXIMATE MEAN DECLINATION 1943
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ANNUAL MAGNETIC CHANGE 7 DECREASE
Use diagram only to obtain number of mils. To determine magnetic north line, connect the pivot point "P" on the south edge of the map with the value of the angle between grid and magnetic north, as plotted on the dearee scale on the north edge of the map.

CHINA BELT I GRID Red

Projection	Transverse Mercator
Spheroid	Clarke 1880
Origin	Equator & 119° East
False Co-ordinates	400,000 meters East
of Origin	2,211,000 meters North
Scale Factor	0.9996

ARMY MAP SERVICE U. S. ARMY, WASHINGTON, D. C. 114064

KŌTŌ-SHO, FORMOSA (TAIWAN)
N2200-E12100/100

B.R.877 Q(Restricted)

April,1944.

FORMOSA (TAIWAN) 1:250,000

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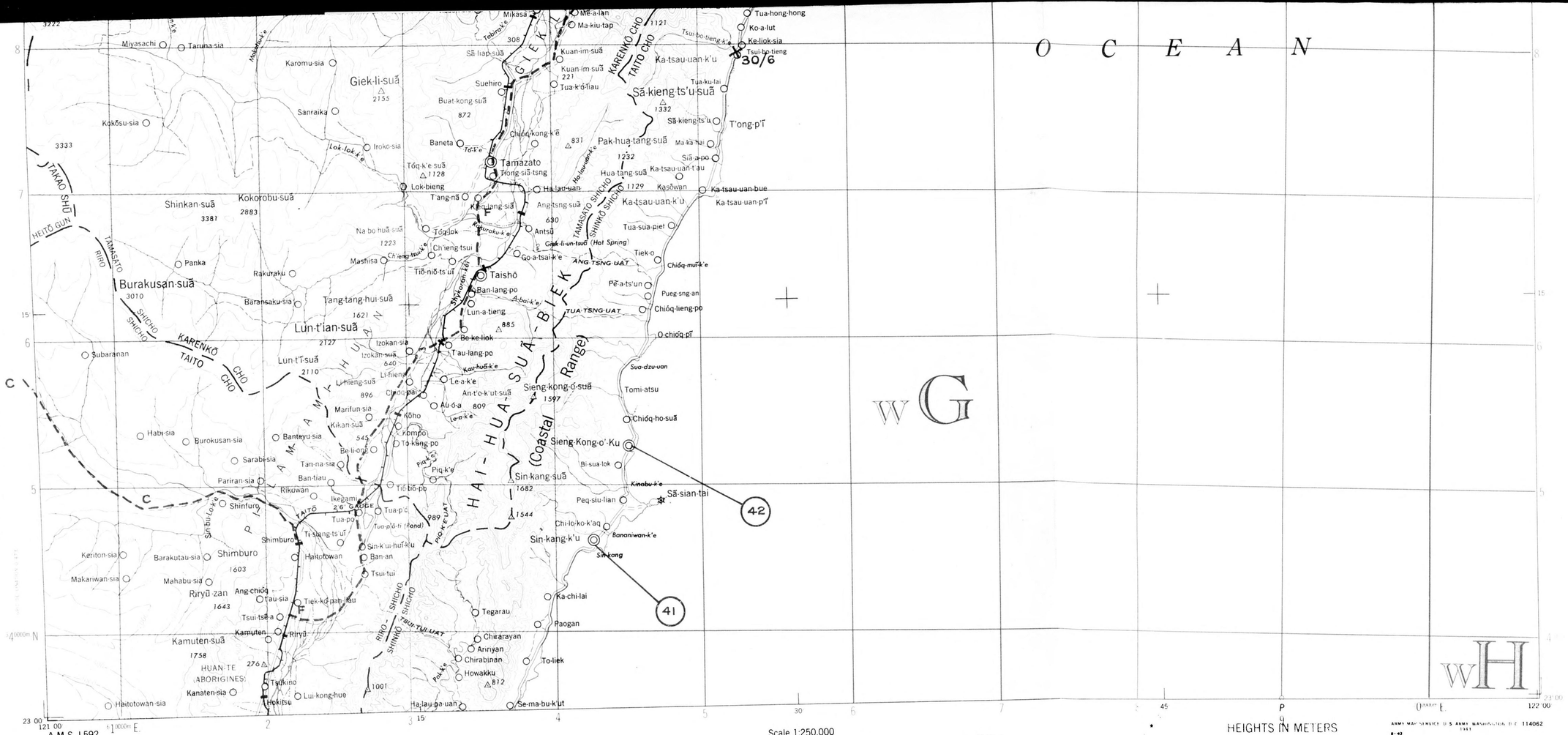
KARENKŌ

