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A Brief Geographical and Hydro Graphical Study of Straits Which Constitute Routes for International Traffic

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A BRIEF GEOGRAPHICAL AND HYDROGRAPHICAL STUDY OF STRAITS WHICH CONSTITUTE ROUTES FOR INTERNATIONAL TRAFFIC

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Introduction

In the following study of certain straits constituting routes for international traffic, a small plan of each strait is included showing the essential features to assist in identification. Should, in any particular case, a more detailed study be required, references are given to the relevant *Charts* and *Pilots*. These references are to the

Charts and Sailing Directions issued by the Hydrographic Department of the British Admiralty. It should be borne in mind that when consulting the *Pilots* (Sailing Directions), the latest supplement to those volumes should be read in conjunction with them.

Miles referred to in the descriptions are sea miles, each constituting one-sixtieth of a degree of latitude in the area.

No account has been taken of the varying breadths of the territorial sea as at present claimed by the different States. The references to "high seas" in the descriptions are based on an assumed maximum claim of twelve miles to a breadth of territorial sea. With any lesser breadth, the high seas will encroach into the straits and may alter the sense of the descriptive text. The remark that a strait connects the high seas lying at each end of it does not necessarily imply that there is no passage on the high seas through the strait.

In the directive for this study, straits of a width of twenty-six miles or less were to be considered. Certain straits are wider than this measurement at their ends; accordingly, only that part lying within this breadth has been considered. In certain other cases, however, the straits embraced by these measurements widen abruptly at their ends into the high seas, the area considered has therefore been that lying between the outermost intersections of twelve-miles arcs centred on the coastlines of the opposite States, at each end of these straits.

The following additional general remarks may also be of assistance when considering this study :

(i) When considering these straits, drying features have been described if they lie within twelve miles of the coastline of the mainland or of a feature permanently above water, with a view to taking them into account for the extension of the belt of territorial sea. This is on the assumption of a maximum breadth for the territorial sea of twelve miles. With lesser breadths many of these features described will not lie within a distance from permanently dry land equivalent to the breadth of the territorial sea ; accordingly, such features will not qualify to form base points for the extension of the limits of the territorial sea.

(ii) Certain references have been made in the text to navigation through the straits in relation to median lines. When assessing the positions of the median lines, drying features lying within twelve miles of each shore have

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been taken into account except in those cases where such features lie in an overlap of the two limits, where they would qualify to extend the limit from both shores.

(iii) In straits wider than the sum of the breadths of the territorial sea claimed by opposite States, the separation of the territorial sea limits is not necessarily equal to the distance between opposite coasts less the sum of the breadth of belts of the territorial seas, as it is the prominent points or headlands and, in certain cases, drying features which control the limits of the belts.

(iv) Whatever the status of the waters of a strait it is obligatory, in order to reach a port therein, to pass through the territorial sea of the State in whose territory the port lies.

1. Straits of Bab el Mandeb (Annex, map No 1)

References : Charts Nos. 6, 1925 and 2592.
    Red Sea and Gulf of Aden Pilot, Tenth Edition, 1955.

1. These straits join the high seas of the Gulf of Aden to those of the Red Sea and form part of the international route from the Mediterranean to the Far East. The name is strictly applied to the waters lying between Ras Bab el Mandeb and Ras Si Ane about 14½ miles south-westward and comprising the Large Strait between Perim Island and the African coast and the Small Strait between that island and Arabia. Large Strait is about 9¼ miles wide and Small Strait about 1½ miles in breadth. For the purposes of this study, however, the water area in the vicinity less than 26 miles wide will be considered. This extends from Mokha in the north to a position about 20 miles eastward of Ras Bab el Mandeb, a distance of approximately 50 miles.

2. The following States border these Straits :

On the south-west, Ethiopia and French Somaliland.

On the north-east, Yemen and Aden Protectorate.

In the Straits, Perim Island (part of the Britsh Colony of Aden).

3. (*a*) The length of the Straits may be considered as 50 miles.

(*b*) The general width of the Straits is 19½ miles but this width is restricted over a distance of about 7 miles both by the peninsula of which Ras Bab el Mandeb forms the southern end on the northern side, and by Perim Island, which divides the main strait into two — Large Strait and Small Strait.

(*c*) Small Strait between Perim Island and Ras Bab el Mandeb is about 3 miles long and varies in width from about 3 miles to 1½ miles.

(*d*) Large Strait between Perim Island and the African coast is about 10 miles long, with a general width of about 10½ miles. The narrowest part is 9¼ miles wide between the southern end of Perim Island and Jezirat Seba, a group of six islands extending about 6 miles from the African coast and south-south-westward of Perim Island.

4. The whole strait, with the exception of Small Strait, throughout its length of about 50 miles, is deep

water varying from about 100 fathoms or more in the middle to approximately 3 to 6 fathoms close off the coastal reefs. There are no navigational dangers throughout its length. Small Strait has depths varying from 12 to 5½ fathoms and is free from dangers in the fairway. Tidal streams are, however, strong and irregular and, as many casualties have occurred there, the use of Large Strait is recommended.

5. In addition to Perim Island and Jezirat Seba described above, the only island in the area is Dumeira, the outer edge of which lies about a mile from the African coast and about 14 miles west-north-westward of Perim Island.

There are no ports within the area.

6. Navigation is possible on both sides of median lines drawn through the main strait and through Large and Small Straits.

2. Strait of Gibraltar (Annex, map No 2)

References : Chart No. 142.
    West Coasts of Spain and Portugal Pilot, Third Edition, 1946.

1. The Strait of Gibraltar runs in a general east-west direction and is the only connexion of the high seas of the Atlantic Ocean to those of the Mediterranean Sea ; it embraces a much used route for international shipping.

The Strait is bounded on the north by the coasts of Spain and by Gibraltar, and on the south by Morocco and by the Spanish territory of Ceuta.

To the west, Cabo Trafalgar and Cabo Espartel (Spartel) form the natural entrance points and those on the east are Europa Point (Gibraltar) and Ceuta.

2. (*a*) The length of the Strait is about 33 miles.

(*b*) The breadth at the western end, the widest part from Cabo Trafalgar to Cabo Espartel is about 24 miles.

(*c*) The breadth at the eastern end from Europa Point, the southern tip of Gibraltar, to Ceuta is 13 miles.

(*d*) The narrowest part of the Strait is about 10 miles west of Ceuta, where the distance between its low-water lines of the north and south sides is 7½ miles.

(*e*) In general, the Strait may be said to narrow uniformly from its western end for a distance of about 18 miles to a width of about 8¼ miles on a line running south-east from Isla Tarifa, thence eastwards it retains this general width for about 6 miles (embodying the narrowest part of 7½ miles) and then widens again to its eastern end.

3. The Strait is deep. Navigation presents no difficulties; the least navigable width between the 10-fathom lines is about 7 miles and depths in places reach over 600 fathoms.

There are no islands or drying banks in the Strait other than a few detached drying rocks very close inshore.

Vessels often navigate towards the sides of the Strait rather than in its middle in order to benefit from the currents and tidal streams to the maximum possible.

4. The following ports lie within the Strait:

(i) On the northern shore: Barbate, a small fishing port; Tarifa, an open anchorage; Algeciras; and Gibraltar.

(ii) On the southern shore: Tangier; Ceuta.

5. Navigation would be possible on either side of median lines drawn through the Strait between the low-water lines of the various coastal States.

3. Zanzibar Channel (Annex, map No 3)

References: Charts Nos. 664, 640 A, 640 B.

Africa Pilot, Volume 111, Eleventh Edition, 1954.

1. The Zanzibar Channel separates the island of Zanzibar from the mainland of Africa. It connects the high seas of the Indian Ocean southward of Zanzibar with Pemba Channel, from 30 to 20 miles wide, between the island of Pemba and the coast of Africa. There is also a connexion to the high seas from the northern end of the Zanzibar Channel through the strait, with a maximum width of $21\frac{1}{2}$ miles, between Zanzibar Island and Pemba.

The island of Zanzibar fronts a bight in the African coast and, in general, the western coast of the island conforms to the shape of the African shoreline, from which it is separated by distances of from about 16 to 24 miles. Thus, but for various reefs and islets studding either side which at one place reduce the navigable width to about 4 miles, the strait is of a comparatively uniform breadth.

This channel is out of the direct route along the African coast and would not generally be used other by vessels coasting, calling at ports within these two channels, or by vessels seeking shelter.

2. The channel is bordered on the west by Tanganyika and on the east by Zanzibar.

3. (*a*) The length of the Zanzibar Channel is approximately 80 miles and the continuation northward through Pemba Channel is a further 60 miles.

(*b*) The widths at both the southern and northern entrances of the Zanzibar Channel between the low-water lines of Zanzibar Island and the African coast are 24 miles. About 20 miles within the southern entrance point this width is restricted to about 16 miles, and its widest part some 24 miles further northward is 24 miles.

4. The depths in the Channel, except near the coastal banks and reefs, in general vary from about 10 to 40 fathoms; there is a least depth of 14 fathoms in the fairway. Both the African shore and that of Zanzibar are fringed with detached coral reefs; those off the former lie in places up to $5\frac{1}{2}$ miles and those off Zanzibar as far as $8\frac{1}{2}$ miles offshore.

About 24 miles within the southern entrance the fairway narrows and is restricted by detached drying patches over a distance of about 8 miles to a width of about 5 miles. The narrowest part is about 4 miles wide between a one-fathom shoal and a drying reef west-north-westward of it.

5. Navigation is somewhat difficult owing to variations in the tidal streams and in the current, which

is affected by the monsoons. In addition, at times, the reefs on the mainland side of the channel are difficult to distinguish through the muddy water brought down by the rivers. There is also a great difference in the spring and neap ranges of the tides which makes a change in appearance of the reefs. It is recommended in the Sailing Directions that passages new to the navigator should be taken at low water.

6. Ports within the Zanzibar Channel are:

(*a*) On the mainland: Dar-es-Salaam at the southern end of the channel: Pangani abreast the northern end of Zanzibar Island (and Tanga in the Pemba Channel).

(*b*) On Zanzibar Island: Zanzibar, about the middle of the west coast of the island. Zanzibar is approached through the narrow passes between the reefs.

7. The drawing of a median line to divide the channel is complicated here by the existence of drying reefs. The varying effects which these have on a median line is dependent on the breadth which is allocated to the territorial sea. With wider breadths reefs will fall within the overlap of territorial waters as measured from the low-water line of land permanently above water.

This problem is more fully discussed in the preface to this paper and, as recommended there, all drying features lying within the overlap of territorial waters should be neglected as base points for measurement.

Navigation would be possible on both sides of the median line drawn on a basis of a 12-mile territorial limit, although it would probably be necessary to erect navigational marks on many more of the reefs to facilitate the passage of vessels on one side or the other of it, should innocent passage be restricted.

4. The Serpent's Mouth (Annex, map No 4)

References: Charts Nos. 481, 483 A and 1480.

West Indies Pilot, Volume 11, Tenth Edition, 1955.

1. The Serpent's Mouth is the name given to the narrow southern entrance to the Gulf of Paria between the south-west point of the island of Trinidad and the coast of Venezuela. For the purposes of this description, however, the "funnel-shaped" approach between the southern coast of Trinidad and Venezuela will also be included. This strait connects the high seas of the North Atlantic Ocean with those of the Gulf of Paria.

Abreast Cape Casa Cruz, about $11\frac{1}{2}$ miles west of the south-eastern point of Trinidad, the strait has a width of 26 miles and narrows in a comparatively uniform manner to a breadth of 9 miles about 25 miles further westward off Punta Bombeador. The southern shore then recedes southward to form the estuary of the Rio Macareo, where the strait broadens to a width of about $15\frac{1}{2}$ miles. Thence is narrows again over a distance of 17 miles to the Serpent's Mouth, which has a breadth south-westward of Icacos Point, the south-western tip of Trinidad, of 8 miles. Thence the strait widens abruptly into the Gulf of Paria. Extending westward of Icacos Point are a number of groups of detached rocks and shoals which restrict the entrance to the strait into five separate narrow channels.

2. Depths within the strait are comparatively deep. Near its middle they vary from over 20 to about 5½ fathoms in patches; nevertheless, it would be possible to carry a depth of 14 fathoms from the Atlantic to the Gulf of Paria.

From the middle of the strait towards its northern and southern shores the depths decrease comparatively evenly, although they are much steeper off the coast of Trinidad than off the southern shore, where coastal flats with depths of less than 6 fathoms extend up to nearly 5 miles in places. The estuary of the Rio Macareo is very shallow, and there is a long dredged channel through it.

Near the middle of the western approach to the Serpent's Mouth lie a group of above-water and drying rocks surrounded by shoals. The most conspicuous of these is Soldato rock, 117 feet high, which lies about 5 miles west of Icacos Point. Between this group and the mainland of Venezuela and Trinidad are a number of submerged shoals with navigable channels between which will now be briefly described:

(i) Eastern Channel, close under Icacos Point between the mainland and Wolf Rock, has a minimum width of about 400 yards and a least depth of 21 feet.

(ii) Second Channel lies between Wolf Rock and Three Fathom Bank, has a minimum width of about half a mile and a least depth of 23 feet.

(iii) Middle or Third Channel, lying between Three Fathom Bank and the dangers off Soldato Rock, is about 2½ miles wide, with a least depth of 19 feet. It is possible, however, to carry a depth of 26 feet through this channel.

(iv) Western Channel is situated between the dangers south-westward of Soldato Rock. Some detached patches with least depths of 2½ fathoms lie about 2½ miles further south-westward. Depths of 9 to 18 fathoms lie in the fairway.

(v) There is an unnamed channel lying between the detached patches south-westward of the dangers off Soldato Rock and the coastal flats off the Venezuelan shore. This is about 400 yards wide between the 6-fathom lines and is comparatively deep.

All these channels are buoyed, with the exception of that last-mentioned, and there is a light structure on Three Fathom Bank. Middle Channel is that generally recommended for vessels of suitable draught. Eastern Channel is narrow and is often obstructed by vessels at anchor. Western Channel, although wide and deep, is not recommended, as the north-westerly current runs at times at rates up to 4 knots over the dangerous patches on its south-western side. The south-westernmost channel is narrow and the current runs strongly so passage through it would not be feasible unless it was well buoyed on both its sides.

3. There are no ports within this strait; anchorage may be obtained, however, by vessels with local knowledge in a few bays off the south coast of Trinidad. The dredged channel at the mouth of Rio Macareo gives access to Puerto Ordaz, about 150 miles up that river, which vessels up to a draught of 24 feet can reach.

The Serpent's Mouth is not considered so safe as the northern entrance to the gulf; but by its use vessels proceeding from Port of Spain to Demerara will materially shorten the time of passage by avoiding much of the adverse current experienced on the usual route round the northern side of Trinidad, although the distance is about the same.

4. A treaty was signed in 1942 between the Governments of the United Kingdom and of Venezuela laying down the international limit of the submarine areas of the Gulf of Paria. This limit passes through the Serpent's Mouth to a position in the middle of the Strait about 26 miles east-south-eastward of Icacos Point. This boundary has since been laid down by a boundary commission but, to date (1957), has not been ratified. Navigation is possible both sides of this line, although it would entail the use of the south-westernmost of the channels (see paragraph 2 (v) above).

5. The Dragon's Mouth (Annex, map No 5)

References : Charts Nos. 484 and 483 A.
West Indies Pilot, Volume 11, Tenth Edition, 1955.

1. The Dragon's Mouth separates the north-eastern tip of Trinidad from the coast of Venezuela about 10½ miles westward. Three islands lie within this area dividing the waters into four channels which connect the high seas of the Caribbean to those of the Gulf of Paria. These three islands — Chacachacare, Huevos and Monos — are under the administration of Trinidad. Isla Patos, in the south-western approach to the western channel, is Venezuelan.

2. The greatest length of the Dragon's Mouth may be considered as from abreast La Isletta, off the northern point of Promontorio de Paria, to abreast Isla Patos, a distance of 7½ miles.

3. The four mouths or "bocas" will now be described:

(i) Boca de Monos lies between the north-western point of Trinidad and the eastern coast of Monos Island. It is about 2 miles long; the fairway is of comparatively uniform width, is straight and has a least breadth of about 400 yards in which depths vary from over 50 to 22 fathoms. Eddies off the points in this channel are strong and irregular. The passage has a lighthouse at its southern end. Gaspar Grande island lies in the south-eastern approach off the entrance to Chaguaramas bay.

(ii) Boca de Huevos is situated between the western coast of Monos island and the eastern coast of Huevos island. This strait has a length of about 2 miles. Its northern end is shaped like that of a wide funnel by the contracting north-western and north-eastern coasts of the two islands. Over a distance of about 1¼ miles the channel has a comparatively uniform breadth of about three quartes of a mile. The channel is deep, reaching depths of over 90 fathoms. There are no dangers within. There is a navigational light on the southern end of Huevos island which serves both for this and Boca de Navios.

(iii) Boca de Navios lies between the south-western coast of Huevos island and the north-eastern coast of Chacachacare island. It is about 1¾ miles long, has a maximum width of a little over a mile and a minimum

width at its southern end of just over half a mile. There are no navigational dangers and the channel is deep, with depths of 135 fathoms in its middle. The nearest anchorage is in Chacachacare bay, at the southern end of the island of that name. There is a leper establishment on this island.

(iv) Boca Grande is the strait between the western coast, nearly two miles long, of Chacachacare island and the east coast of the Venezuelan promontory of Paria. From La Islette to abreast Isla Patos its length is about 7½ miles. At the northern end, the width is 5¾ miles; at the southern end between the south-western end of Chacachacare island and Isla Patos it is the same — the greatest breadth is about 7½ miles. Isla Patos lies about 2¼ miles off the Venezuelan coast. The channel is deep, and depths generally exceed 100 fathoms. In the middle, however, is a bank with less than 50 fathoms having an isolated depth of about 8 fathoms.