FIRST EDITION-AMS 1

SHEET 12



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Formosa 1:50,000, Japanese Imperial Land Survey, Bandai, 1935; Nōtakayama:
Geologic Map of Formosa 1:300,000, 1911; Formosa 1:300,000, 1919; Japanese
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Major place names are transliterated according to the Modified Hepburn (Romaji)
System. All other names are transliterated from the Chinese (Amoyan Dialect)
based on an expansion of the Wades-Giles System.

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- Railroad: (Abandoned)
- Topographic Control Points: Triangulation Points 545; Elevations

	Field	Anchorage
Government, Army, Navy		
Municipal or Commercial		
Auxiliary or Emergency		
Unclassified		

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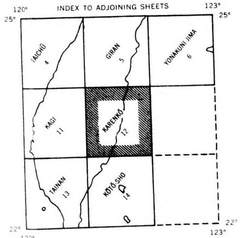

Scale 1:250,000

5 0 5 10 Miles
5 0 5 10 15 Kilometers
5000 0 5000 10000 15000 Yards

CONTOUR INTERVAL 100 METERS
POLYCONIC PROJECTION

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- -gun - county
- -hae - rock
- -hai - sea
- -hama - beach
- -hana - point
- -hó - river
- -hong - peak
- -huan - tribe
- -hun - divide
- -iā - tents, barracks
- -ió - kiln
- -iwa - rock
- -jima - island
- -kak - cape
- -k'am - valley
- -kang - harbor
- -kau - ditch
- -k'au - mouth, estuary
- -kawa - river
- -ke - city
- -k'ē - depression
- -k'e - river, water
- -kei - river
- -kī - beach
- -kió - bridge
- -kng - mound
- -ko - lake
- -kō - harbor
- -k'u - locality, region
- -k'ut - cave
- -li - village
- -liau - hut, house
- -lo - road
- -minato - harbor
- -mine - mtn., mtn. range
- -mura - township
- -nā - woods, forest
- -ne - rock, stone
- -niā - mtn., mtn. range
- -o - lake
- -ó - cove
- -pī, p'ī - promontory
- -po - plain
- -p'ō - slope
- -saka - hillside
- -saki - cape
- -sawa - marsh, swamp
- -se - shoal, slope
- -shima - island
- -sho - island
- -sia - village
- -siā - city
- -su - island
- -suā - mtn., railroad
- -ta - reef
- -take - mtn., mtn. range
- -t'am - pool
- -tang - cave
- -tieng - summit
- -tin - town
- -tó, -tō - island
- -ts'an - field
- -tsng - farm
- -tsuā - spring, source
- -tsui - water
- -ts'ui - river
- -tua - great
- -uan - bay
- -uat - road
- -ura - mouth, estuary
- -wa - river
- -wan - bay
- -yama - mtn., mtn. range
- -zan - mountain

island · -chiu, -jima, -shima, -sho, -su, -tó, -tō
mtn. · -dake, -mine, -niā, -suā, take, -yama, -zan
river · -hō, -kawa, -k'e, -kei, -ts'ui, -wa

NOTE: OFFICERS USING THIS MAP WILL MAKE VERSION CORRECTIONS AND ADDITIONS WHICH COME TO THEIR ATTENTION AND WILL DIRECT TO THE CHIEF OF ENGINEERS, WASHINGTON D.C.

REFERENCE TO SUPERIMPOSED MATTER

Landing place No. 5 — 5
Beach No. 6 — 6
Additional road
Track described in text

River-crossing: the first figure (e.g. 28) is the number of the route described in the text, the second figure is the number of the crossing. ✕ 28/7

HEIGHTS IN METERS

ARMY MAP SERVICE U.S. ARMY, WASHINGTON, D.C. 114062
1941
D-43

TO GIVE A GRID REFERENCE ON THIS SHEET

LETTER Must be used for this sheet. Obtain from face of map or from diagram.
FIGURES IGNORE the SMALLER figures printed near the sheet corners. Translate for finding the full coordinates, viz 54 KM East
USE ONLY THE LARGER FIGURES PRINTED IN THE MARGIN OR IN THE FACE OF THE MAP. Viz 42 KM North

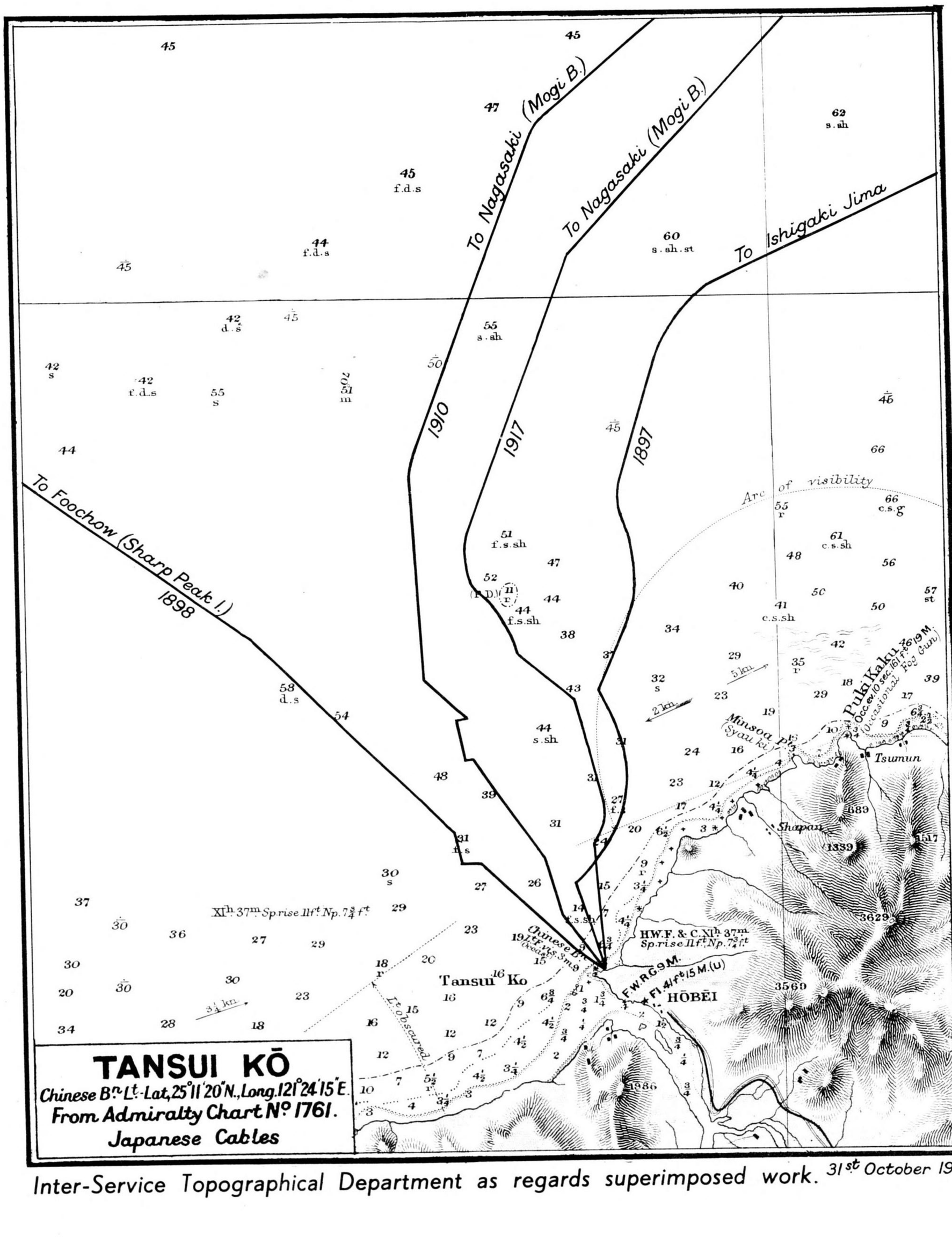
POINT KARENKO — LETTERS wB

East: Take West edge of square on which point lies and read the figure printed opposite this line on North or South margin or on the line itself on the face of the map. Estimate tenths Eastwards	6	North: Take South edge of square on which point lies and read the figure printed opposite this line on East or West margin or on the line itself on the face of the map. Estimate tenths Northwards	4
East	5	North	3
	65		43