A high-power lighthouse at the northern end of Chacachacare island assists identification and navigation in this strait.

There are no dangers in the main part of the strait. Diamond rock, on which is a light structure, is submerged, it lies about a quarter of a mile off the south-western end of Chacachacare island with Bolo rocks, 80 feet high, between. Garza rocks, small but rising to a height of 217 feet, are situated about 800 yards off the Venezuelan coast about 3 miles north of Isla Patos. Strong tide rips occur about half a mile south-eastward of Isla Patos and about 2 miles north-eastward of that island in the middle of the strait.

4. Tidal streams and currents in all these straits are comparatively strong, and when combined in direction may reach a rate of up to 4 knots.

5. There are no ports or roadsteads of any importance within the limits of the straits.

6. Navigation is possible both sides of a median line drawn through Boca Grande, the only one of the straits having an international character.

7. The 1942 treaty between the United Kingdom and Venezuela relating to the division of the submarine areas of the Gulf of Paria does not extend into the area of the Dragon's Mouth.

6. St. Lucia Channel (Annex, map No 6)

References : Charts Nos. 956, 371 and 1273.
> *West Indies Pilot*, Volume 11, Tenth Edition, 1955.

1. St. Lucia Channel separates the French island of Martinique from the British possession of St. Lucia. This strait joins the high seas of the North Atlantic Ocean to those of the Caribbean Sea. For the purposes of this description, the strait will be considered to extend on the east from a line joining Cape Ferre in Martinique to Cape Marquis in St. Lucia, a distance of 25 miles, to a line on the west joining Morne du Diamant on Martinique to the northern entrance point of Port Castries in St. Lucia, a distance of 26 miles. Between

these lines the strait has a length of between 8 and 13 miles.

From Cape Marquis, the north-east coast of St. Lucia runs in a north-westerly direction for about 4 miles to Hardie Point, and from Port Castries the north-western coast runs in a north-north-easterly direction for about 6¼ miles to Pointe du Cap. Thus the southern shore of the true strait lies between Hardie Point and Pointe du Cap, a distance of 1½ miles.

The southern shore of Martinique forms a bight between the coast south of Morne du Diamant and Islet Cabrit, an islet close off the southern point of Martinique, about 12 miles eastward; this part of the coast forms the northern shore of the true strait.

The narrowest part of the channel is 17½ miles wide, and lies between Islet Cabrit and Hardie Point at the north-eastern end of St. Lucia. The widest part of the true strait is northward of Pointe du Cap and is about 22½ miles wide.

2. The strait is deep, but depths of less than 100 fathoms are found within about 5 miles of the northern end of St. Lucia. A coastal bank with depths under 10 fathoms extends off the south coast of Martinique. The only navigational danger in the strait is Banc du Diamant, a patch with 4½ fathoms over it, situated 1¾ miles from the coast south of Morne du Diamant and about three quartes of a mile from Rocher du Diamant.

3. The only islands and drying rocks within the area which may affect the territorial water limits or a division of the strait are as follows :

(i) Off St. Lucia : Pigeon Island with Burgot rocks, 37 feet high, close northward, about 1½ miles south-westward of Pointe du Cap ; and Fous islets with Roches aux Fous close northward about 1½ miles southward of Hardie Point.

(ii) Off Martinique : Rocher du Diamant, 574 feet high nearly a mile south-eastward of the coast south of Morne du Diamant and Islet Cabrit, on which is a lighthouse, about 700 yards southward of the southernmost point of Martinique.

4. There are no ports within the area, anchorage may be obtained, however, off several of the villages in the small bays and indentations on the south coast of Martinique and off the north-west coast of St. Lucia in St. Croix Roads, south of Pigeon Island and in Anse du Choc, a wide bay north of Port Castries.

5. Navigation through the strait presents no difficulties.

6. A median line drawn through the straits permits navigation on both its sides.

7. Strait between St. Lucia and St. Vincent
(Annex, map No 7)

References : Charts Nos. 956, 791 and 1273.
> *West Indies Pilot*, Volume 11, Tenth Edition, 1955.

1. This strait between St. Lucia and St. Vincent, both British possessions, is bounded on the north by the

southern coast of St. Lucia between Cape Moule à Chique and Beaumont Point about 10 miles north-westward. This stretch of coast is comparatively straight, with the exception of Vieux Fort Bay and Laborie Bay, two indentations each about 1½ miles across, of which the former qualifies as a " bay " under article 7 of the 1956 report of the International Law Commission.[1]

The southern shore of the strait is formed by the northern coast of St. Vincent between Espagnol Point on the east and De Volet Point nearly 4½ miles westward. Between these two points, the coast projects into the strait approximately along the arc of a circle.

The length of the strait can be said to vary between about 4½ and 10 miles.

2. At the eastern and of the strait is 23½ miles wide, at its western end it is 27½ miles wide. Its narrowest part is toward its eastern end, where it is 22 miles between the southern point of Moule à Chique and the Cow and Calves, some detached above-water rocks close to the north-eastern point of St. Vincent.

3. The strait is deep and in general varies from about 100 to 1,000 fathoms; depths of less than 100 fathoms extend for 4½ miles off the south-eastern end of St. Lucia, and 57 fathoms have been reported near the middle of the eastern end. The current runs north-westerly through the strait up to a rate of 1½ knots. There is a high-powered lighthouse at the southern end of St. Lucia and navigation presents no difficulties.

4. There is a small port at Vieux Fort Bay where vessels with a draught of 18 feet and a length of 500 feet can berth. Also close inshore on the south-western coast of St. Lucia are one or two open anchorages. There are none on the north coast of St. Vincent.

5. Navigation is possible on both sides of a median line through the strait.

8. Dominica Channel (Annex, map No 8)

References : Charts Nos. 956, 371 and 697.
>> *West Indies Pilot,* Volume 11, Tenth Edition, 1955.

1. This strait lies between British and French territory. It is bounded on the north by the south-eastern coast of Dominica between Petit Savanne, the south-eastern point of Dominica, and the south-western point, Cacharou or Scott Head, about 7¼ miles distant. On the south it is bounded by the northern coast of Martinique between Basse Pointe on the east and Pointe du Pecheur on the north-western coast of the island.

2. (i) The length of the strait between these limits is 8 miles.

(ii) The width of the strait at its eastern end is 24 miles and at its western end 25¾ miles.

(iii) The strait is narrowed by the curving northern coast of Martinique, and has a minimum width near its middle of 22 miles.

3. This is a safe passage in spite of there being no

navigational aids. There are no dangers within the strait, which is deep, with depths reaching well over 1,000 fathoms. The current runs in a westerly direction, and tidal streams close to the coasts are not strong. There is, however, a tide rip close to the shore off the southernmost point of Dominica.

4. There are no detached drying rocks or banks to extend territorial waters but there is one islet, La Perle, 86 feet high, situated about 400 yards off the north-western side of Martinique, and two small above-water rocks very close offshore on the south-eastern coast of Dominica.

5. There are no ports within the strait. Anchorage may be obtained in Grand Bay on the south-eastern side of Dominica. This bay does not fall within the definition of a bay by article 7 of the 1956 report of the International Law Commission.

6. Navigation is possible both sides of the median line.

9. Straits between Dominica and Guadeloupe
(Annex, map No 9)

References : Charts Nos. 956, 697 and 885.
>> *West Indies Pilot, Volume II,* Tenth Edition, 1955.

1. The water area between Dominica and Guadeloupe is formed into six passages by the islands of Petite Terre, Marie Galante and the group of small islands and islets named Iles des Saintes, while eastward of the eastern extremity of Guadeloupe lies the island of Désirade with yet another strait between. These will primarily be described as two main straits for a transit from west to east. These waters join the high seas of the Caribbean Sea to those of the Atlantic Ocean.

2. Dominica is British, and Guadeloupe, together with the other above-named islands, are French.

3. The sea area lying between the north coast of Dominica and the south coast of Guadeloupe is divided into two by Isles des Saintes and by Marie Galante, about 14 miles eastward.

(i) The southern of these two straits is about 25 miles long between a line joining Rollo head on the north-west coast of Dominica to the western point of Iles des Saintes and that joining Crumpton point on the north-east coast of Dominica to the western extremity of Marie Galante.

The width at the western end is 20½ miles, and at the eastern end about 21½ miles. The narrowest part between the northern point of Dominica and the southern point of Iles des Saintes is 13 miles, while that between the north-east coast of Dominica and Marie Galante is 16 miles.

The strait is deep and entirely free from navigational dangers. With the exception of a few detached rocks within about 200 yards of the coast of Dominica and some similar ones off the coast of Marie Galante, there are no features to extend the limits of the territorial sea beyond those based on the low-water lines of the islands.

There are no ports of any size within the area, but

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[1] *Official Records of the General Assembly, Eleventh Session, Supplement No. 9* (A/3159).

vessels may anchor off Grand Bourg on the south-western side of Marie Galante.

(ii) The northern of the two main straits may be considered as the area between the coast of Guadeloupe on the north and Iles des Saintes and Marie Galante on the south, as well as that between the latter island and Petite Terre.

The length of the strait is about 36 miles.

The breadth at the western end is 7 miles; the minimum width between Iles des Saintes and the south coast of Guadeloupe is 5½ miles; the minimum width between Marie Galante and Guadeloupe is 14 miles; the maximum breadth between Marie Galante and Guadelopue is 16 miles to the entrance to Petit Cul-de-Sac Marin; the minimum breadth between Marie Galante and Petite Terre is 12½ miles and the breadth at the eastern end between the easternmost points of Marie Galante and Petite Terre is 15½ miles.

The middle of the strait is deep; a coastal bank with depths of less than 20 fathoms extends from the south-east coast of Guadeloupe and embraces Petite Terre. On this bank, and about 9 miles westward of Petite Terre is a dangerous shoal with a depth of 3¾ fathoms. There are a few detached drying rocks and reefs off the south-eastern coast of Guadeloupe and off the islands from which the width of the territorial sea would be extended; all these lie within about half a mile of the low-water lines of the coasts. Petit Cul-de-Sac Marin, however, is cluttered with such obstructions to navigation and with shoals; this indentation conforms to the definition of a "bay" in article 7 of the 1956 report of the International Law Commission, so these features are inside internal waters.

The only port of any consequence within the area is Pointe à Pitre near the head of Petit Cul-de-Sac Marin; it is the principal port of Guadeloupe. The channel thereto is narrow and intricate, but is marked and vessels drawing 26 feet may lie at the wharves. There are a number of anchorages off the small towns and villages on the south-east coast of Guadeloupe available for small craft with local knowledge. There is also anchorage amongst Iles des Saintes and off St. Louis on the west coast of Marie Galante suitable for small craft. Navigation through the strait is not difficult; to assist this at night there are high-powered lights on the south-western end of Guadeloupe, on Petite Terre, in the approach to Pointe à Pitre and on Désirade.

The general run of the current is in a westerly direction.

(iii) Brief descriptions of the straits between the islands, etc., are as follows:

(a) Between Iles des Saintes and Marie Galante: Runs in a northerly direction; length, about 6½ miles; breadth, 13½ miles; deep water with a bank of 29 fathoms in the middle of the northern end.

(b) Between Petite Terre and the south-eastern point of Guadeloupe: Runs in an easterly direction; length, about 3 miles; breadth, nearly 5 miles; depths 10 to 18 fathoms; no navigational dangers except for the 3¾ fathom patch in the western approach about 9 miles west of Petite Terre and referred to above.

(c) Between Petite Terre and Désirade, an island lying east of the south-eastern end of Guadeloupe: Runs in a north-easterly direction; length, about 6½ miles; minimum breadth, 6½ miles; depths, from about 14 to 5½ fathoms; high-powered lights on Petite Terre and on Désirade would assist in its passage at night.

(d) Between Guadeloupe and Désirade: Runs in a northerly direction; length, about 2 miles; breadth, 5 miles; depths, from about 10 fathoms in the southern approach to over 200 fathoms in the middle; a westerly current may at times set across this strait.

10. Magellan Strait (Estrecho de Magallanes)
(Annex, maps Nos. 10 and 11)

References: Charts Nos. 554, 1336, 1337, 21, 887, 631.
    South America Pilot, Part II, Thirteenth Edition, 1942.

1. The Magellan strait towards the southern end of South America joins the high seas of the South Atlantic Ocean to those of the Pacific Ocean; it is used as a route for international shipping. It separates Tierra del Fuego from the rest of South America. Article 5 of the Boundary Treaty of Buenos Ayres, 1881, between Chile and the Argentine Republic stipulates that the Strait of Magellan shall be open to the vessels of all nations. The distance between the eastern and western entrances of the strait through the various channels is about 310 miles and it takes a number of days to pass through the strait. Although the strait is provided with lighthouses, it is recommended, for those not accustomed to traverse it, that in general daylight passages should be made and anchorage found for the nights. This is on account of the strong tidal streams, the prevalence and unpredictability of bad weather, gales, rain, snow and fog, and the generally foul and rocky nature of the anchorages. The difference in the duration of daylight in these latitudes between summer and winter is also an important consideration in the navigation of the strait. The range of the tide varies from nearly 40 feet towards the eastern end of the strait to only a few feet at the western end. In the western entrance a heavy swell is nearly always encountered even on a calm day.

2. The eastern entrance to the strait lies between Cabo Virgenes (Cape Virgins) and Cabo Espiritu Santo about 22 miles south-southwestward. The western entrance may be considered as between Cape Deseado, the westernmost point of Desolation Island, and Los Evanjelistas, a group of above-water rocks, 24 miles north-westward and about 10 miles from the general lie of the coast.

3. The northern side of the strait towards the east is formed by the southern coast of Patagonia and by the eastern and south-western sides of its termination, the Brunswick Peninsula. The northern side at the western end consists of the south-western side of Peninsula Muñoz Gamero, Providence Island, Tamar Island, and the islands of Archipelago of Queen Adelaide. Between the two peninsulas the northern side of the strait is formed by the south-western coast of Cordova Peninsula at the southern end of Isla Riesco. This side of the channel is considerably indented.

4. The southern side of the strait is formed at the eastern end by the north-eastern, northern and north-

western sides of Tierra del Fuego, further west it is formed by the west coast of Isla Dawson, and the north-eastern coasts of the large islands of Capitan Aracena, Clarence, Santa Ines, Jacques and Desolation, with many islands lying between them. This southern side forms a deeply indented coastline with innumerable bays, sounds and straits.

5. The whole of the strait lies within the territory of Chile, with the exception of the eastern end. Here, on the south side, the international boundary across Tierra del Fuego between Chile and the Argentine Republic meets the coast at Cabo Esperitu Santo, while on the north side of the strait the boundary between these two States meets the coast in a position close eastward of Dungeness, which lies about 5 miles south-south-west-ward of Cabo Virgenes.

6. The total length of the strait is about 310 miles.

The breadth at the eastern entrance is 22 miles; this narrows about 15 miles within to a breadth of about 12 miles. Some 35 miles west of Dungeness, the strait is constricted by First Narrows of Primera Angostura. These Narrows, mostly between low cliffs, have a breadth of about 2 miles for a distance of 16 miles. Beyond the First Narrows, the strait widens again to a general width of 15 miles for a distance of about 19 miles, then to be restricted by the Second Narrows, or Segunda Angostura, to an average width of 5 miles for a distance of 12 miles. Southward of Second Narrows the strait is about 18 miles wide, but is divided into three channels by a group of islands; the two western channels are narrow, the easternmost forms the recom-mended track and has a width of about 7 miles. South-ward of these islands is Broad Reach, having a length of about 35 miles and a general breadth of 16 miles. The continuation of this reach is Famine Reach between the Brunswick Peninsula, with Cape Froward at its southern extremity, and Isla Dawson; this reach is about 27 miles long with a narrowest breadth of 5 miles.

Abreast Cape Froward the strait turns from a southerly to a general north-westerly direction to the Pacific Ocean. The next reach is Froward Reach, which has a length of about 30 miles and a comparatively uniform breadth of about 5½ miles. At the end of this reach Charles islands, Isla Carlos III, and several others divide the strait. English Reach forms the recommended track north-eastwards of these islands; it is 19 miles long and has widths from about 3 to 1¼ miles. South of Charles islands the channel has a breadth of about 2 miles, but it is restricted south-westward of Isla Carlos III to under half a mile in width. North-westward of Isla Carlos III, the strait continues through Crooked Reach and Long Reach for a distance of about 40 miles, with a general breadth of about 2¼ miles and with the narrowest part only 1½ miles wide.

North-westward of Long Reach is Sea Reach, which extends to the Pacific Ocean. For its first 25 miles, as far as Tamar island, it has a general width from about 4½ to 6½ miles, thence it opens out to a general width of 12 to 13 miles. However, northward of Cape Pillar, the northern point of Desolation Island, the channel is restricted to a width of about 7½ miles by a submerged bank of rocks and foul ground extending southward from the Archipelago of Queen Adelaide.

At the south-eastern end of Sea Reach is the southern entrance to Smyth Channel which leads towards Golfo de Penas.

7. *Depths:* In the approach to the eastern end of the strait, extending from the coast off Cape Virgenes in a south-easterly direction for about 18 miles, is a bank with general depths of 5½ to 9 fathoms; southward of this there are depths of up to 40 fathoms. Thence, in the fairway to the First Narrows, depths are about 20 fathoms, deepening within the Narrows to about 40 fathoms. In the fairway between the First and Second Narrows, depths are from 14 to 27 fathoms, but in both the northern and southern parts of this area, clear of the fairway, are a number of dangerous banks and shoals.

The Second Narrows has depths up to 29 fathoms. The three channels formed by islands southward of the Second Narrows have the following depths in their fairways: the western (Pelican passage) 4¼ fathoms; the middle (Queen channel) 12 fathoms; the eastern (New channel) 22 fathoms.