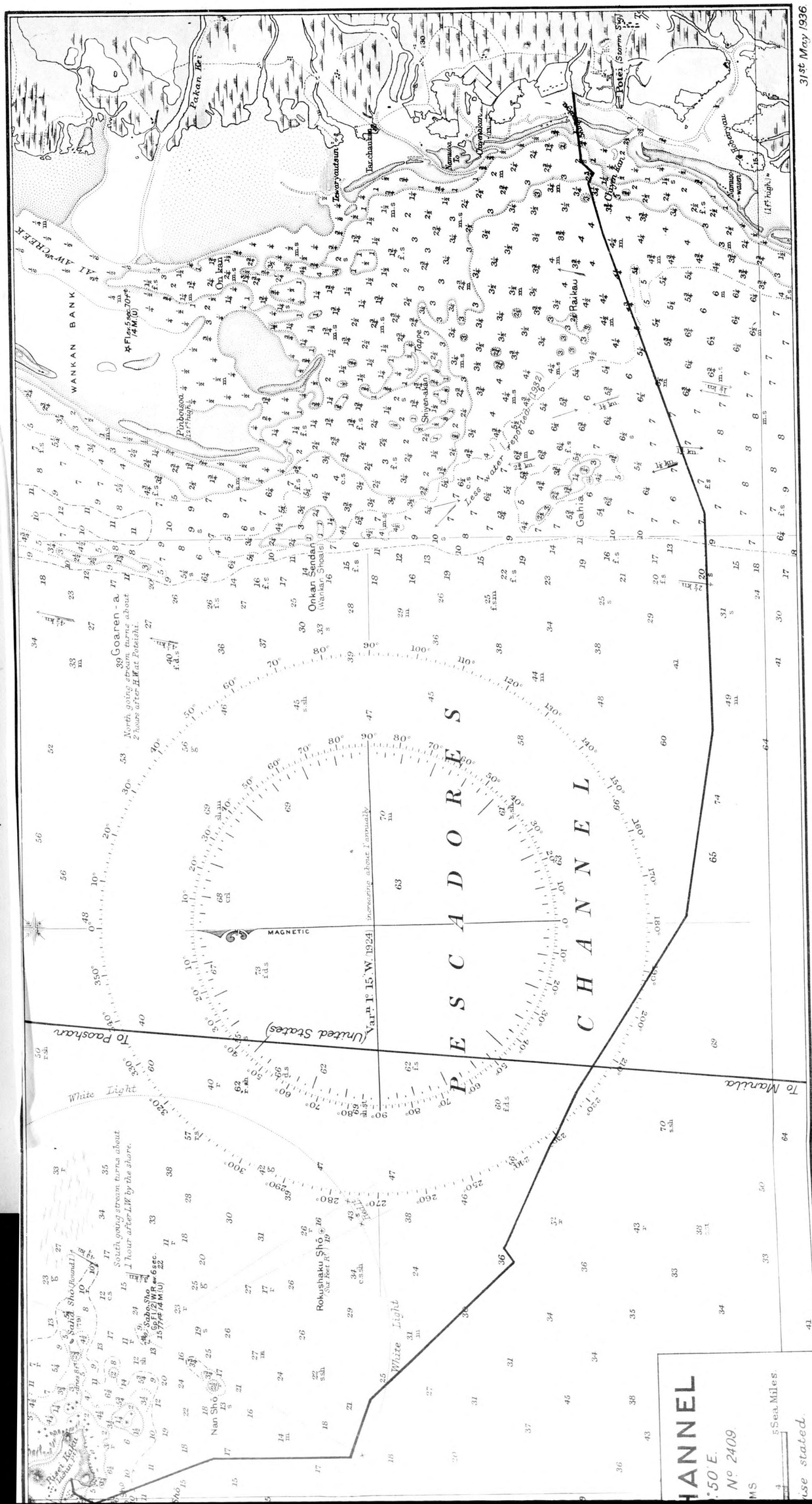
REFERENCE wB 6543 — To nearest 1,000 metres

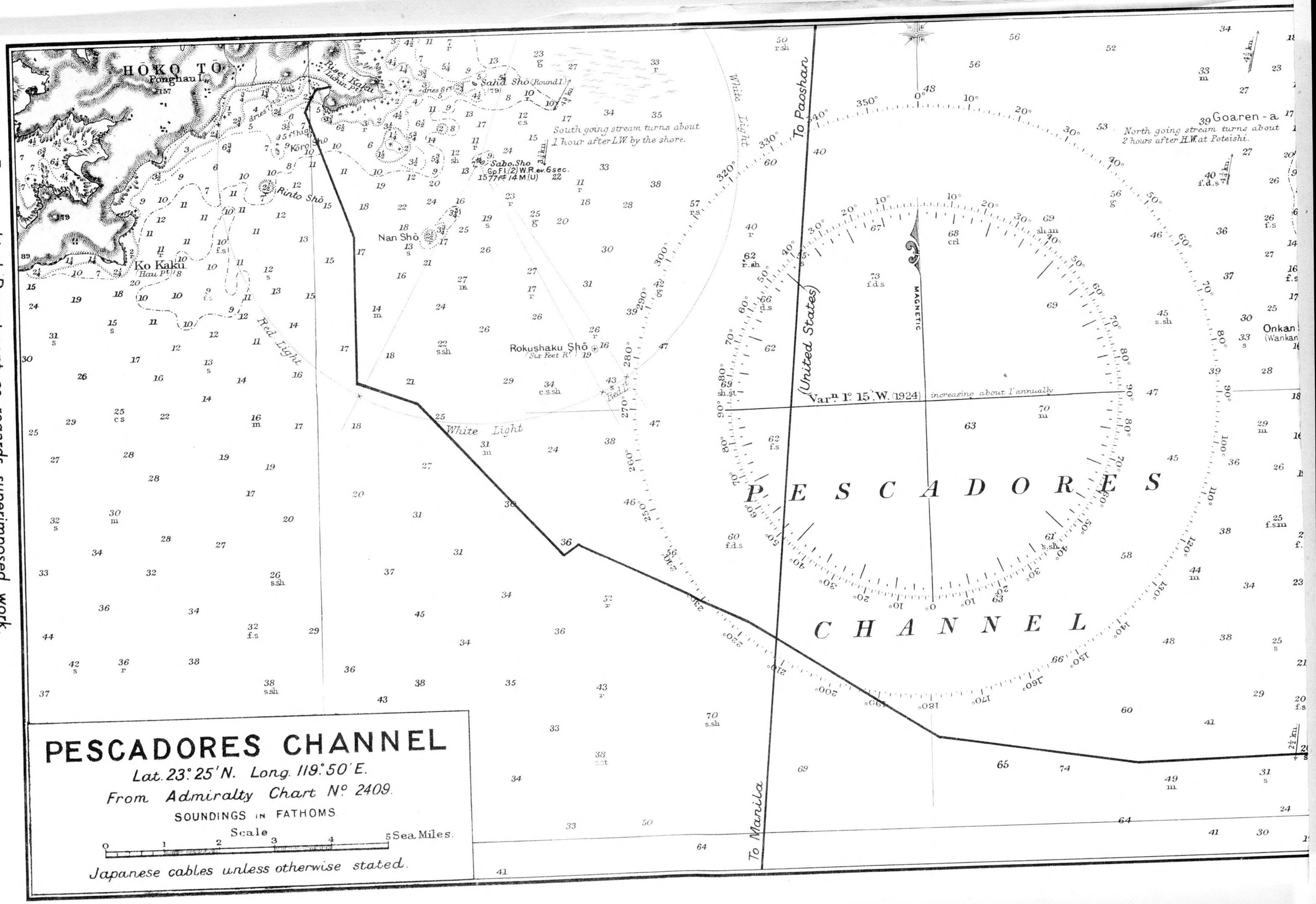
Unit Square	-	-	-	-	Metre 10,000 Metres

KARENKŌ, FORMOSA (TAIWAN)
N2300-E12100/100



Inter-Service Topographical Department as regards superimposed work. 31st October 1941.


31st May 1936
WANKAN BANK
AI AW CREEK
Pakan Kei
Onkan
Pinboisoa
Tapp
Shiyen-akan
Raikau
Gahia
Onkan Sendan
(Wankan Shoals)
Goaren-a
North going stream turns about 2 hours after H.W. at Poteishi.
Less water reported (1932)
PESCADORES CHANNEL
MAGNETIC
Var.n 1° 15' W. (1924) increasing about 1' annually
(United States)
To Paoshan
To Manila
White Light
South going stream turns about 1 hour after L.W. by the shore.
Rokushaku Shō
Nan Shō
Sabo Shō
Sabo Shō (Round I.)
Potei (Storm Sy.)
Chiyen Kan
Namuso-wasen
Hoberyau
Tawaryautsun
Tar.chauhan
Namuso To
Chiyenakan
HANNEL
°50' E.
No. 2409
5 Sea Miles
ise stated



Inter-Service Topographical Department as regards superimposed work.