Broad, Famine and Froward Reaches are deep, the few depths charted near the fairway range from 45 fathoms to nearly 300 fathoms. English, Crooked, Long and Sea Reaches are also deep, depths near the middles of these channels vary from 52 fathoms in English Reach to over 400 fathoms in Long Reach. In Sea Reach, abreast Tamar island and about three-quarters of a mile southward of the recommended track, are some isolated shoal patches, one with a least charted depth of 11 fathoms on which the sea often breaks.

8. The only port within the Strait is Punta Arenas, situated on the western side of the strait about 27 miles southward of the southern end of the Second Narrows. Anchorage in the roadstead off the port is good and is well sheltered from the prevailing winds. In 1956 it was reported that only one mole was available for shipping; this can accommodate vessels of 5,000 tons and of a draught of 24 feet.

There are numerous anchorages, mostly close to the coasts, available for shipping seeking shelter and for temporary anchorage over night. At some of these are small settlements having either a pier or jetty. In general, these anchorages are small and the bottoms there are irregular; their use requires extreme vigilance, not only on account of the inadequate surveys but also because of the frequent squalls or " williwaws " which are likely to blow from any direction without warning. Tidal streams in places may also be strong. Many of the submerged rocks which are dangers to navigation have kelp growing on them, the floating parts of this form very useful marks as to the position of the rocks.

9. The only parts of the Strait wider than 8 miles are the eastern and western ends, the area between the First and Second Narrows, Broad Reach, the northern end of Famine Reach and the approach to Magdalen Sound which lies between Isla Dawson and Isla Capitan Aracena. In consequence, as it is only in these areas that drying rocks or shoals can under *any* circumstances affect the limit of territorial waters in excess of 3 miles, only such features in these areas will be described:

(i) *The eastern entrance:* Nassau rock, which dries at low water of extraordinary low spring tides, lies 3 miles south-eastward of the low-water line of Virgenes.

(ii) *Between the entrance and First Narrows:* Plumper bank, which dries, lies parallel to the coast and about 2¾ miles from it close northward of the northern approach to the First Narrows.

(iii) *Between the First and Second Narrows:* There are no drying features charted beyond the low-water lines of the coasts.

(iv) *Broad Reach and the northern end of Famine Reach:* at the northern end of Broad Reach is a small drying bank about a quarter of a mile north of Isla Santa Marta, the north-easternmost islet of the group of islands south of the entrance to the Second Narrows. Islands in this group are Elizabeth island, from 1½ to 4¾ miles from the western coast of the Strait; Isla Santa Marta, about 1¼ miles eastward of the north-eastern end of Elizabeth island and about 6¼ miles from the south-eastern extremity of Second Narrows; Isla Santa Magdalena, about 4½ miles east of Elizabeth island and 7½ miles from the eastern shore of Broad Reach.

(v) *That part of the Strait east of Cape Froward which forms the approach to Magdalen Sound:* Off the western extremity of Isla Dawson are a few rocky islets, the most western lies about 1¼ miles from the eastern shore of the Strait. On the opposite side of the Strait, and about 8¼ miles north-eastward of Cape Froward, is a small islet in the middle of the small bay, Bahia San Nicolas; this is about a quarter of a mile offshore. The distance between these two islets is 7¼ miles.

(vi) *The western end of the Strait, Sea Reach north-westward of Isla Tamar:*

Northern side; within a distance of half a mile west of Isla Tamar are several above-water and drying rocks; about 1¾ miles in the same direction another rock is charted. Above-water and drying rocks lie within three-quarters of a mile of the southern end of Isla Manuel Rodriguez. There are also a number of similar rocks in the approach to Parker bay and others within half a mile of Parker island. North-westward of Parker island, and within a distance of 21 miles of it, lie numerous small above-water and drying rocks; these in effect form the north-eastern side of the Strait.

Southern side: from abreast Isla Tamar to Cape Pillar the coast is fronted by a number of above-water and drying rocks; these do not extend more than half a mile from the coast. The north-westernmost of these are close north of Cape Pillar.

10. In the wider parts of the Strait of Magellan navigation is possible on both sides of a median line.

11. Strait of Juan de Fuca (Annex, map No 12)

References : Charts Nos. 2941, 2689.
　　　　　British Columbia Pilot, Volume II, Seventh Edition, 1951.

1. The Strait of Juan de Fuca on the west coast of America separates Canada on the north from the United States of America on the south. Its northern shore is formed by the coast of the southern end of Vancouver Island and the southern shore is the coast of the State of Washington. At its western end are the high seas of the Pacific Ocean; its eastern end divides into channels leading southward to Admiralty Inlet, Puget Sound and Hood Canal and to others leading northward into the Strait of Georgia which, in turn, leads to narrow channels running up the eastern side of Vancouver Island to connect again with the high seas of the ocean.

Traffic through the Strait of Juan de Fuca is considerable for, in addition to the local coasting traffic, a number of steamship companies operating across the Pacific and through the Panama Canal have their termini in the Strait of Georgia or in Puget Sound.

2. The ends of the Strait may be considered as, on the west, a line joining Cape Flattery, the north-west point of the State of Washington, to Pachena point on Vancouver Island and about 25 miles north-westward and, on the east, a line joining New Dungeness in Washington to Gonzales point, the south-eastern extremity of Vancouver Island, about 16 miles north-westward.

The Strait is thus about 70 miles in length.

3. Northward of Cape Flattery, the Strait is 10½ miles wide; thence it gradually widens to a breadth of 12 miles off Pillar point, 27 miles south-eastward of that Cape; thence it retains this general width for 15 miles, where it becomes constricted, southward of Beechey head, to its narrowest width of 9 miles; this general width continues for about 9 miles. The Strait thence widens again to its maximum breadth of 17 miles southward of a closing line across the entrance to Esquimalt and Victoria harbours, where the coastline conforms to the definition of a "bay" as laid down in article 7 of the 1956 report of the International Law Commission.

4. Beyond a distance of half a mile from the low-water lines of the coasts the whole Strait is deep and in places reaches depths of more than 100 fathoms. In general, the 10-fathom contour lies about half a mile offshore, but this distance is increased to about 1½ miles off the middle of the northern shore and off the southern coast towards the south-eastern end of the Strait. Race rocks, remarked on below, lie on a bank with less than 10 fathoms which is about a mile long at right angles to the northern shore. In the north-western entrance the 50-fathom contour extends for about 12 miles off the northern shore; close within its outer edge is Swiftsure bank, with a least depth of 19 fathoms. A light-vessel is stationed near this bank.

5. The Strait is well lighted, and in clear weather its navigation is simple. However, every precaution must be taken in thick weather for the currents and tidal streams are irregular. The Strait is also subject to sudden changes in weather which is exceptionally severe off the entrance in winter. The rise and fall of the tide is about 8 feet.

6. Esquimalt and Victoria, both close together at the south-east end of Vancouver Island, are the principal ports in the Strait. The former is a naval port, where there is plenty of accommodation alongside with depths up to 31 feet and a graving dock; the latter port has accommodation for large ocean vessels, depths at the piers are up to 38 feet.

Minor ports within the Strait are : Port San Juan, an inlet 13 miles north-eastward of Cape Flattery with Port Renfrew on its eastern side. There is good anchorage and a pier with 18 feet of water at its head. Sooke Harbour near the southern end of Vancouver Island has a bar with 13 feet of water over it, the channel within is narrow, but there is anchorage for small vessels and a jetty. Port Angeles on the southern shore and about 12 miles west of New Dungeness is well sheltered except from eastward, there are wharves and piers with up to 34 feet of water alongside. Neah Bay, also on the southern shore, and about 4 miles within the entrance of the Strait, is much used as a harbour of refuge during westerly and southerly gales. It has a breakwater, several mooring buoys and a pier with 18 feet alongside.

7. There are few islands or drying rocks within the Strait which qualify to extend the territorial water limits from those based on the low-water lines of the coasts. On the southern side there are but three, namely : Duncan rock, small, low and over which the sea nearly always breaks, lies about 1½ miles north-north-west-ward of Cape Flattery with an islet and several rocks between ; Seal rock, which is small in area but 100 feet high, lies a quarter of a mile from the coast, 2 miles south-eastward of Neah Bay ; and, lastly, a drying rock whose seaward edge lies about a fifth of a mile from the coastal low-water line about 1½ miles south-eastward of Pillar Point.

On the northern side : About 8 miles north-westward of Port San Juan is a rock which dries, the outer edge of which lies about a quarter of a mile offshore ; a similar one is situated about 25 miles south-eastward of that point. Donaldson island, small and 100 feet high, is situated about 400 yards off the coast close south-east-ward of Sooke Harbour ; Church Island, small and 39 feet high, lies 300 yards offshore about 5 miles south-eastward ; Race Rocks are a group of low bare rocks, the outermost being about 1½ miles off the southern tip of Vancouver Island ; Trial Islands lie about a mile southward of Gonzales point, the extremity of the southern and larger of the two is almost a mile offshore, there is a drying rock within a quarter of a mile of Gonzales point.

8. The international boundary through this Strait was determined by an arbitration award made in 1872 by the Emperor of Germany. A treaty between the United Kingdom and the United States of America in 1908 made a slight amendment to the line, but outside the area of this Strait. The Treaty referred to the boundary as running " along the *middle* of the channel which separates Vancouver's Island from the mainland ". The award defined the boundary as a series of straight lines. An examination of the chart shows that the boundary is not the centre line of the navigation channel nor of the area between the opposite coast lines, nor the median line, but it would seem to be made up of a series of arbitrary straight lines which, borrowing from one side and the other in various parts, gives the appearance of a fair division.

The boundary line awarded in 1872 continued north-ward through Haro Strait and Boundary Pass to a position in the Strait of Georgia on what was, in that

year, the 49th parallel of latitude, and *midway along this parallel* between the mainland and Vancouver Island, thence along that parallel to the mainland. (More recent geodetical observations have moved the 49th parallel sligthly, but the boundary remains the same on land).

9. Navigation is possible on both sides of the inter-national boundary through the Strait.

12. Chosen Strait (Annex, map No 13)

References : Charts Nos. 358, 3366, 127, 2385.
     South and East Coasts of Korea, East Coast of Siberia, and Sea of Okhotsk Pilot, Fourth Edition, 1952.

1. Chosen Strait, also known as Korea Strait, Choson Haehyop and Tsushima Kaikyo, joins the high seas of the East China Sea to those of the Sea of Japan : it lies between the south coast of Korea and the north-western side of Kyushu and the islands offlying it. The Strait is divided into two channels by Tsu Shima, a group of Japanese islands.

International traffic through the Strait is considerable. Only those parts of the channels which have a breadth of 26 miles or less will be described.

2. *The western channel :*

(i) The portion of this channel which has widths of 26 miles or less is bordered on the south-east by the north-west side of Tsu Shima between Ina Zaki, a cape in latitude 34° 34′ N., and Mitsu Shima, an islet lying off the northern end of Tsu Shima : the north-western side is formed by the following small islands ; Vashon Rock, within a mile of Makino Shima, which fronts Pusan (Fusan) ; Blakeney Island, about 6 miles south-westward ; Aunt Islands, 3 miles south-south-westward of the latter ; Craigie Island, a further 3 miles in the same direction ; and South Atalante Island, 16 miles further south-south-westward.

The length of the channel varies between 15 miles on its south-eastern side to 26 miles on its north-western side.

(ii) The widths of the channel are formed by the distances between the above-named islands and the coast of Kamino Shima, the largest of the Tsu Shima group and are as follows :

South Atalante Island to Ina Zaki . . . . . 26 miles
Craigie Island to Kamino Shima . . . . . . 22.8 miles
Aunt Islands to Kamino Shima . . . . . . 24 miles
Blakeney Islands to Kamino Shima . . . . . 25¼ miles
Vashon Rock to Mitsu Shima . . . . . . 25 miles

At the southern end of the channel the least distance between 12-mile arcs of circles drawn on South Atalante Island and Ina Zaki is 2 miles ; however, northward of this least distance the separation of the arcs from South Atalante Island and those from Tsu Shima increases to reach a maximum of 3¼ miles where the arc from

(*Note :* Although all of the above features on the north-west are named " island ", each in fact consists of a group of isolated rocks.)

Craigie Island intersects that from South Atalante Island.

(iii) The channel is bordered on the north-west by Korean territory and on the south-east by Japanese territory.

(iv) The Strait is deep and varies in depth from 34 fathoms to over 100 fathoms. There are no navigational dangers therein. There are two high-powered lights at the northern end and one at the south-western end of the Strait to assist navigation at night. The combined tidal streams and current may at times set north-eastward at a rate up to 3½ knots.

(v) On the mainland of Korea, westward of the Strait are the ports of Pusan, Chinkai and Masan.

(vi) Above-water drying rocks which qualify to extend the limits of territorial waters are few and are all situated within about 200 yards of the coastline, with the exception of the rocks in the vicinity of Mitsu Shima where they are all within 1¼ miles of the main coast of Kamino Shima, the largest island of the Tsu Shima group.

3. *The eastern channel:*

The eastern channel lies between Tsu Shima on the north-west and Kyushu on the south-east. Dividing this channel into two are the islands of Okino (or Kotsu) Shima and Iki Shima; Iki Channel separates the latter island from Kyushu.

Okino Shima lies about 34 miles east of the middle of Tsu Shima and about 25 miles from O Shima, an island about 3 miles off the north-west coast of Kyushu.

The channels where less than 26 miles wide will be described in the following order: (a) between Tsu Shima and Iki Shima; (b) between Iki Shima and Kyushu; and (c) between Okino Shima and O Shima.

(a) The channel is bordered on the north-west by about 3 miles of the extreme south-east coast of Tsu Shima and on the south-east by the north-west coast of Iki Shima limited by the extreme northern islet of the coast and Tenaga Shima, another islet about 2¼ miles southward. There is a length of Strait of 8 miles where the separation of the 12-mile arcs from the opposite coasts is 2 miles or less.

The maximum width over this portion of the main strait is 26 miles and the minimum width 25 miles.

Depths in the whole strait are deep, varying from 20 to 65 fathoms. There are no navigational dangers. A high-powered light on each side of the strait aids night-time navigation. There are no ports or roadsteads of any consequence within the area.

(b) The channel between Iki Shima on the north and the coast of Kyushu on the south is bordered on its southern side by a number of islands and islets; the principal of these from west to east are Azuchi Shima Madara Shima and Kakata Shima which lie from 8 to 4 miles offshore. Within a distance of 6 miles eastward of the south-eastern end of Iki Shima are a number of above-water and drying rocks. Towards the middle of the channel, at the western end, is Futagami Jima with two above-water rocks within 2 miles westward of it; towards the eastern end of the channel is Yeboshi Jima.

Both these small high rocks have powerful navigation lights on them. 13 miles eastwards of the north-eastern end of Iki Shima is the small island of Oro Shima, and 18¼ miles further eastward is O Shima, close off the coast of Kyushu.

The length of the channel from abreast Futagami Jima to the line joining Oro Shima to O Shima is about 40 miles.

The breadths of the channels are best described by giving the distances between the bordering islands as follows:

Futagami Jima to Iki Shima	6¼ miles
Futagami Jima to Azuchi Shima	5½ miles
Madara Shima to Iki Shima	7½ miles
Kakata Shima to rocks eastward of Iki Shima .	6¾ miles
Yeboshi Jima to rocks eastward of Iki Shima .	4¼ miles
Yeboshi Jima to islet off Kyushu	6½ miles
Yeboshi Jima to Oro Shima	10¾ miles
Oro Shima to rock off Kyushu	11 miles
Oro Shima to O Shima	18¼ miles

From the point of view of the extension of territorial waters, the positions of the islands and above-water rocks can best be seen on the chart (the most important have been named above). There are few drying rocks other than those close off the coasts or off the islands. Two, however, are isolated and may have some importance. The first lies 8¼ miles east of Yeboshi Jima and 3½ miles from the coast of Kyushu, the nearest above-water rock to it is small, 3 feet high and 3.1 miles away. The second consists of two close together, 11¾ miles east-south-eastward of Oro Shima and 5½ miles from the nearest land permanently above water.

Depths in the fairways vary between 40 and 12 fathoms; there are a few isolated shoals, but the most restricted part of the fairway is west-north-westward of Yeboshi Jima, where its navigable breadth is reduced to 3¾ miles.

The only ports within the area worthy of note are Karatsu Ko and Fukuoka, both on the coast of Kyushu.

(c) The strait between Okino Shima on the north-west and O Shima on the south-east has a minimum breadth of 25 miles. Its length between limits where 12-mile arcs of circles from its opposite shores are separated by 2 miles or less is 9 miles. The 12-mile arc from Oro Shima passes through the south-western of these limits.

Depths in the strait vary from about 20 to 50 fathoms. There are no navigational dangers and there are good lights on both the islands for night navigation.

There are no features to extend the limits of the territorial sea from those based on the low-water line of the land permanently above water other than a small rock within half a mile of O Shima, and perhaps, four small rocks, the highest being 9 feet high, nearly three-quarters of a mile south of Okino Shima, should also be mentioned, as they are not clearly shown on the chart.

There are no ports in the area.

East-south-eastward of the strait is Shimonoseki Kaikyo, the strait leading between Kyushu and Honshu into the Inland Sea of Japan.

13. Hainan Strait (Annex, map No 14)

References : Charts Nos. 3892, 3010.

China Sea Pilot, Volume I, Second Edition, 1951.

1. Hainan Strait separates the Chinese Island of Hainan from the mainland of China and joins the high seas north-east of the island to those of the Tongking Gulf on the west. It is frequently used by international shipping.

The Strait runs in an east-north-easterly direction and is comparatively straight. Its northern side is formed by the southern coast of Lui-Chow Peninsula and its southern side by the north coast of Hainan Island.

2. The length of the Strait between the intersection at its east and west ends of 12-mile arcs drawn from the opposite coasts is about 61 miles, but between its natural entrance points the true strait is about 40 miles long.