I.S.T.D./F/374

SECRET

THREE RIVERS

IN

FORMOSA

Inter-Service Topographical Department
21 February 1944

I.S.T.D./F/374.

C O N T E N T S

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General	1
Seasonal variations	1
THE RIVERS	2
Nisoko River	2
Shimo-Tansui River	3
Airyo River	3
BRIDGES ... ... (Excluding information given in U.S. Report S 30/783)	4
Nisoko River	4
Shimo-Tansui and Airyo Rivers	4

Photographs

Figures

Fig. 1.	Location map (tracing 1:250,000)	at end
Fig. 2.	Nisoko River and portion of Nanshisan (northern continuation of Shimo-Tansui) river	at end

SPECIAL REPORT

- on -

THREE RIVERS IN SW. FORMOSA

Map References: 1:250,000, A.M.S. L.592 (1943),
Sheets 11 and 13.
1:50,000, Japanese Survey (1930),
Sheets 84 and 85.

INTRODUCTION

This report deals with three selected rivers in SW. Formosa (Taiwan), known as the Nisoko, the Shimo-Tansui, and the Airyo rivers (Fig. 1), with particular reference, as far as is possible, to the following points regarding the whole length of each river, but especially the part within 10 miles of the mouth:-

(a) Width.
(b) Depth of water during various climatic conditions.
(c) Type of bottom, including size of any boulders.
(d) Details of any existing fords.
(e) Details of bridges.
(Other than those indicated in U.S. Report S.30/783.)
(f) Type of bank.

It has not been possible to give detailed information on all these points for each river, because of the insufficient data available at the time of investigation.

Sources consulted included texts, and some aerial photographs (see below), and the most northerly river, the Nisoko, was also covered by 1: 50,000 Japanese survey sheets published in 1930. Personal informants had little or no specific information about the rivers. It is therefore impossible to give information of absolute certainty on the points on which information was required.

TOPOGRAPHICAL REPORT

General

Seasonal variations

This portion of Formosa is chiefly under the influence of the southerly monsoon, and the period of heavy rainfall occurs from May to September. From October to April it is very dry and the months of December and January have practically no rain. The result of this sharp difference of rainfall is that from May to October the rivers are in full flood, and appear to spread over a large area of the surrounding flat country. During the rest of the year the rivers contract to shallow braided streams meandering among piles of sand, gravel and stones. During the flood season the rivers carry down to the flat coastal plain immense quantities of debris varying in size from silt to boulders. It is thought that the large stones and pebbles will be confined to the main stream of the river, where the greatest velocity is found, while the finer materials are spread over the flood-plain or deposited out to sea. During the dry season the piles of stones and pebbles rolled down by the floods will appear as banks in the river bed, while the flowing water will retire to probably narrow gravel

and sand beds between these pebbly banks.

THE RIVERS

Nisoko River. (See Fig. 2)

All the information in Fig. 2 (except for the dams mentioned below) has come from the Japanese topographical sheet, and the following warnings are given:

(1) It is not known what datum line has been used for the depth of water figures, but it may be assumed that these are the depths for the average flow.

(2) The height of banks given is the height from the water surface to the top of the bank, except where 'a.s.l.' (above sea level) is added.

High banks are seen to occur on the outer sides of meanders, and they increase in height upstream from $11\frac{1}{2}$ feet 3 miles from the mouth to nearly 38 feet $9\frac{1}{2}$ miles from the mouth. On the inner side of meanders there is usually a broad flat sandy or sandy clay area, at only a few feet above the water level. These 'lunate' plains will probably be flooded during the wet season.

It is not thought that this river rises sufficiently to cause extensive flooding, for two reasons:

(a) The small area of its drainage basin,
(b) The fact that there are built-up areas quite close to the river bank for much of its course, e.g. village built on high bank 2.65 miles east of mouth; spot height $13\frac{1}{2}$ feet in centre of village.

A Japanese source says that the flow of this river is 'exceedingly tranquil'.

The normal dry-season water gap would not appear to be more than 100 feet. This figure appears to be confirmed by comparison of the 1930 Japanese map and P.I.R. No.404 (U.S.) taken 7th November 1943. The air cover would appear to indicate that two dams 400 feet long have been built since the survey; these are very probably connected with the irrigation scheme for the area. The dams are marked in their approximate position in Fig. 2.