3. The breadth of the true strait at its western end is 13½ miles ; 5 miles within it widens to 19 miles ; thence it reduces in width to 10.2 miles at about 13 miles within the western entrance. It retains this width for about 3 miles then widens again to 15 miles, thence to be constricted once more to its narrowest part of 9.8 miles at a distance of 24 miles east of its western entrance. Thence, in general terms, the strait widens again to a breadth of 19 miles at its eastern entrance.

4. Depths in the fairway of the true strait are comparatively deep and range from about 17 fathoms to 40 ; there are dangerous shoals, however, on both the north and south sides, particularly within the headlands of the bays there. Dangerous shoals and sandbanks also exist in the middle of both approaches to the Strait ; these are more dangerous in the eastern approach, where many of them break if there is any swell. Three navigational channels are charted through the shoals at the east end leading to the strait, the middle of these is marked by buoys. There are a number of navigational lights in the strait. The tidal streams are strong and at times may attain a rate of 4 knots ; overfalls and tide-rips also occur. Visibility during the north-east monsoon may be reduced to 2 miles or less by drizzle or mist. Fishing stakes may be encountered in places, up to 4 miles offshore.

5. Hoi-How, which has a roadstead and no alongside berths, is the only port within the area ; it is the sea-port for Kiungchow, the capital of Hainan, about 2 miles southward. Sheltered anchorage may also be found in the bays on both the north and south sides of the strait according to the direction of the wind.

6. There are few features which may qualify to extend the limits of the territorial sea from those based on the low-water line of permanently dry land. Such features are charted as follows : (a) about 2½ miles east of Hainan Head, the south-eastern natural entrance point of the strait, there are several small drying sand-banks lying on Hainan Head Bank ; (b) Lo Tao Sha, an extensive drying sandbank, lies in the eastern entrance to the strait, with its outer limit about 5¾ miles east-ward of the south-eastern coast of Lui-chow Peninsula —its inner limit is about 4¼ miles offshore ; (c) on the northern side of the Strait there are two rocks which dry at low water, situated almost a mile southward of Hongham point, which is 18½ miles north-westward of Hainan Head ; (d) on the northern shore of the Strait, and about 11 miles within the western entrance, an islet, 20 feet high, lies within a distance of a quarter of a mile offshore. The low-water line of the south-western end of this islet is about three-quarters of a mile from that of the mainland. About half a mile further westward are two other detached rocks or islets.

14. Palk Strait (Annex, map No 15)

References : Chart 68 A.

Bay of Bengal Pilot, Eighth Edition, 1953.

1. Palk Strait forms the northern entrance to Palk Bay and lies between the northern coast of Ceylon and the eastern coast of India. As this Strait is 29 miles wide at its narrowest part and there are no islands, islets or drying features in that area which qualify any extension of the limits of the territorial sea beyond those based on the low-water lines of the mainland, this Strait will not be described.

1. The southern end of Palk Bay is separated from the Gulf of Mannar by Pamban island, Adam's Bridge and Mannar island. Pamban island is connected to the mainland of India by a causeway having a railway and a road. A cutting through the causeway, over which there is a rolling lift bridge, is 200 feet wide and allows passage for small coasting vessels of from 200 to 800 tons, about 200 feet in length.

1. The channels through Adam's Bridge, which is a narrow ridge of sand and rocks connecting Pamban to Mannar Island, are but 3 or 4 feet deep and passage through them is dangerous owing to the shifting nature of the sand and the strong currents and confused sea in the vicinity. Between Mannar island and Ceylon is a boat channel only, spanned by a railway bridge and a road bridge. There is a regular steamer ferry service between Pamban and Mannar islands.

15. Strait of Malacca (Annex, map No 16)

References : Charts Nos. 1358, 794, 795.

Malacca Strait Pilot, Third Edition, 1946.

1. The Strait of Malacca separates Sumatra from Malaya, and forms a much used route for international shipping passing from the high seas of the Indian Ocean to those of the South China Sea. Only those parts of the Strait where 12-mile limits from opposite shores overlap or are separarted by less than 2 miles will now be described. In addition to Singapore Strait, which is remarked on as a separate item, these areas are three in number : (a) abreast the Aruah Islands ; (b) between Cape Rachado and Tanjong Medang ; and (c) between Cape Tohor and Tanjong Parit.

2. (a) The Aruah Islands (latitude 2° 53' N.) are a group of islets situated on the western side of the axis of the Strait and are Indonesian territory. The channel between them and the coast of Sumatra south-westward

is 21 miles wide and has a length of about 20 miles. Westward of the islands the fairway is deep with depths up to 24 fathoms, but within 6 miles southward of them depths vary between 3 and 7 fathoms. There are no drying features from which the territorial sea limits can be extended.

North-eastward of the islands is the main fairway of the Strait which lies between them and North Sands, extensive submerged sandbanks running parallel with the Strait. Between these sands and the Malayan coast is Pulau Angsa, an islet on an extensive drying sand-bank, 4½ miles offshore. On North Sands, and 11½ miles westward of Pulau Angsa low-water line, is a patch which dries 3 feet, named Batu Kinching. This patch is separated from the eastern islet of Aruah Islands by 24½ miles. The length of this part of the Strait where the 12-mile arcs from Aruah Islands and Batu Kinching are separated by 2 miles or less is about 10 miles. The deep-water fairway of the Strait, with depths of 16 to 20 fathoms, lies within about 13 miles of Aruah islands.

At the southern end of North Sands, on the north-eastern side of the fairway and south-eastward of the area now being described, is One Fathom Bank, with a light-structure on it; there is another dangerous 3¾-fathom patch about 2½ miles further southward. The deep-water fairway is restricted in the vicinity of these patches by South Sands, submerged sandbanks lying off and parallel to the coast of Sumatra; the width of the navigable channel here is about 4 miles.

Port Swettenham is situated on the Malayan coast due east of this area.

Note: Any width of territorial sea less than 11½ miles "incapacitates" Batu Kinching as a base point for measurement and at the same time increases the breadth of the navigable part of the Strait outside the territorial sea limit as measured from Aruah Islands.

(*b*) Abreast Cape Rachado (latitude 2° 24′ N.) on the Malayan coast, the Malacca Strait is reduced in width to a distance of 20 miles between that point and Medang, an island separated by a creek from Rupat, a large island lying close off the coast of Sumatra.

The length of this part of the Strait where its shores are separated by a distance of 26 miles or less is 28 miles. The 12-mile arcs from the opposite coasts overlap.

Southward of the adjacent islands of Medang and Rupat, the Strait has a general width of 30 miles, and northward of them the breadth is about 40 miles from shore to shore. The narrow part of the area between Medang and the Malayan shore varies between 20 and 25 miles in width over a distance of about 14 miles.

The Strait here is deep, varying from 9½ to over 30 fathoms. There is, however, a dangerous shoal with 2½ fathoms of water over it near the middle. This can be passed on either side, but the main fairway lies north-eastward of it and within 12 miles of the Malayan coast. Navigation of this part of the Strait presents no difficulties; it is well marked and lighted, and the tidal streams and current, although reaching a maximum rate of 3 knots at springs, run true to the fairway.

There are a number of small islets and drying reefs which qualify to extend the limits of the territorial sea, close to the Malayan coast; the most seaward of these are Batu Tengah and Pulau Batu Besar which both lie about 1½ miles offshore. On the south-western side of the Strait, on the coastal bank extending north-westward from Medang, are several drying mud banks; the most seaward of these is 6 miles north-west of Medang and 4½ miles from the low-water line of the nearest permanently above-water feature. Further north-westward are other drying banks on the southern end of South Sands, but these do not affect the territorial sea limits of this narrow part of the Strait.

Port Dickson, on the Malayan coast, lies at the northern end of the area and the roadstead of the Port of Malacca eastward of the area. To the east of Medang and Rupat is the approach to Bengkalis Strait, wherein is the settlement of Bengkalis with its small roadstead. Navigation is possible on both sides of the median line of this part of the Strait.

(*c*) Between Tanjong Tohor (latitude 1° 51′ N.) on the Malayan coast and Tanjong Parit, the north-eastern extreme of Bengkalis, an island off the Sumatra coast, the Strait again narrows to a width of less than 26 miles over a distance of about 11 miles. The minimum breadth of the Strait between the low-water lines of these points is 24 miles, so 12-mile arcs from each side just touch. There are no islets or drying features in the vicinity from which the limits of the territorial sea can be extended. The Strait between these points varies in depth from 13 to 26 fathoms, but south-eastward of it, near the middle of the channel and parallel to its axis, is Long Bank, with depths of about 3 fathoms over it; there are similar banks some with less depths, between it and the islands close off Sumatra. The fairway thus lies nearer to the Malayan shore than the centre line of the Strait.

Eastward of the area is the roadstead and small port of Batu Pahat.

16. Ombae Strait (Annex, map No 17)

References: Charts Nos. 1697 and 3244.
            Eastern Archipelago Pilot, Volume II, Sixth Edition, 1949.

1. Ombae Strait separates the south coasts of the Alor islands from the north-west coast of Timor and the east coast of Alor from Atauro or Kambing. The Alor islands are Indonesian territory, and the north eastern end of Timor is Portuguese. Only that part of the Strait having a width of 26 miles of less will be described, together with the extreme western end of Wetar Strait, which also is less than 26 miles wide.

The western approach to the Strait is funnel-shaped, and about 30 miles west of Tanjong Laisoemboe, the south-eastern extremity of Alor, it has a width of about 32 miles, while about 23 miles west of that point the width between the south coast of Alor and Tanjong Parimbala, a prominent point where the coast of Timor turns from a general westerly to a southerly direction, is 26 miles.

At the western end of Wetar Strait and in the south-

eastern approach to Ombae Strait lies the Portuguese island of Atauro; it is separated from Timor by a distance of 12¾ miles and from Liran, an island south-west of Wetar, by 7 miles.

The Strait joins the high seas of the Savu Sea, south-westward, to those of the Banda Sea, northward. It is a route frequented by sailing vessels. The maximum observed rate of tidal streams is 3 knots.

2. The length of the Strait to the northern exit between Alor and Atauro, where its breadth is less than 26 miles, is 40 miles. Its length into the Wetar Strait is about 55 miles.

The minimum breadth between the south-east point of Alor and the north-west coast of Timor is 16¾ miles; that between Alor and Atauro is 21½ miles, and between the latter island and Timor is 12¾ miles. There is no point in the strait proper further than 12 miles from the land.

3. The Strait is very deep, having charted depths of over 1,700 fathoms. There are no navigational dangers, and the coasts are all steep-to. There are but two navigational lights in the whole area.

4. Only two offshore features which would qualify to extend the limits of the territorial sea are charted. These are both very close to the coasts; the first is off Alor and about 14 miles west of the south-eastern point of that island, and the second is off Timor and about 4¼ miles north-eastward of Parimbala and is the southern point of the shortest distance between Timor and Alor.

5. The only roadstead worthy of note within the area is off Dilly, a settlement on the north coast of Timor and about 27 miles eastward of Tanjong Parimbala; anchorage may be found when necessary close to the coast off most of the villages along the coasts.

6. Navigation is possible on both sides of the median line both through the strait proper and the approach to Wetar Strait.

17. Soenda Strait (Annex, map No 18)

References: Charts Nos. 1653 A, 2056.
> *Eastern Archipelago Pilot*, Volume II, Sixth Edition, 1949.

1. The Soenda Strait separates Sumatra from Java. It is a route much used by international shipping, and forms the principal connexion between the high seas of the Indian Ocean and those of the Java Sea. The northern entrance point is about 50 miles west of Djakarta.

The western entrance to the Strait lies between Tanjong Gedeh, the western extremity of Java, on the south side and Balimbing Pamantjasa, on the south side of Sumatra, about 64 miles north-westward.

The Strait is wide at its western end, but is constricted to a breadth of about 14 miles at the east. The northern shore, formed by the southern coast of Sumatra, consists primarily of two large bays, with entrances about 26 and

30 miles wide. About mid-way between the western and eastern entrances, and borrowing towards the northern shore, is a group of islands of which Rakata, once known as Krakatau, the famous volcano, is the most southern. The narrow part of the Strait at the eastern end is also encumbered by islands and rocks. The maximum separation of islands in the group towards the middle of the Strait and between these islands and the south coast of Sumatra is 7½ miles. The channels through this group will therefore not be described in detail.

About 4 miles northward of the north-western extremity of Java lies the island of Panaitan, between is Behouden Passage, deep and 13 miles long, forming an entrance to the Strait from southward. Only that part of the Strait where the main channel has a breadth of 26 miles or less will be remarked on; this extends from northward of Panaitan at the western end to a position 13 miles northward of Tanjong Podjok, the cape at the junction of the north and west coasts of Java.

2. (i) The Strait between the above limits runs in a general north-easterly direction and is about 63 miles in length.

(ii) At the western end, between Rakata on the north and Panaitan, the breadth is about 23 miles. On the coast of Java and due south of Rakata is Welkomst Baai; from Rakata to the entrance of this bay is 31 miles, this forms the widest part of the Strait (see also paragraph 5 below). South-eastward of Rakata the distance to Tanjong Lesung on the Java coast is 22 miles, and it is about the same distance to the Java coast eastward of that island. From Tanjong Tua, the most southerly tip of the eastern end of Sumatra, the distance to Karang Tjikoneng, a point opposite on the Java coast, is 14 miles. The Strait thence runs in a north-north-easterly direction, retaining this general width, for about 14 miles to abreast Tanjong Podjok, where the Java coast turns abruptly eastwards.

In this narrow neck are a number of islands and rocks which divide the Strait; the largest of these is Sangian lying near its middle. Close off the Sumatra coast is a chain of islets and rocks, the most distant being 2¼ miles offshore and 4¼ miles north-west of Sangian; there is a small rock, just above water, about mid-way between Sangian and this chain of islands.

The distance between the southern point of Sangian and the Java coast south-eastward is about 5¼ miles. Some 4¾ miles east-south-eastward of this point, and about 1¼ miles from the Java coast, is a small high rock, while 5 miles north-eastward of Sangian, and about 4 miles from the Java coast, is a similar but higher rock with a naviational light on top.

Thus, the narrowest part of the Strait proper lies between the outermost of the chain of islands off Sumatra and the coast of Java, a distance of 12 miles, while the narrowest navigational channel is 1¾ miles wide between Sangian and the small above-water rock north-westward.

3. The main Strait throughout its length is deep, varying from over 60 fathoms to about 16. However, amongst the islands north of Rakata there are many dangerous shoals charted and vessels are cautioned to

avoid that area as depths are liable to alteration due to volcanic eruption.

Near the middle of the Strait, and 4 miles north-eastward of Sangian, is a 3-fathom patch.

There are two navigational lights in the narrower part of the Strait and one in Behouden Passage.

Tidal streams are generally strong; near the small above-water rock north-westward of Sangian a rate of 6 knots has been reported with strong eddies and discoloured water.

The rise and fall of the tide is small.

There are no difficulties in the navigation of the Strait; the main channel south of Rakata is that generally used, as is that southward and eastward of Sangian.

4. There are no drying features charted which could qualify to extend the limits of the territorial sea. The positions of the islands can be best be seen on the chart.

5. Inside the western end of the Strait and southward of Rakata, 12-mile arcs of circles drawn from that island, from Papaitan and from the coast of Java do not overlap or meet, but a small triangular area is left between them. This area has arcs as sides, the maximum length of sides from apex to apex is 5½ miles and the distance from the apex to the base of the triangle is 4½ miles. 13-mile arcs from the base points do just *not* meet or overlap.

6. The only port of note within the area is Pandjang on the eastern side of the two large bays in the south coast of Sumatra; here there is sheltered anchorage, some mooring buoys and a quay 540 feet long with 26 feet of water alongside. On the Java coast, about 5 miles south of Tanjong Podjok, is a sheltered anchorage inside the island of Merak Besar, close to the settlement of Pulomerak, the terminus of the railway. A steamer ferry service is maintained between this settlement and Pandjang.

18. San Bernardino Strait (Annex, map No 19)

References : Charts Nos. 3808, 3370, 3818.
        Eastern Archipelago Pilot, Volume I, Sixth Edition, 1950.

1. San Bernardino Strait separates the south-eastern end of Luzon from the north-western part of Samar and is the eastern of the several straits through the Philippine Islands on one of the principal routes joining the high seas of the Pacific Ocean with those of the China Sea.

The Strait is shaped somewhat like a curved funnel and is wider at the east than at the west.

Its western side is formed by the comparatively straight stretches of the east and south coasts of the south-eastern end of Luzon, between Bingay Point on the north and Sujak Point on the south. The eastern side consists of the western coasts of the Balicuatro Islands, 24 miles south-south-eastward of Bingay Point and the north-western part of Samar; the south-eastern side is formed by the north coasts of the islands of Dalupiri, Kapul and San Andres, the northern of the Naranjo Islands.

The San Bernardino Islands, two in number, small and about 160 feet high, with two small above-water rocks within a quarter of a mile eastward of them, lie close inside the north-eastern entrance to the Strait and near mid-channel.

The western end of the Strait leads into Tikao Pass, north-westwards, and also into the Samar Sea through Dalupiri, Kapul and Naranjo Passes situated between the islands of those names.

Off the south-east corner of Luzon the breadth of the Strait is restricted by a chain of islands, with Tiklin Strait, with a least width of about 350 yards, between Luzon and the islands.

2. (i) The length of the Strait is about 35 miles.

(ii) The breadth of the Strait between the north-eastern natural entrance points of Bingay Point and the Balicuatro Islands is 24 miles; this is divided into two by the San Bernardino Islands which lie 5½ miles north-west of Balicuatro Islands and within 8 miles of the nearest point of the east coast of Luzon, westward.

Between the north-western tip of Samar and the chain of islands off the south-east coast of Luzon the breadth of the Strait is 7½ miles. Between the chain of islands and the northern point of Kapul is the narrowest part of the Strait; it is 3½ miles wide.

Between San Andres Island and the most southern rock of the chain of the islands off south-east Luzon is 6¾ miles; between San Andres and the coast of Luzon northward is about 7½ miles and between that island and Sujak Point is 8¼ miles.

The least breadth of Dalupiri Pass is under 2 miles, of Kapul Pass is 3¼ miles and of Naranjo Pass is 4¾ miles. Tikao Pass has a least breadth of 9 miles and the waters between Naranjo Islands and Masbate Island westwards are 11 miles wide.

3. The San Bernardino Strait is deep, depths in general being between 30 and over 100 fathoms. There is, however, a dangerous shoal on a bank with less than 6 fathoms of water over it which extends about three-quarters of a mile south-eastward from the southern rock of the chain of islands of the Luzon coast, which reduces the navigable width of the Strait to 3¼ miles. Depths of less than 6 fathoms also extend north-westwards of the northern point of the Balicuatro Islands and the same distance eastwards of the San Bernadino Islands.

Tiklin Strait is deep but there are shoal patches at both its ends; navigation therein is not recommended on account of its narrowness and the strong tidal streams.

4. For navigation at night there are high-powered lights on San Bernardino Island, at the north end of Kapul and on the southernmost rock of the chain of islands off Luzon.

Caution is required in the navigation of the Strait, not so much on account of the dangers, but because of the strong tidal streams which may run in the narrow part up to a rate of 8 knots. There are many strong

eddies and tide rips and towards the south-western end there are cross sets either in or out of the various passes between the islands. Heavy seas are encountered during the north-east monsoon.

There are no major ports or anchorages within the area. Anchorage may be obtained off Allen on the north-western part of Samar and off Port Gubat, on Luzon, about 10 miles south of Bingay Point.

5. No drying features, other than the low-water lines of permanently above-water land, appear to be charted. There are a few above-water rocks around the coasts but nearly all are within a quarter of a mile of the low-water lines of the islands. Exceptions to these are in the chain of islands off the south-east coast of Luzon:

(i) Calantus, the southernmost rock; this is 5 feet high, has a navigation light on it, and is situated 1½ miles south of Luzon and a mile from the next island north-eastward.

(ii) Magtimua Rock, about half a mile south-eastward of the northern island in the chain and about 2 miles from the main coast of Luzon.

19. Surigao Strait (Annex, map No 20)

References: Charts Nos. 3810, 3826.

> *Eastern Archipelago Pilot,* Volume I, Sixth Edition, 1950.

1. Surigao Strait somewhat resembles in shape that of a hook. It connects the high seas of the Pacific Ocean to those of Leyte Gulf and those of the Mindanao Sea, the latter in turn being connected westward to the Sulu Sea and north-westward through the various straits of the Philippines to the China Sea. It forms a regular route for international shipping.

The entrance to the Strait on the Pacific side is between Suluan Island on the north and the island of Dinagat on the south. The northern side is formed by Suluan and Homonhon Islands; the western side is formed by the south-eastern sides of Leyte and Panaon Island; the eastern side consists of the west coasts of Dinagat and of the islands southward between it and the north end of Mindanao. The southern entrance lies between the south end of Panaon Island and Bilaa Point, the northern extremity of Mindanao.

Westward of the northern end of Dinagat, the islands of Hibuson and Little Hibuson divide the Strait into two passages; the eastern of these is obstructed towards its eastern side by two rocky islets with various shoals in the vicinity.

Towards the southern end of the Strait is Hinatuan Passage leading, between the north coast of Mindanao and the islands northward, to Dinagat Sound and to the Pacific Ocean south-eastward of the island of Siargao.

Between Panaon Island and Leyte is Panaon Strait, a narrow passage leading to Sogod Bay at the south-eastern end of Leyte.

2. (i) The length of the Strait between its entrance points is about 70 miles.

(ii) The breadth of the Strait at the Pacific end

between Suluan Island and the north coast of Dinagat is 26 miles. North of Dinagat the width is 14½ miles to Homonhon. The passage between Dinagat and Hibuson Island is 3¾ miles wide and that between Little Hibuson Island and Leyte is 12½ miles wide. Between an islet off the west coast of Dinagat and the closing line of Kabalian Bay in the south-east coast of Leyte is about 13½ miles.

The narrowest part of the main Strait is 8½ miles wide and lies between the south-eastern corner of Leyte and Sumilon Island, a small island at the north-western end of Hinatuan Passage. The width of the Strait between its southern natural entrance points is 10¼ miles, while that between Limasawa Island, west of Panaon Island and off the entrance to Sogod Bay, and the nearest point on the north-west coast of Mindanao is 21 miles.

(iii) The Strait is deep; in the northern half depths vary between 18 and 60 fathoms, while the southern half is deeper with depths up to 770 fathoms in the southern entrance. Towards the middle of the northern entrance, however, is a 10-fathom patch which it would be prudent to avoid in dirty weather. Lesser depths also occur over the coastal bank, which extends about 2½ miles westward of the northern end of Dinagat.

3. There are no dangers in the fairway of the Strait and in daylight navigation should prove simple. There are no lights, however to assist navigation at night.

The tidal streams are charted as running true to the fairway; in the vicinity of Hibuson Island they are strong and may attain a rate of 5 or 6 knots at spring tides. Tide rips are found near the prominent points of the coasts in the Strait and amongst the islands on its eastern side.

There are no ports within the Strait. Surigao, the capital of the province of that name and a place of considerable importance, is situated on the north coast of Mindanao and about 5 miles within the entrance of Hinatuan Passage leading eastward off the Strait at its southern end. There is a wharf with 21 feet of water at its head and good anchorage may be obtained nearby. Sheltered anchorage close to the coast may be found by vessels with local knowledge in several of the bays in the west coast of Dinagat and in Kabalian and Hinunangan Bays on the south-east coast of Leyte.

4. No drying features are charted from which the limits of the territorial sea could be extended. The positions of the above-water islets from which such measurements are made can best be seen on the chart; with the exception of those named above and those south-south-westward of Dinagat, none are more than 2¼ miles offshore.

20. Strait of Hormuz (Annex, map No 21)

References: Chart No. 753.

> *Persian Gulf Pilot,* Tenth Edition, 1955.

1. The Strait of Hormuz joins the high seas of the Gulf of Oman to those of the Persian Gulf; a considerable amount of international traffic passes through

it. The Strait lies between Iran on the north and north-west and Oman on the south. Its northern shores are formed by the eastern part of Qishm Island together with its off-lying islands of Jezirat Larak and Jezirat Henjam. Its southern shores are formed by the western and northern sides of Musandam Peninsula, the most northerly part of the mainlaind of Oman, and its off-lying islets.

From the Gulf of Oman the approach to the Strait is in a northerly direction and is about 30 miles wide. The Strait itself runs in a general south-westerly direction; it is constricted to a breadth of 20¾ miles at the north-eastern end between Jezirat Larak and Great Quoin, an islet 8½ miles northward of Musandam Peninsula; thence between this peninsula and the eastern coast of Qishm Island the general width is about 28 miles.

Qishm is an island about 60 miles long lying parallel to the Iran coast and separated from it by the narrow and intricate Clarence Strait. Jezirat Henjam, an island about 5 miles across, lies close off the middle of its south-eastern coast. Jerizat Larak, about 5½ miles long, is situated about 4¼ miles south eastward of the eastern extremity of Qishm.

Salamah Wa Binatahan, also known as the Quoins, is a group of three high islets, lying between 7½ and 9 miles northward of the north-east point of Musandam Peninsula. Within 2¾ miles of the northern side of this peninsula are a number of islets varying in height from a few feet to over 800 feet.

The only part of the Strait now to be considered is that having a breadth of 26 miles or less; this is situated north-north-westward of Salamah Wa Binatahan.

2. (i) The length of that part of the Strait having a breadth of 26 miles or less is 16½ miles. The 12-mile arcs from the nearest points on opposite shores overlap over a distance of 13 miles.

(ii) The breadth of the Strait between Great Quoin to the south, and the eastern end of Jezirat Larak is 22½ miles, that between Great Quoin and the south-western end of Jezirat Larak is 21½ miles, that between Perforated Rock, an islet close off the north-western tip of Musandam Peninsula and the south-western end of Jezirat Larak is 26 miles. The shortest distance across the Strait, between Great Quoin and the nearest point on Jezirat Larak, is 20¾ miles.

(iii) Depths in that part of the Strait now being considered vary between 32 and 50 fathoms. Further westward in the Strait and north of its axis is Patrick Stewart Bank with a depth of 14 fathoms. About 1¾ miles south-westward of Little Quoin a 9-fathom sounding is charted.

3. Navigation through the Strait presents little difficulty but the tidal streams, which are strong and at times set across the Strait, must be guarded against.

Strong breezes may set in and sudden shifts of wind may occur with little or no warning. During a Shamal in summer and also while the Nashi is blowing in winter, the very hazy atmosphere may so completely obscure the land that surf on the beach may be the first indication of its proximity.

There is a high-powered light on Little Quoin, the southern of the islets of Salamah Wa Binatahan, to assist navigation at night. The channel southward of Little Quoin, between it and the islets off-lying Musandam Peninsula, which is about 10 miles long with a least breadth of 4¾ miles, is often used in preference to the main Strait northward.

There are no ports or roadsteads within the area. There are roadsteads, however, off Qishm, a small town on the north-eastern coast of the island of that name, and at Bandar Abbas, on the mainland of Iran, northward of the eastern end of Qishm Island. Anchorage may also be found north of Jezirat Larak.

4. There are no drying features in the area from which the limits of the territorial sea may be extended. There is a small above-water rock, not shown on the chart, situated less than 100 yards from the north side of Great Quoin.

5. Navigation is possible on both sides of a median line through the Strait and its approaches.

21. St. George's Channel (Bismarck Archipelago) (Annex, map No 22)

References : Charts Nos. 3553, 1574, 2015, 2135, 524.
Pacific Islands Pilot, Volume I, 1946.

1. St. George's Channel in the Bismarck Archipelago separates New Ireland from New Britain and joins the high seas of the Solomon Sea southward to those of the Bismarck Sea north-westward. International shipping passing to and from Rabaul, a port on the New Britain side of the channel, use both its southern and northern entrances.

The Channel, about 40 miles wide at its southern end between the south point of New Ireland and the coast of New Britain westward, gradually narrows towards its northern end, where it is split into two unequal parts by the Duke of York Group, a group of 13 islands of which Duke of York Island is the largest.

The channel eastward of this group continues in a northerly direction along the coast of New Ireland; that westward takes a north-westerly direction past the entrance to Blanche Bay wherein is the port of Rabaul. Credner Islands, two in number, both small and low, lie in about the middle of the western channel and south-westward of the Duke of York Group.

Both New Britain and New Ireland are under Australian trusteeship. Only that part of the Channel which has a breadth of 26 miles or less will be remarked on here.

2. (i) At the southern end the breadth of the Channel narrows to 26 miles abreast Watarea Rock, a small rock about a quarter of a mile offshore 8¾ miles northward of the south point of New Ireland. At the northern end the Channel is 26 miles wide north-eastward of Cape Tawui, the most northerly point of New Britain. The length of the Channel between these limits past the eastern side of the Duke of York Group is about 55 miles and that past the western side of the Group is about 48 miles.

(ii) The breadth of the Channel towards its southern end, as stated above, is 26 miles; about 10 miles further within its narrows to 18 miles; abreast Cape Gazelle, 17 miles further north, the width is about 16 miles; thence the Channel divides around the Duke of York Group. To the east of the Group, the narrowest part of the Channel is 8 miles north-eastward of the middle of the eastern coast of Duke of York Island; thence this branch widens to about 12 miles north-east of Mait Unanga, the northern of the two islets north-westward of the most northerly point of Duke of York Island.

The branch of the Channel passing west of the Duke of York Group has a width of 4½ miles between Cape Gazelle and the southern islet of the Group. Between the south-western island of the Group and the eastern of the Credner Islands is a distance of nearly 3 miles, and between the latter and the coast of New Britain southward is 3½ miles. From the western Credner Island to Praed Point, the northern entrance point to Blanche Bay is 5½ miles. From Cape Tawui to Makada Island, the north-western of the Duke of York group is 14½ miles.

(iii) The Channel is deep; it has not been well surveyed but is apparently free from dangers. The few depths that are charted are between 116 and 1,600 fathoms and are mostly over 1,000 fathoms; one shoal sounding of 31 fathoms was reported in 1917 to lie 2¼ miles off the west coast of New Ireland. The coastal bank with shallower depths does not extend more than about half a mile off the eastern and western sides of the Channel.

3. Navigation within the Channel is simple, no dangers are charted; except, however, for lights inside Blanche Bay, there is but one navigational light for use in night time passages, this is on Cape Gazelle. Currents may run at a rate of from 2 to 3 knots, their direction being dependant on the monsoons. Off Cape Gazelle tide rips are charted.

The entrance to Blanche Bay is 2¾ miles wide.

The only port of any consequence within the area is Rabaul within Blanche Bay. Here there is a berth for a maximum draught of 30 feet, and anchorage may be obtained in any suitable depth. Rabaul is the seat of Government and the port of entry for New Britain. There are several open anchorages for vessels with local knowledge close inshore in the small bays of both the coasts of New Britain and New Ireland, and also between the islands of the Duke of York Group.

4. No offshore drying features are charted from which the limits of the territorial sea can be extended.

22. Cook Strait (Annex, map No 23)

References: Charts Nos. 695, 1493.
New Zealand Pilot, Eleventh Edition, 1946.

1. Cook Strait separates North and South Islands of New Zealand and connects the high seas of the Tasman Sea northward with those of the South Pacific Ocean southward. It forms a much frequented route for international shipping to and from the principal ports of New Zealand. In general terms, the Strait is wide at its northern end, narrows towards its middle where it retains a comparatively uniform width over a distance of about 14 miles and then widens again to its southern entrance.

The eastern side is formed by the coast of North Island from the mouth of the Waikanae River to Cape Terawhiti, 30 miles south-westward and thence to Cape Palliser about 35 miles south-eastward of that cape. The western side extends from Stephens Island, situated about 46 miles west-north-westwards of the mouth of the Waikanae River to The Brothers, 33 miles south-eastward, thence to Cape Campbell, 37 miles southward. The southern entrance is 46 miles wide, and the whole Strait has a length of about 60 miles.

The part here to be considered is that where the separation of the opposite shores is 26 miles or less. This area is bounded on the north by a line joining Walker Rock, a small rock, 3 feet high, lying one mile off Cape Jackson and about 9 miles north-westward of The Brothers, to the southern end of Kapiti Island situated 3 miles off the coast of North Island and westward of the mouth of the Waikanae River. The southern limit is formed by a line from Karori Rocks, about a quarter of a mile off the coast of North Island and 3½ miles southward of Cape Terawhiti, to White Bluffs on the coast of South Island and about 30 miles south-south-westward of The Brothers.

2. (i) The length of the middle of the Strait between these limits is about 37 miles.

(ii) The breadth at the northern end is 26 miles. Abreast The Brothers, two islands about 235 feet high with some outlying rocks, lying 2½ miles off Arapawa Island on the western side of the Strait, the width to Mana Island, eastwards is 15 miles. Mana Island lies about 1½ miles offshore and 12 miles south of Kapiti Island. Between The Brothers and Ohau Point 10 miles south-westward of Mana Island, the breadth of the Strait is just under 12 miles. The narrowest part of the Strait is between Wellington Head, the south-eastern extreme of Arapawa Island, and the coast of North Island between Ohau Point and Cape Terawhiti 3½ miles southward; it there has a breadth of 11¾ miles. From Cape Terawhiti to Rununder Point on the coast of South Island westward, the width is 17 miles; while from the same point to the coast in the middle of Clowdy Bay, situated northwards of White Bluffs, is 27¾ miles. Between Karori Rock and White Bluffs is 26 miles.

(iii) The Strait is in general deep and for the most part the 20-fathom depth contour lies within a mile of the coast; depths near the axis of the Strait are great and in places reach more than 200 fathoms. Clowdy Bay has, however, less water and the 20-fathom contour there lies up to 7½ miles from its shore. There are a few isolated rocky patches in the area, notably a 9-fathom bank about 5½ miles south-south-westward of Kapiti Island and 4¼ miles offshore; a 5¼-fathom patch in the middle of the Strait, just north of a line joining The Brothers to Mana Island; a rock awash at low-water, 3¾ miles north of The Brothers; and two rocks which dry 6 feet about 2¼ miles south of The Brothers and the same distance off the western shore.

The rise and fall of the tide is about 6 feet.

3. There are few off-lying dangers in the Strait, which has plenty of sea-room and navigation should not normally present any difficulty. However, the area is subject to heavy gales, both from the north-west and south-east, which are often accompanied by low visibility. The tidal streams and currents are reported to be variable and may be strong; when these are in the opposite direction to the wind a heavy turbulent sea is raised which may be dangerous. Heavy tide-rips often occur off many of the prominent points and also in the middle of the Strait between Cape Terawhiti and Wellington Head.

To assist night time navigation there are ample high-powered lights on both sides of the Strait.

Port Nicholson, a large land-locked harbour, with Wellington, the capital of New Zealand, on its western side, is situated near the south-western extreme of North Island and about 8 miles eastward of Karori Rock, the south-eastern limit of that part of the Strait here being remarked on. There is alongside accommodation in the port for large vessels with a draught up to 36 feet.

The western side of the Strait has several secure anchorages where shelter may be found. There is also anchorage on the eastern side, in the lee of Kapiti and Mana Islands.

4. The positions of the islands in the Strait are best seen on the chart. The following small isolated above-water and drying rocks within the Strait which may extend the limits of the territorial sea are especially mentioned; those on the east side will first be described:

(i) There is a drying rock about a quarter of a mile westward of the south-western end of Kapiti Island.