It is not known exactly what effect the dams will have upon the river, but it may be that they are intended to retain sufficient water for distribution over the land below them during the dry season. The dams appear to have a permanently open sluice at one side, but it is not known at what head of water there would cease to be a flow over the spillway. The impounded water may therefore have eliminated the use of the fords immediately above the dams.

It is thought that the type of bottom in this river is mainly sands, pebbles and silt, and that large stones in the bed would be unusual.

The alluvial plain is said to be composed of sands, gravels and clays, and the high banks would therefore seem to be of relatively soft material. It is probable that the lower areas by the river itself would be

waterlogged only during the period of high water and that during the dry season they would dry out rapidly.

Shimo-Tansui River

No 1:50,000 Japanese sheets are available for this river, and there is very little other information available. In the flood period the Shimo-Tansui is said to have a width of 3 miles in some places below 4904 (Sheet 13, A.M.S. L.592). This may refer only to a specific point but there appears no doubt that the river has a great width during this season. Evidence for this is supplied by the length of the railway bridge at 4797 (Sheet 13) and by the location of large towns (e.g. Heito) well away from the river. In the dry season the river decreases considerably in width and flows in many channels amongst the piles of sands and gravels brought down in flood periods.

Two photographs (nos. 1 and 2), taken from what appears to be the same position at the railway bridge, give an approximate picture of the depth of water and width of the river at this point. It is not known at what period of the year these photographs were taken. It would appear from photograph 1 that the river is not encumbered by very large stones, and such information as there is on the geology of the upper course of the river (which is said to be through sandstones and shale) seems to indicate that large stones and boulders are unlikely.

It is said that on both sides of the river approaches to the water's edge are easy, and would not prove an obstacle. It is probable that the right bank has a low terrace edge a few feet high a short distance from the river's edge.

There is no information available as to the number of fords. An informant has seen temporary bridges thrown across the river in the low water period between the railway bridge at 4797 (Sheet 13) and the mouth. These structures of timber link up the piles of stony debris and cross only the narrow water-gaps of the braided channel.

It is considered that the flood-period flow on this river would limit the amount of river control which could be carried out, and it is therefore improbable that there are any dams within 10 miles of the river's mouth.

Airyo River

No information is available about this river, except that a visitor to the island easily crossed 'its many beds' east of Heito (about 6098, Sheet 13) during the dry season. It is probable that where the river debouches from the mountains to the plain it has built up a wide fan of coarse materials. In this part of its course the river is probably shallow and the current may be fast. During the flood period the waters will probably spread over a wide area, though in all probability they will not be deep.

Below this section of the river the many branches join to form a single stream which will have the characteristics of the Shimo-Tansui, though on a smaller scale.

BRIDGES

Nisoko River

Road bridge on Tainan - Takao road at 2524 (Sheet 13, A.M.S. L.592).

Probably masonry or concrete bridge of 7 spans; it is possible that there is an approach span on each side giving a total of 9 spans, with 7 spans of water crossing. Length given as 580 ft. (water crossing approx. 400 ft.).

Dam $\frac{1}{2}$ mile below bridge appears to be masonry, but may be earth-filled; it has a spillway on south side breaking the top platform; this gap could be bridged easily, except in flood time.

A similar dam $1\frac{1}{2}$ miles upstream also has a spillway which could be temporarily bridged.

Railway bridge over the Nisoko at 2822 (Sheet 13, A.M.S. L.592).

A four-span steel bridge undecked, probably with masonry piers.

Shimo-Tansui and Airyo Rivers

The only information on road bridges on the other rivers is that they are of a temporary nature, of wooden trestle type with plank decking, built only to last between floods.

Railway bridge over the Shimo-Tansui at 4696 (Sheet 13, A.M.S. L.592).