(ii) Detached rocks are charted as extending for about 300 yards from the coast about 2¼ miles north-east-ward of Ohau Point.

(iii) Rocks extending the same distance offshore lie off the coast 1¾ miles south-westward of the same point.

(iv) Toms or Thoms Rock, awash at low water, lies about a mile south-eastward of Karori Rock and nearly three-quarters of a mile offshore. Karori Rock, small, 10 feet high with a navigational light on it, lies about half a mile offshore and 3½ miles south-eastward of Cape Terawhiti.

(*Note :* Toms Rock will not extend the limit of the territorial sea unless rocks which are awash at low-tide are accepted into the same category as those that dry between the tides.)

Those rocks situated on the west side are as follows:

(i) Walker Rock, small and 3 feet high, and Jackson Head Rock, 6 feet high, lie within a mile north-eastward of Cape Jackson. The latter rock has a navigational light on it.

(ii) White Rocks consisting of 6 small above-water rocks, the highest being 53 feet high, lie just within the entrance to Queen Charlotte Sound and about a mile north-westward of its southern entrance point.

(iii) Cook Rock, 3¾ miles northward of The

Brothers, is charted as awash at low-water (see Note against 4, (iv) above). This rock is occasionally visible when the sea breaks over it in strong winds.

(iv) The Brothers have been described in paragraph 2, above. There are some drying rocks lying within a quarter of a mile eastward and others south-eastward of the southern of these.

(v) Two rocks named "Awash", in fact, dry 6 feet at low-water; these are situated about 2¼ miles south of The Brothers and about the same distance from the western side of the Strait.

(vi) Off several of the points on the western side of the Strait small above-water rocks are found on the drying reefs extending from the points.

(vii) Off White Bluffs, drying rocks are charted nearly half a mile from the coast.

5. Clowdy Bay between White Bluffs and Rununder Point is just a "bay" within the definition in article 7 of the 1956 report of the International Law Commission, with a closing line of 15 miles.

The distance across the Strait to the northern entrance point of this bay is 18¾ miles.

23. Foveaux Strait (Annex, map No 24)

References : Charts Nos. 3634, 1915, 3484.
New Zealand Pilot, Eleventh Edition, 1946.

1. Foveaux Strait, at the southern end of New Zealand, lies between the southern side of South Island and Stewart Island; it connects the high seas of the Tasman Sea with those of the South Pacific south-east-ward. The Strait is not frequently used except for passage to and from Bluff Harbour, the port for Inver-cargill, situated near the middle of its northern shore.

The western entrance to the Strait is but imperfectly surveyed and the scale of the chart is small.

The western limit may be considered as lying between Ruggedy Point at the north-west end of Stewart Island and Pahia Point, about 23 miles northward, at about the middle of the south coast of South Island. The eastern limit lies between Cape Edwardson (East Head), at the north-east end of Stewart Island, and Waipapa Point, about 33 miles north-eastward on South Island. Ruapuke Island lies near the middle and just inside the eastern entrance to the Strait, thus dividing it into two portions each less than 26 miles wide. Ruapuke Island is surrounded by islets and reefs.

The Strait for about three-quarters of its length measured from its western end has a comparatively uniform breadth of about 17 miles from shore to shore, and then widens to its eastern entrance; the navigable width, however, is considerably reduced by rocks and shoals.

Towards the western end of the Strait and four miles from its northern shore lies Centre Island, with Escape Reefs about the same distance eastward. Towards the eastern end, the Stewart Island coast is fronted by numerous islets and rocks up to a distance of about 5 miles.

2. (i) The length of the Strait between its entrances described above is about 45 miles.

(ii) The breadth at the western end is 23 miles. About 5 miles within lies Centre Island, about 4 miles from the northern shore with a number of rocks and dangers between; these reduce the navigable width to about 11½ miles. The distance from Escape Reefs, some above-water rocks surrounded by reefs and shoals lying about 4 miles east of Centre Island, to the north coast of Stewart Island is about 12 miles. Near the middle of the Strait the northern shore is formed by an extensive peninsula forming the south-west side of Bluff Harbour; the least distance from this peninsula to the coast of Stewart Island is 14½ miles. From the south-eastern end of this peninsula to Ruapuke Island is 9½ miles; Dog Island, with a shallow bank eastward of it, situated about 3 miles south-east of the end of the peninsula, reduces the navigable width here to under 5 miles.

From Ruapuke Island to Waipapa Point is 13½ miles; rocks and shoals north-east of the island reduce the width of the fairway to 6¾ miles. Between Ruapuke Island and Stewart Island south-eastward is a distance of 14½ miles; islets, above-water rocks and shoals extend for nearly 6 miles from the island and the same distance from the coast of Stewart Island, to reduce the fairway to a width of less than 3 miles.

(iii) Depths throughout the Strait are somewhat irregular; in the western half, south and east of Centre Island, they are from about 20 to 25 fathoms, while further eastward they range from 12 to 20 fathoms. Between Ruapuke Island and the coast of South Island northward depths are in general 10 fathoms and less. The fairway south of that island has depths up to 20 fathoms but it is bordered by shoals with less than 5 fathoms over them.

3. There is plenty of sea-room in the Strait and there are ample landmarks and navigational lights to assist in its navigation. However, this part of New Zealand is constantly subject to violent gales from the south-west to north-west which may continue for days on end with lulls of ony a few hours between. These gales bring rain and thick dirty weather and so navigation is hampered. The tidal streams run up to a rate of about 3 knots and, if in the opposite direction to the winds, a steep sea may result. Abnormal magnetic variation has been reported in the Strait.

Bluff Harbour is the only port of consequence within the area. It lies on the northern shore towards the eastern end of the Strait and is the port for Invercargill, the capital of the county of Southland. There are over 3,700 feet of wharfage with depths alongside of from 20 to 33 feet.

Sheltered anchorage may often be found in the lee of Stewart Island and in the indentations of its coast.

4. Few drying features that could extend the limits of the territorial sea are charted other than those within a half-mile distance from the coasts of the mainland, islands and islets permanently above water, the positions of which may best be seen on the larger scale charts. There are some, however, and some islets and rocks, which, although small may be of importance and are not clearly shown on the chartlet. The outermost of these are as follows:

Hapuka Rock, which dries 3 feet, is situated about a mile south-westward of Centre Island.

Bishop and Clerks, an above-water rock with a number of drying rocks around it, lie about 3½ miles westward of Black Rock Point, the most northerly point of Stewart Island, and about 1½ miles offshore.

Pig Island, with a one-foot high rock half a mile southward, is situated about 4½ miles north of Escape Reefs and 2½ miles offshore.

Half Way Rocks, above-water and drying, lie about 8½ miles eastward of Escape Reefs and 3¼ miles offshore.

Half Passage Rock, above-water with drying rocks about a quarter of a mile south-eastward of it, is situated about 4 miles south-west of Ruapuke Island.

At the western end of the Strait and on the southern side are Ruggedy Isles, a group of high craggy rocks, lying about 1½ miles off Ruggedy Point.

24. Kaiwi Channel (Annex, map No 25)

References : Charts Nos. 1510, 1378.
Pacific Islands Pilot, Volume III, Seventh Edition, 1946.

1. Kaiwi Channel, situated in the Hawaiian Islands, separates Oahu from Molokai and joins the high seas north of those islands to the high seas south of them. It is a route much used by international shipping.

The shores of the channel are formed by the south-east coast of Oahu between Makapuu Point and Koko Head, 4½ miles south-westward, on the west, and the west coast of Molokai between Ilio Point and Laau Point, 8 miles south-south-westward, on the east.

Both these coasts are comparatively straight.

2. (i) The length of the channel may be considered as about 15 miles.

(ii) The breadth of the channel at its northern end between Makapuu Point and Ilio Point is 22¼ miles; at its southern end between Koko Head and Laau Point, which forms its widest part, its width is 23½ miles. The narrowest part of the channel lies between Makapuu Point and Kaunalu, on Molokai, and about 2 miles northward of Laau Point; here the breadth is 22 miles.

(iii) The channel is deep; near its axis soundings are charted up to 350 fathoms. On the western side depths of less than 10 fathoms are found up to about half a mile offshore, and abreast Makapuu Point depths of less than 100 fathoms, and in general between 30 and 70 fathoms, extend up to 5 miles from the coast. On the eastern side a bank, with general depths of between 20 and 30 fathoms, extends south-westward for about 29 miles from Laau Point across the entrance to the channel from southward. Off the coast between Laau and Ilio Points the 100-fathom contour runs from about 5 to 3 miles offshore.

3. There are no dangers within the channel; its navigation presents no difficulties. There are high-powered navigational lights to assist passage at night on Makapuu Point and Laau Point.

The channel lies within the area of the North-East Trade Wind.

The current is not strong but it may be irregular.

The rise and fall of the tide is small.

There are no ports within the channel; Honolulu and Pearl Harbour, with accommodation for large ships, are situated on the south coast of Oahu, within a distance of about 20 miles westward of the southern entrance to the channel.

Papohaku Roadstead on the west coast of Molokai, and about 2½ miles southward of Ilio Point, affords good anchorage in fair weather; the 10-fathom contour lies about half a mile offshore in this vicinity.

4. No drying features, from which the limits of the territorial sea can be extended, are charted other than a few rocks off the coast of Oahu, all of which lie within a distance of 200 yards of the main coastline.

Within 1½ miles north-north-westward of Makapuu point, and just outside the limits of the channel, are two small islets.

25. Dover Strait (Annex, map No 26)

References: Charts Nos. 2675, 1895, 1406.
Channel Pilot, Part I, Thirteenth Edition, 1947.
Channel Pilot, Volume II, Eleventh Edition, 1952.

1. The Dover Strait, situated between the south-east coast of England and the northern coasts of France, connects the high seas of the English Channel to those of the North Sea. It is a much frequented route for international shipping.

The Strait, and its approaches as a whole, somewhat resemble in shape that of two funnels, end to end. The part now to be considered, however, is the narrower portion where it does not exceed 26 miles in breadth. At the south end this distance separates Dungeness on the English coast from Cap d'Alprech, on the French coast about 1½ miles south of Boulogne. At the northern end this distance extends from near the English town of Deal to a position on the low-water line of the French coast about 6 miles east of Calais. The French coast trends northward from Cap d'Alprech for about 11 miles to Cap Gris Nez, then turns north-eastward for about the same distance to Calais, whence it trends east-north-eastwards.

Between Dungeness and Folkestone, about 13 miles north-north-eastward, the English coast forms a bight with a penetration inland of about 3½ miles. Thence it trends north-eastward to South Foreland where it turns to a northerly direction to Deal and the North Foreland.

2. (i) The length of the Strait where the separation of its coasts is 26 miles or less is about 25 miles.

(ii) The breadths at the southern and northern ends, as stated, are 26 miles. The breadth from Cap Gris Nez to the middle of the bight north of Dungeness is about 24 miles; between Cap Gris Nez and Folkestone is 19½ miles, and between the low-water line close northward of Cap Gris Nez and the breakwater at Dover is 17 miles; this is the shortest distance across the Strait.

Between South Foreland and the low-water line of the French coast about midway between Cap Gris Nez and Calais is 17½ miles, and from South Foreland to Calais breakwater is 20 miles. From Deal to Calais breakwater is 22 miles.

(iii) On the whole, that part of the Strait now under discussion is comparatively deep, with general depths varying from 11 to 20 fathoms outside the coastal banks. There are, however, some long sand ridges or banks lying in the middle and roughly parallel with the axis of the Strait and its approaches which restrict navigation. There are two of these within the area, namely The Ridge or Le Colbert, and The Varne; the former has a least depth of one fathom and the latter of 2½ fathoms.

In the northern approach are the Goodwin Sands about 6½ miles off Deal; their southern end lies within the area; these sands dry in places, including one small patch within the area. South Falls, with 3½ fathoms over them, lie about 5½ miles east-north-east of the Goodwin Sands; Sandettie Bank has 3¼ fathoms over it and is about 10 miles east of the Goodwin Sands, with Outer Ruytingen and West Dyck, with 1½ and 3 fathoms over them respectively, lying roughly parallel to and 7½ and 4 miles from the French coast.

In addition, towards the English and French coasts there are a number of submerged wrecks with varying depths over them.

3. Navigation through the Strait presents little difficulty, as there are many landmarks on both sides and the dangers are all well marked by buoys and light-vessels. Tidal streams may run up to a rate of 3 knots in places, but are in general true to the fairway. There are overfalls in places and a steep sea may arise when the wind is in opposition to the stream. If compelled to anchor in the Strait, care must be taken to avoid the numerous submarine cables which cross the area in all directions.

Navigation at night is facilitated by several high-powered lights, by light-vessels and by numerous light-buoys.

There is a rise and fall of tide of about 18 feet.

The ports of Folkestone and Dover are situated within the area on the English coast and Boulogne and Calais on the French coast; all are sheltered by break-waters and are termini for cross-channel ferry services. Boulogne is a large fishing centre and Calais is connected with the main canal system of France. Good sheltered anchorage may be obtained in The Downs, between the coast in the vicinity of Deal and the Goodwin Sands. Vessels can also anchor off Boulogne and Calais, but shelter here is not so good.

4. Drying features from which the limits of the territorial sea might be extended are few. South Caliper on the English side at the southern end of the Goodwin Sands is a sandbank about a mile long which dries 2 feet; this is situated about 5 miles off the coast mid-way between South Foreland and Deal. On the French side, about mid-way between Cap d'Alprech and the southern breakwater of Boulogne, a small group of

drying rocks lies about 200 yards from the low-water line of the coast which is there about half a mile from the high-water mark. About 3 miles north of Boulogne is a small sandbank which dries 2 feet; its outer edge lies about 200 yards seaward of the low-water line of the coast and nearly half a mile from the high-water line.

About a mile eastward of Cap Gris Nez the low-water line is situated about three-quarters of a mile offshore, and about 2 miles eastward of that cape a detached drying bank is charted about 300 yards from the low-water line and about three-quarters of a mile offshore. Les Gardes, rocks which dry 8 feet, are situated with their outer edge 4½ miles north-east of Cap Gris Nez and half a mile from the high-water mark.

East of Calais the low-water line, which is there about a quarter of a mile from the coast, extends further offshore, and about 3½ miles from that port it is nearly a mile from the high-water line of the coast.

5. Navigation is possible on both sides of a median line through the Strait.

26. Canal de Menorca (Annex, map No 27)

References : Chart No. 1317.
Mediterranean Pilot, Volume I, 1951.

1. Canal de Menorca separates the Spanish island of Mallorca from that of Menorca and connects the high seas of the Mediterranean north-westward and south-eastward of them. The approach from south-eastward lies between the eastern coast of Mallorca and the south-western coast of Menorca; the Strait itself is between the north-east coast of the former island and the west coast of the latter. The north-east coast of Mallorca is indented by Alcudia and Pollensa Bays, separated by a narrow neck of land; the distance between the entrance points of the former is 9 miles, of the latter about 4 miles, and of the combined area 12 miles. As both the individual bays and also the area of them combined conform to the International Law Commission's definition of a "bay" in article 7 of its 1956 report, the closing line of the combined bays, joining the natural entrance points, will be considered as "coastline" in this description.

2. (i) The length of the Strait where it has a width of 26 miles of less varies from about 8 miles on its eastern side to about 16 miles on its western side.

(ii) The breadth of the Strait at the southern end is 26 miles between Cabo del Pinar on the eastcoast of Mallorca and Cabo Dartuch on Menorca. Between Cabo Pera, the north-east corner of Mallorca, and Cabo Dartuch the width is 20½ miles. From Cabo del Freu, about 2 miles north of Cabo Pera, to Cabo Dartuch is the narrowest part of the Strait, a distance of 19¾ miles.

Between Cabo Farruch, the southern entrance point to Alcudia Bay to Cabo Dartuch is 23½ miles. The distance between a point about 9 miles north-westward, on the closing line of Alcudia and Pollensa Bays, to Bajoli de Menorca (Cape Minorca) is 26 miles. (The closing line of these bays joins Cabo Farruch to Cabo Formentor, the north-east point of Mallorca.)

(iii) The strait is deep; depths vary between 24 and 80 fathoms. All the points on both coasts are steep-to.

3. Navigation through the Strait is simple as there are no dangers, there is plenty of sea-room and many landmarks on each side. There are high-powered navigational lights on both sides of each end of the Strait to assist passage at night.

Northerly winds, however, raise a very heavy sea in the channel. There are no ports of any note within the area. Anchorage may be found anywhere in Alcudia and Pollensa Bays in suitable depths according to draught. Both these bays are, however, open eastward and are exposed to the frequent gales originating in the Gulf of Lions; the northern part of Alcudia Bay is somewhat more protected than is Pollensa Bay.

With offshore winds anchorage may also be obtained off Ciudadela and off Cabo Bajoli de Menorca, both on the west coast of Menorca.

4. There are no drying features from which the limits of the territorial sea may be extended, as the rise and fall of the tide is negligible. The only off-lying detached above-water rock in the area is Farayo de Aubarea, off the north-east coast of Mallorca; this is small in extent, 75 feet high, and is situated nearly half a mile offshore about 5 miles north-westward of Cabo del Freu.

27. Strait of Messina (Annex, map No 28)

References : Charts Nos. 3935, 177, 1976.
Mediterranean Pilot, Volume I, Eighth Edition, 1951.

1. The Strait of Messina separates the Italian island of Sicily on the west from the Italian mainland on the east, and joins the high seas of the Tyrrhenian Sea, northward, with those of the Ionian Sea, southward.

It is a Strait much used by international shipping.