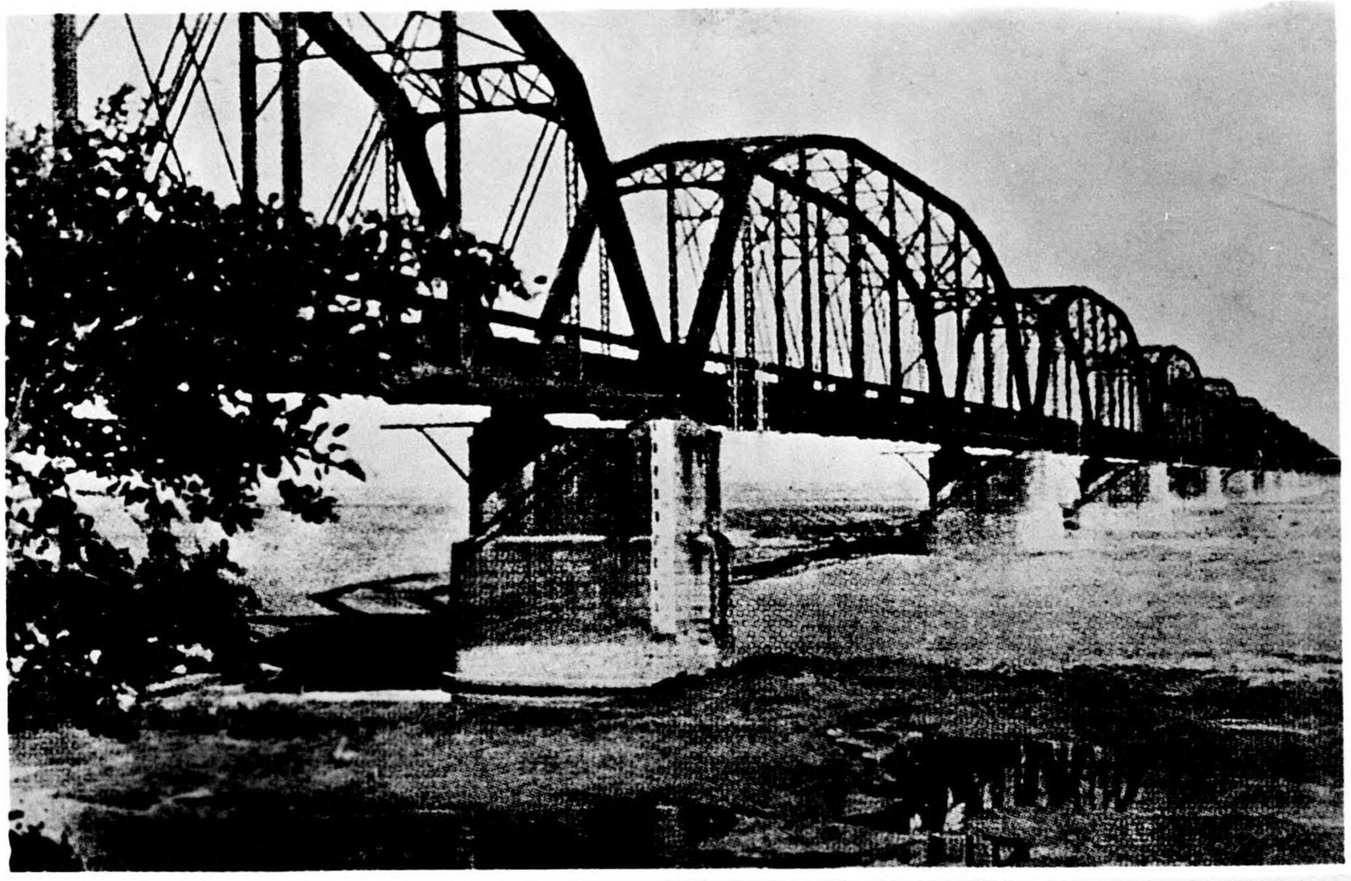
A straight girder type, top braced, built on masonry piers; it has a long carry over water and soft banks, and is of more than 20 spans.

I.S.T.D./F/374.

LIST OF PHOTOGRAPHS

Negative No.	Photograph No.	
429035	1	Railway bridge over Shimo-Tansui showing river-bed in dry season. Note small watercourse in foreground.
185572	2	Railway bridge over Shimo-Tansui. Probably taken from same point as no.1. Note island in centre of river. Time of year not known; probably either at beginning or end of wet season.
361390	3	Railway bridge over Shimo-Tansui. View of bank on west side of the river.

Note. The above list gives the negative numbers corresponding to the photographs in this report.
Any demands for copies of individual photographs from this report should quote the report number and the negative number, and be submitted through the proper channels to the Director of Naval Intelligence (Section XI), Admiralty.



1. Railway bridge over Shimo-Tansui, showing river-bed in dry season. Note small watercourse in foreground.

2. Railway bridge over Shimo-Tansui. Probably taken from same point as No.1. Note island in centre of river. Time of year not known; probably either at beginning or end of wet season.

3. Railway bridge over Shimo-Tansui. View of bank on west side of the river.