Its shores are formed by the comparatively straight and converging coasts of the north-eastern end of Sicily and of the western end of the "toe" of Italy. The northern limit of the Strait proper lies between Capo Peloro, the north-eastern tip of Sicily, at which the northern coast trends westwards, and Scilla on the mainland, about 3 miles eastward; its southern limit lies between Capo d'Ali, a point on the Sicily coast about 18 miles south-westward of Capo Peloro, and Punta Pellaro on the mainland about 9 miles eastwards. The northern approach may be considered as between Capo Rasocolmo, about 5 miles west of Capo Peloro, and Capo Barbi, about 8½ miles north-north-east of Scilla. The southern approach is between Capo San Andrea, on the coast of Sicily, about 12 miles south-south-west of Capo d'Ali and a point about 2 miles east-south-eastward of Capo del' Armi, about 20 miles eastward where the mainland coast turns to a general easterly direction. These limits of the approaches have been taken as the points from which 12-mile arcs struck from the opposite coasts intersect furthest from the land.

2. (i) The length of the Strait and its approaches is about 30 miles.

(ii) The breadth of the approach to the Strait at its

southern end is about 20 miles. The breadth of the Strait proper at its southern end between Punta Pellaro and Capo d'Ali is 9 miles, while the shortest distance from Punta Pellaro to the Sicily coast is 7½ miles; about 5 miles within, the Strait is 5¼ miles wide.

Abreast Messina, a port on the Sicily coast, the breadth is reduced to just less than 3 miles. The narrowest part, about 2¼ miles southward of Capo Peloro and 3½ miles north-eastward of Messina, is 1¾ miles wide, which general width is maintained for 2¼ miles to abreast Capo Peloro. Thence the Strait widens to 3 miles between that cape and the coast at Scilla, and the approach continues widening to reach a width of about 15 miles at its northern end.

(iii) The whole of the Strait is deep; except in the immediate vicinities of its shores, depths in the southern part and that approach exceed 300 fathoms, while at the northern end and in the northern approach they are in general over 150 fathoms. Towards the northern end at the narrower part of the Strait, a submarine ridge crosses it on which depths are less than 100 fathoms, with a least depth of 38 fathoms; this ridge is instrumental in setting up "Tagli" or "bores" in that part of the Strait (similar to those set up in certain rivers).

3. The approach and southern part of the Strait present no difficulties in their navigation, there are no dangers and plenty of landmarks. There are high-powered lights at both ends and at Messina for navigation at night. In the narrower part, however, the tidal streams and currents are very strong, they result in eddies and whirlpools, famous from antiquity; caution in navigation is therefore necessary. In addition near the high land on either side of the Strait ships may be exposed to violent squalls which descend through the valleys of the mountains, and may be of such strength at times as to inconvenience steamers. Should the wind be against the "Tagli" or "bores", a short high sea, dangerous for small craft, may result.

From Capo Peloro an overhead cable, with a clearance of 230 feet, crosses the northern end of the Strait.

Messina, on the Sicily coast, is the most important port within the area. It is most secure and commodious; there is water for deep draught ships throughout the harbour and vessels can load and unload close to the quays, where depths alongside are 25 to 30 feet. A vessel of 45,000 tons has used this harbour. There are mooring buoys.

Reggio on the mainland coast is small, but is protected by a mole; it has 1,600 feet of quayage with depths of from 19 to 26 feet. A train ferry runs across the Strait from this port to Messina. Villa San Giovanni is also small and protected by a mole, which is quayed on its inner side, where there are depths of from 16 to 25 feet. A ferry service is maintained to Messina.

Open anchorage may be obtained by vessels with local knowledge in several places on either side of the Strait, the most sheltered place is north of the harbour entrance at Messina.

4. There are no drying or off-lying above-water features in the Strait or its approaches from which the limits of territorial sea may be extended.

28. Strait of Bonifacio (Annex, map No 29)

References : Charts Nos. 1189, 1131, 1780, 161 B, 429.
Mediterranean Pilot, Volume I, Eighth Edition, 1951.
Mediterranean Pilot, Volume II, Eighth Edition, 1952.

1. The Strait of Bonifacio separates the French island of Corsica from the Italian island of Sardinia, and joins the high seas of the Mediterranean Sea eastwards and westwards of the islands. The Strait lies between the southern coast of Corsica and the northern coast of Sardinia, and is obstructed by numerous islands and rocks which are divided into two groups by the main passage known as Bocca Grande. The international boundary passes through this passage and is marked by the alignments of two pairs of beacons, the first pair, bearing about 104°, being on Maddalena and Budelli Islands, and the second pair, bearing about 221°, being on Punta Marmorata on the north coast of Sardinia.

This Strait is much frequented by international shipping.

For the purposes of this description the Strait and its approaches will be considered as extending, at both the east and west ends, from the positions of the centres of arcs of 12-miles radius drawn from the French and Italian territory where such arcs intersect furthest from the land. On the eastern side, the centres lie on Toro Rocks to the north-east and on the south-east from Corcelli Island. Toro Rocks are an isolated group of rocks, the highest 131 feet high, situated about 4¼ miles off the south-east coast of Corsica. Corcelli Island is the outermost small islet at the north-east end of the Arcipelago della Maddalena, the southern group of islands and rocks extending about 6¼ miles from the north coast of Sardinia.

On the western side, the centres lie on the southernmost above-water rock of Les Moines to the north-west and on Caneddi Islet close off Sardinia. Les Moines are a group of detached above-water and submerged rocks situated 2¾ miles south-westward of the south-west coast of Corsica. Caneddi Islet is a small detached above-water rock within about 200 yards of the coast about 9 miles south-west of Capo Testa at the north-west corner of Sardinia.

Both the western and eastern approaches to the Strait are funnel-shaped. The western end of the Strait proper lies between a line joining Cap de Feno, to the west of the southern coast of Corsica, and Capo Testa at the north-west corner of Sardinia; the eastern end is between Isolotto La Pressa, the most northerly islet in Arcipelago della Maddalena, and Pointe Capicciole on the Corsican coast about 8½ miles north-westward. The Corsican coast south-westward of Pointe Capicciole is fronted by a group of islands and rocks extending up to 3½ miles offshore; these form the northern and north-western sides of Bocca Grande.

The various narrow channels between the islands of Arcipelago della Maddalena and those in the group of islands southward of Pointe Capicciole will not be described. The positions of these islands can best be seen on the chart.

2. (i) The length of the Strait and its approaches

within the above limits is about 22 miles; that of the Strait proper is about 10½ miles.

(ii) The breadth at the western end of the approach is 20 miles; that at the western end of the Strait proper (Cabo Testa to Cap de Feno) is 9 miles. The width between the northern point of Sardinia and Ecueil de Lavezzi, the southernmost above-water rock of the islands and rocks on the northern side of the channel is 3½ miles. Between this rock and Isola Razzoli, the north-western of the islands in Arcipelago della Maddalena, is just over 3½ miles, and it is the same distance from Isola Razzoli to the outlying rocks off Ile Lavezzi. The narrowest part of the channel is 3.4 miles wide between an above-water rock, close northward of Isola Razzoli, and Ecueil de Perduto, a small rock which dries one foot, 3¾ miles from the Corsican coast and 2¾ miles north-east of Ile Lavezzi.

The breadth in the eastern approach (Toro Rocks to Corcelli Island) is 12 miles.

(iii) The Strait is deep; depths in the western approach are between 80 and 27 fathoms; in the Strait proper they vary in the fairway between 27 and 40 fathoms and in the eastern approach they are between 40 and 50 fathoms.

About half a mile southward of Ecueil de Lavezzi is a 4¾-fathom patch with shoaler water between. A depth of 4¼ fathoms is charted nearly half a mile north-westward of Isola Razzoli. There is a bank with less than 20 fathoms over it about 1¾ miles south of Ecueil de Perduto.

3. Navigation through the main channel of the Strait presents no difficulties; there are plenty of landmarks for fixing and no dangers outside a distance of half a mile from its shores. The Strait is well lighted for navigation at night. However, in gales, particularly from the north-westward, the sea breaks everywhere in the passage. After prolonged blows a current may be experienced in the Strait. There are no ports as such within the area. Close southward of the area there is a naval base at Maddalena on the southern side of the island of that name. Anchorage could be obtained in case of necessity in several small bays in the northern coast of Sardinia and amongst the islands of Arcipelago della Maddalena.

4. The rise and fall of the tide in this part of the Mediterranean is very small; charted drying features which would affect the outer limit of the territorial sea are accordingly few. In the area of this Strait there is but one, Ecueil de Perduto, a rock which dries one foot, situated about half a mile south-eastward of Ile Perduto which itself lies 3¼ miles off the south-east coast of Corsica with other islands in between.

The coasts of Sardinia, Corcisa and the two groups of islands mentioned above the positions of which can best be seen on the chart, are fronted by many small above-water rocks; most of these lie within 400 yards of the coasts and are too numerous to mention in detail although many will affect the outer limits of the territorial sea. Those at a greater distance offshore are as follows:

(i) *Off the coast of Sardinia:*

Isolotto Municca, a small islet close offshore about 1¾ miles east of Capo Testa, is fronted by rocks the most seaward of which is about 650 yards off the coast of Sardinia.

East of Punta Marmorata are rocks about the same distance offshore, and others lie within 800 yards of the coast about 2 miles south-eastward of that point.

Scoglio Callot, although only 300 yards offshore, is particularly mentioned as it lies near the narrowest part of the Strait; it is northward of the northern end of Isola Razzoli, with a similar rock the same distance eastward of it.

Three hundred yards north-westward of Isola La Pressa is another small rock mentioned for the same reason.

(ii) *Off the coast of Corsica:*

Les Moines (Monachi Rocks) are a group of rocks lying between 1½ and 2¾ miles south-westward of the south-western coast of Corsica in the western approach to the Strait.

Le Prêtre, north-eastward of Les Moines and about half a mile offshore is a rocky patch on which is a masonry beacon-tower; it is not known whether this rock itself dries, or if it is above or below water.

Iles Bruzzi, about 2½ miles south-eastward of Le Prêtre, is a group of above-water rocks extending about a quarter of a mile offshore.

Testa de Gatto is a small rock, 2 feet high, about 700 yards off the coast about 4¾ miles south-east of Le Prêtre.

5. Navigation would be possible on both sides of a median line through the Strait; the international boundary has, however, been fixed and is marked by the alignment of two pairs of beacons as stated in paragraph 1 above.

29. The Dardanelles, Sea of Marmara and the Bosphorus

References: Charts Nos. 224, 1086, 2429, 1198.
Black Sea Pilot, Tenth Edition, 1955.

Note. The names used in this description will be primarily those on Admiralty Chart No. 224 which are not necessarily the local names or those used in the Black Sea Pilot.

1. The Dardanelles join the Mediterranean Sea to the Sea of Marmara, and the Bosphorus joins the latter to the Black Sea.

The whole forms a route much frequented by international shipping and is subject to the Regulations of the Montreux Convention of 1936.

The approach to the Dardanelles from westward is between the islands of the Aegean and, although the separation of the nearest of these to the entrance is from 25 to 12 miles, they will not be remarked on here.

The total length of the passage from the Mediterranean to the Black Sea is about 160 miles. The territory on both sides of it is Turkish. This passage will be described in three parts: (A) the Dardanelles; (B) the Sea of Marmara; and (C) the Bosphorus.

A. The Dardanelles (Annex, map No 31)

2. The south-western entrance lies between Cape Helles, the south-western tip of the Gallipoli Peninsula and Kum Kale about 2½ miles south-eastward. The north-western shore is formed by the coast of the Gallipoli Peninsula and the south-eastern shore by the mainland of Asia Minor. The north-eastern end also forms the north-eastern end of the Gallipoli Strait, which lies between the coast in the vicinity of the town of Gallipoli (Gelibolu) and the opposite shore. The line of division between the Gallipoli Strait and the Sea of Marmara may be considered as that joining Cankaya Burnu on the north-west to Fanous on the south-east.

(i) The length of the Dardanelles between the above limits is about 36 miles.

(ii) The width at the entrance is 2½ miles; about 5 miles within it reaches a width of 4 miles, to become restricted again to 1½ miles about 8½ miles within the entrance. Thence the passage trends northwards for about 6½ miles to form The Narrows, having general widths of from one to 2 miles and a least width abreast Canakkale of about three-quarters of a mile. At the northern end of The Narrows, the breadth is one mile; thence the passage continues north-eastwards to the Gallipoli Strait, a distance of about 16 miles with general widths of about 2 miles, a least width of 1½ miles and a maximum of 3 miles. The Gallipoli Strait, about 4½ miles long, has a least width of 1¾ miles abreast the town of Gallipoli; its width on joining the Sea of Marmara is 2½ miles.

(iii) The Dardanelles are deep; depths in the fairway vary between 25 and 50 fathoms. The coastal bank extends further from the south-east shore than from the north-west shore in the wider parts of the Strait, but the 6-fathom contour in general is inside half a mile from the shores.

(iv) There is no difficulty in navigating the Dardanelles. Vessels should in general keep in the middle to avoid the current which runs from about one to 2 knots except near The Narrows where the rate may be up to 4 knots. As is usual in confined channels, cross sets must be expected near the sharper bends.

There are many lights to assist in navigation at night.

There is a speed restriction enforced for vessels passing through the Dardanelles.

The only ports worthy of mention are Canakkale in The Narrows and Gallipoli or Gelibolu. The former has anchorage off the town in depths of from 16 feet to 17 fathoms, and one jetty capable of berthing a vessel of 7,000 tons gross. The latter has well sheltered anchorage in depths of from 15 to 23 fathoms about a quarter of a mile offshore; lighters are used for loading and unloading.

As a rule vessels can find temporary anchorage in any part, but the Asiatic side is the better as it is not so deep or steep-to; the holding ground is good. In strong north-easterly winds there is little shelter to be found from wind or sea north-eastward of The Narrows.

(v) There are no outlying or above-water rocks.

B. The Sea of Marmara (Annex, map No 30)

3. The Sea of Marmara is entered from the Mediterranean by way of the Dardanelles and from the Black Sea by the Bosphorus and is situated between Turkey in Europe and Turkey in Asia.

On the European side the coastline of the Dardanelles continues in a general north-easterly direction for about 65 miles to Erekli, thence trends eastward for about 47 miles to the entrance to the Bosphorus. Erekli is situated at the eastern extreme of a wide-based promontory separating two extensive indentations or curvatures of the coast. That on its western side has a breadth of about 20 miles and a penetration inland of 6½ miles; that on the eastern side has a breadth of 27 miles and a penetration inland of 6¼ miles. Neither of these indentations conform to the definition of a "bay" given in article 7 of the 1956 report of the International Law Commission. The coastline on the Asiatic side is more complicated. From the entrance to the Dardanelles, the coast trends eastwards for about 25 miles to Kara Burnu forming, with the European coast, a funnel-shaped approach to the Dardanelles with an eastern entrance about 10 miles wide. From Kara Burnu the coast continues in a south-easterly and then an easterly direction for about 27 miles to the base of the large Kapu Dagh Peninsula whence it turns north-westward for 12 miles to the western extremity of that peninsula, thus forming the Gulf of Artaki.

The entrance points of this gulf are separated by 18¼ miles, but between them are four islands all separated by less than 10 miles either from each other or the outer ones from the headlands forming the entrance points of the gulf. The sum of their separations is about 14 miles. The gulf would therefore appear to conform to the definition of a "bay" in article 7 of the 1956 report, and so may be closed by closing lines.

Northward of these islands lies Marmara Island.

From the eastern side of the base of Kapu Dagh Peninsula the coast trends eastward for 56 miles to the head of Indjir Liman or Gulf of Mudania. About midway along this stretch of coast Kalolimno Island (Imrali) lies about 7 miles offshore. This island is separated from the eastern extremity of the Kapu Dagh Peninsula by 22 miles and from the north-western entrance point of Indjir Liman by 10¼ miles. Closing lines drawn from this island across the entrance to Indjir Liman enclose waters conforming to the definition of a "bay" in the Law Commission's report. The waters west of the island, however, do not do so.

From Boz Burnu, the north-western entrance point of Indjir Liman, the coast trends north-eastwards for about 12 miles and thence eastwards for about 42 miles to the head of the narrow Gulf of Ismid. This gulf proper has an entrance 3½ miles wide and a length of 26 miles. The approach, however, is funnel-shaped and a group of islands, named Princes Islands, lies on its northern side. Closing lines can be drawn from these islands to the coasts southward and north-eastward of the middle of these having a sum total length of 15 miles. The area enclosed by these lines and the islands conforms to the Law Commission's definition of a "bay".

Princes Islands, nine in number, lie not only on the

northern side of the approach to the Gulf of Ismid, but also on the south-eastern side of the approach to the Bosphorus. Oxia, a small rock, 300 feet high, is the most seaward of these islands and lies due south of the Bosphorus; it is about 6 miles from the Asiatic shore and 7 miles from the European shore.

The approach to the Bosphorus is also funnel-shaped and its southern end may be considered as lying between Stephano Point on the European coast and Mal Tepe Burnu, a cape abreast the largest of the Princes Islands and about 14½ miles south-eastward of Stephano Point. The length of this approach is about 5 miles.

(i) The extreme length of the Sea of Marmara is nearly 150 miles and its breadth in its widest part is about 40 miles.

(ii) The Sea of Marmara is deep. Depths in the approach to both the Dardanelles and the Bosphorus are in general between 15 and 40 fathoms; depths near the middle of the sea are in places more than 700 fathoms. The coastal banks are comparatively flat, with depths varying between 25 and 50 fathoms; that off the northern shore is the narrower and varies in width between one and 6 miles, while that off the southern shore is between 9 and 17 miles wide except in the approach to the Gulf of Ismid, where the banks extend for only about a mile offshore.

(iii) There are no drying features charted from which the limits of the territorial sea may be extended. Small outlying above-water rocks etc. which affect this limit are as follows:

A small islet, about 2 miles west of Marmara Island.

A small rock, about three quarters of a mile eastward of that island.

The north-eastern islet of the group lying about 3¼ miles east of the north-eastern end of the Kapu Dagh Peninsula.

Oxia, the outer and north-eastern of the Princes Islands.

A small islet, about a mile south-eastward of Oxia.

Proti, the northern islet in the Princes Islands.

Venedek Tash, a rock one foot high, about a quarter of a mile southward of the promontory in the middle of the northern shore on which is Erekli.

(iv) Navigation through the Sea of Marmara presents no difficulty. There are no off-lying dangers, with the exception of some detached shoals lying up to a mile offshore at the south-western end of the approach to the Dardanelles, and a bank with less than 5 fathoms over it projecting about a mile from the Asiatic side of the approach to the Bosphorus. There are ample navigational lights to assist night-time passage. The route most commonly used is that north of Marmara Island, but the alternative passage between that island and those lying in the entrance to the Gulf of Artaki is often used in clear weather by west-bound vessels.

The general set of the current throughout the sea is from east to west at rates of from half to one knot.

(v) There are no major ports within the Sea of Marmara, the smaller ports of note are:

On the southern side:

Bandirma, on the east side of the root of Kapu Dagh Peninsula; Mudania, on the south side of Indjir Liman and Gemlik at the head of that gulf; Golcuk, a naval port and dockyard, Ismid and Derince Burnu, all near the head of the Gulf of Ismid.

On the northern side:

Tekirdag, at the head of the bight westward of the promontory on which is Erekli; and Erekli, at the south-east corner of the promontory.

Temporary anchorage may be obtained by vessels with local knowledge off most of the towns and villages along both shores of the sea.

(vi) Twelve-mile arcs of circles centred on the northern and the southern coasts and on the islands do not overlap in two places near the middle of the Sea, but leave irregular-shaped areas between. The first and larger of these is east-north-eastward of Marmara Island; it has a maximum length of 27½ miles in an east-west direction and a maximum breadth of 14½ miles in an approximate north-south direction. The second area is north-east of Kalolimno Island. Here the 12-mile arcs *from the coast and Kalolimno* are separated by an irregular-shaped area with a maximum length of about 6 miles and breadth of about 1¼ miles. If a closing line be allowed, as indicated above, for Indjir Liman, the area not enclosed by 12-mile arcs almost entirely disappears.

C. The Bosphorus (Annex, map No 31)

4. The Bosphorus, as stated above, joins the Sea of Marmara to the Black Sea and trends in a general north-north-easterly direction. Its southern entrance may be considered as a line joining Seraglio Point on the European side to Moda Burnu on the Asiatic shore about 2¼ miles south-eastward. Its northern entrance lies between Cape Rumili and Yum Burnu about 2½ miles eastward.

The Bosphorus somewhat resembles a river in being narrow with abrupt and angular windings and a strong current.

The western shore is formed by the coast of Turkey in Europe and the eastern shore by Turkey in Asia.

Close inside the southern entrance on the European side is the Golden Horn, a creek, forming the harbour of Istanbul which is situated on its southern side. The harbour is about 3 miles long, with an average width of a quarter of a mile.

(i) The length of the Bosphorus is about 17 miles.

(ii) The width at the southern entrance is 2¼ miles; about 1¼ miles within and abreast the southern entrance point of the Golden Horn the breadth of the Strait is rather less than a mile. The entrance to the Golden Horn is about a quarter of a mile wide. From the Golden Horn the strait narrows over a distance of 3½ miles north-eastward to a breadth of about half a mile; it then trends in a general northerly direction for about 4½ miles with some sharp bends, and is less wide; its minimum width of 750 yards is close north-

ward of Anadolu Hissari, a town on the Asiatic side about 5¼ miles beyond Istanbul. The strait then turns north-westward for about 2½ miles, with an average width of about three quarters of a mile, after which it continues in a north-easterly direction for about 6 miles to its northern entrance. This part is narrowest abreast Madschiar, where it is 900 yards wide; beyond this the strait in general widens to reach a width of about 2¼ miles at its northern entrance.

In some of the wider parts the navigable widths are reduced by a few shoals, but in no part is the navigable width less than the narrowest part of the strait, viz. 750 yards.

(iii) Depths in the fairway of the strait are considerable and in places reach over 40 fathoms. The shores are for the most part steep-to. Depths siutable for anchorage may be found, however, in a number of the bays in the lee of the prominent points.

In the southern entrance the coastal banks extend about 400 yards from each side. On the coastal bank off Scutari, on the Asian side abreast the entrance to the Golden Horn, and about 200 yards offshore is Leander's Tower, a small rock about 23 feet high on which is a light-structure.

There are a few detached dangerous shoals in the strait, of these two are on the western side of the channel lying close offshore about 4 miles within the southern entrance, others lie across the entrance to Umur Bay on the eastern side about 5½ miles within the northern entrance, and another about 400 yards offshore on the western side about 3½ miles within that entrance.

(iv) There are but few dangers in the strait and passage through it presents little difficulty in daylight but, in spite of a number of navigational lights and buoys, passage at night is not recommended for a stranger.

The main current sets southward and through the narrowest parts it may attain a rate of 5 knots; at the turns in the channel the current is deflected by the points and in many places counter currents with resultant eddies are set up.

The prevailing wind is north-easterly.

About 4 miles within the northern entrance submerged obstructions have been established from both shores; their ends are marked by light buoys leaving a narrow passage between, through which vessels must pass. There are also several areas where anchoring and fishing are prohibited. A number of submarine cables cross the strait. There is a speed restriction enforced.

The principal ports within the area are Istanbul, on the shores of the Golden Horn, and Haidar Pasha on the Asiatic shore in the southern entrance to the strait. Istanbul is an open port, is accessible to and has accommodation for the largest vessels. There are many mooring buoys and much of both sides of the Golden Horn is quayed.

Haidar Pasha is formed by a detached breakwater; there are quays with depths alongside of about 21 feet and some mooring buoys. This port is the terminus of the Anatolian railway.

Anchorage may be obtained in suitable depths north of the entrance to the Golden Horn, in Beikos Bay on the Asiatic side about 8 miles within the southern entrance, and in Buyukdere Bay on the European side about 6 miles within the northern entrance. The last is the quarantine anchorage for vessels entering from the north. When taking up anchorage near other vessels, due allowance must be made for the strong current eddies which are seldom constant and frequently change. In consequence vessels may swing in opposite directions and collide if insufficient room be allowed. This is particularly so near the entrance to the Golden Horn.

30. Kithera Strait (Annex, map No 32)

References: Chart No. 1685.
Mediterranean Pilot, Volume IV, Eighth Edition, 1955.

1. Kithera Strait situated between the southern side of Kithera Island and the northern end of Antikithera Island, joins the high seas of the Mediterranean on the west to those of the Aegean Sea on the east. It is the middle one of three straits separating the islands lying between the north-western end of Crete and the mainland of Greece.

Both Kithera and Antikithera are Greek territory.

Kithera Strait is much used by international shipping.

The distance between Kithera and Antikithera Islands is about 17¼ miles, but southward of Kithera Island are three islets, and northward of Antikithera are others with some rocks which will be described later. The navigable channel is thus reduced in width to a distance of about 10 miles.

2. (i) The length of the Strait proper may be considered as, at the northern end, about 10 miles: at the southern end, the distance between the most outlying of the rocks off the northern end of Antikithera Island, viz. 3 miles.

If, on the other hand, the length of the Strait be considered as that within the territorial sea and the maximum breadth of 12 miles be allowed for this, it would be between 24½ and 30 miles between the arcs of that radius.

(ii) The width of the strait at its western end between Ovo Islet, the most western of the islets off the south coast of Kithera, and Nautilus Rock, the most western of those north of Antikithera, is 13¼ miles.

At the eastern end between Anti-Dragonera, an islet off the eastern coast of Kithera Island, and Pori Islet, north of Antikithera, the width is 16¾ miles.

The narrowest part lies between the southern of the Kupho Islets lying south-east of Kithera Island and Pori Islet, a distance of about 10½ miles.

(iii) Depths in the strait are deep. A narrow oceanic ridge with depths of less than 100 fathoms rising from depths of about 300 fathoms connects Kithera Island to Antikithera Island. The least charted depths on it, except in the immediate vicinity of the coasts, islets and rocks, are 39 fathoms charted nearly 2 miles southeastward of Kupho Islets, and a rock with 4 fathoms

over it, about three quarters of a mile northward of Pori Islet.

3. Navigation through the Strait has no difficulties in daylight, when the recommended track is between Kithera Island and Ovo Islet and thence southward of Kupho Islets. There are no high-powered navigational lights in the strait to assist passage at night. Such a passage should be made by passing south of Ovo Islet and of the Kupho Islets; the arc of visibility of the light on Anti Dragonera, off the eastern end of Kithera Island, will indicate when the latter have been passed.

For the positions of the small above-water rocks which form dangers see paragraph 4 below.

There are no ports within the area. Anchorage sheltered from all but southerly and south-easterly winds can be obtained in Kapsali Bay, a rectangular-shaped bay about three-quarters of a mile across, in the south coast of Kithera Island. Anchorage sheltered from the north and west can also be obtained in St. Nikolo Bay on the south-east coast of Kithera Island. Lights of small power assist vessels to approach these anchorages at night.

4. There are no drying features from which the limits of the territorial sea may be extended; the rise and fall of the tide is not appreciable. The following are small above-water features which do affect the limits:

On the northern side of the strait:

Ovo Islet, small, rocky and 647 feet high, is situated about 2 miles south of the southern end of Kithera Island.

Kupho Islets, two in number, are small flat rocks, the northern and larger being 33 feet high; they lie about 5 miles east of Ovo Islet and about 2½ and 3 miles offshore.

On the southern side of the strait:

Nautilus Rock, small, 10 feet high, is the westernmost danger, it lies 2¾ miles north-westward of Psira Rock, a small rock lying about half a mile off the northern end of Antikithera Island.

Poretti Islet, small, 130 feet high and cliffy, with a rock above water close off its western end, lies about 1¼ miles northward of Nautilus Rock.

Pori Islet, small but somewhat larger than the others in area, is 410 feet high; it lies about 2½ miles north-eastward of Nautilus Rock and about 4 miles northward of Antikithera Island.

31. Carpathos Strait (Annex, map No 33)

References: Charts Nos. 2606, 236, 872, 1667, 2824.
Mediterranean Pilot, Volume IV, Eighth Edition, 1955.

1. The Carpathos Strait, also known as Scarpanto Strait and Stenón Karpáthou, is the eastern of the two straits which join the high seas of the Aegean Sea to those of the Eastern Mediterranean Sea. The Strait runs in an approximate north-south direction. Its western side is formed by the east coasts of the islands of Carpathos

and Saria, and its eastern side by the west coast of Rhodes Island and the south and west coasts of Khalkia Island together with the offlying islets and above-water rocks. The southern end of the Strait proper is a line joining Cape Praso Nisi, the southern point of Rhodes Island to the south-eastern end of Carpathos, a distance of 35 miles. The northern end is a line joining Myrtos Point, the south-west corner of Khalkia Island, to Cape Paraspori, the northern point of Saria, a distance of 23½ miles. The only part of the Strait to be considered here is where the Strait has a width of 26 miles or less; at the southern end, this distance occurs between Cape Praso Nisi and a cliffy point charted with the name Gria, about 1¾ miles south of the north-eastern end of Carpathos.

It is Greek territory on both sides of the strait.

2. (i) The length of the Strait between the above limit and the line joining Khalkia Island to Cape Paraspori varies from about 7½ miles on the western side to about 21½ miles on the eastern side.

(ii) The breadth of the Strait at the southern limit now under consideration is 26 miles. The narrowest part occurs between Karavolos, a small rocky islet about 4 miles northward of Cape Praso Nisi and three-quarters of a mile offshore, and the north-eastern point of Saria; the distance is 23 miles. Between Octonya Nisi, another small rocky islet about 3½ miles north of Karavolos and 2 miles offshore, and the north-eastern end of Saria, the strait is 23½ miles wide. Thence it widens to 26 miles between Cape Monolithos, the most westerly point of Rhodes Island, and Saria, to narrow again to 23½ miles at the northern entrance between Myrtos Point on Khalkia Island and the north end of Saria.

(iii) Depths in the strait are generally deep and in places exceed 700 fathoms. The coastal bank, with less than 100 fathoms over it, extends up to three-quarters of a mile off Carpathos and Saria, from 2 to 4 miles off Rhodes Island and about a mile off Khalkia Island. The 10-fathom contour in general is close to the shores on both sides of the strait. In the middle of the strait there is a bank with a depth of 25 fathoms which has not yet been closely examined, while midway between this and Saria a depth of 13 fathoms is charted.

3. There are no drying features from which the limits of the territorial sea may be extended. In addition to the islets previously described in paragraph 2 (ii), above, there are a few small above-water rocks lying off the coasts. The principal of these are as follows:

Off Carpathos:

A small rock lying about a quarter of a mile south of the entrance to the very narrow shallow channel separating Saria from Carpathos, and about 200 yards offshore.

Off Saria:

Two small rocks lying close offshore and about half a mile south of the north-east point of Saria.

Off Rhodes Island:

A small islet, nearly half a mile off the coast, about 2½ miles south-south-eastward of Cape Monolithos.

Gria Nisi, another small islet, close offshore about half a mile south-eastward of that point.

Nipuri, an islet about 2¾ miles northward of Cape Monolithos and the same distance east-south-eastward of the south-east end of Khalkia Island.

5. The 12-mile arcs centred on (i) the north-east point of Saria; (ii) on Myrtos Point, the south-east point of Khalkia Island; and (iii) on Ocotya Nisi, the islet off the west coast of Rhodes Island, do not overlap, but enclose an area with a maximum length of 2¼ miles and a maximum breadth of one mile.

32. The Sound (Annex, map No 34)

References: Charts Nos. 2115, 2114, 2150.
Baltic Pilot, Volume I, 1944.

1. The Sound, named by the Swedes Øresund and by the Danes Sundet, is the eastern of the passages connecting the high seas of the Kattegat with those of the Baltic. It runs in an approximate north-south direction, with Sweden forming its eastern shore and the Danish island of Sjaeland its western shore.

It is much used by international shipping as it forms the shortest route from the North Sea to the eastern part of the Baltic. It is, however, only available for vessels of moderate draught, as the depths in the southern part do not exceed 26 feet. Deep draught vessels from the northward can reach København on the Danish shore and Malmø on the Swedish side.

The northern entrance is funnel-shaped and the remainder somewhat resembles the shape of a horn.

Two islands, Ven and Saltholm, lie near the axis of the strait; the former is Swedish and the latter Danish territory. There are fairways on both the east and west sides of these islands.

The strait is entered from northward between Gilbjerg Hoved, the north point of Sjaeland, and Kullen, a prominent point on the Swedish coast about 11¾. miles north-eastward. From southward it is entered between Stevns Klint, a point towards the southern end of the east coast of Sjaeland, and Falsterbo Udde, the south-western extreme of Sweden, about 13¼ miles east-north-eastward.

An agreed international boundary divides the strait.

(i) The length of the strait between the above limits is about 58 miles. If, on the other hand, the length be considered as the distance between the most seaward intersections of 12-mile arcs centred on Denmark and Sweden at both ends of the strait, it is 80 miles long, for at the southern end the strait would be additionally lengthened by the inclusion therein of the eastern and northern coasts of Møen, an island lying south-eastward of Sjaeland.

(ii) The breadth of the strait at its northern entrance is 11¾ miles; 10 miles within the breadth is 3 miles; a further 4 miles within between Helsingor and Helsingborg the strait is constricted to its narrowest part and is 2 miles wide. Thence the strait widens. About 8 miles south of Helsingor the strait is nearly 8 miles wide, but is divided into two channels by the island of Ven; the channel on the west is 4½ miles wide and that on the east is 3½ miles wide. The strait continues generally to widen to a breadth of 15¾ miles abreast København, about 12 miles south of Ven. Thence it is restricted by Amager, an island separated from Sjaeland by a narrow channel, and also by Saltholm. The shortest distance between Amager and the coast of Sweden is 7½ miles and the channels east and west of Saltholm have breadths of 3¾ and 2½ miles respectively.

Southward of Amager is Køge Bugt, a bay conforming to the definition in article 7 of the International Law Commission's report of 1956. The width of the strait combined with the "depth" of the bay is about 26 miles. Southward of this bay the strait is again constricted to its southern entrance between Stevns Klint and the rocks off-lying Falsterbo Udde to a breadth of 13½ miles.

The southern approach to the strait has a breadth at its southern end between Møen and the rocks off Falsterbo Udde of about 23 miles and a maximum width of 27 miles.

(iii) Depths in the fairway of the northern part of the Sound as far south as København and Malmø vary between about 7 and 14 fathoms. In the wider parts the coastal banks, with less than 6 fathoms over them, extend up to about 3½ miles offshore in places. In the narrower parts these distances are considerably less.

About 1½ miles north of Helsingor, on the western side of the fairway, is a detached bank with 2¾ fathoms over it and on the axis of the strait about a mile south of Helsingor is a bank, about 3 miles long, with less than 6 fathoms over it and a least depth of 4½ fathoms. The coastal bank around Ven is narrow.

In general, depths between Amager, Saltholm and the Swedish coast south-eastward are less than 6 fathoms, with numerous shoal patches some of which have less than one fathom over them. The Drogden Channel between Saltholm and Amager has been dredged to allow a narrow passage with depths of 26 feet. South-west of Saltholm, by keeping on a leading line, depths of 23 feet can be carried from the deeper water north-east of the island to the Baltic.

West of a line joining the edge of the coastal bank about 4 miles south of Amager to the edge of the coastal bank about 6 miles south-west of Falsterbo Udde the general depths are between 6¼ and 12 fathoms.

Channels have been dredged through the coastal banks where necessary to give access to the ports within the Sound.

3. Navigation through the Sound presents no particular difficulties in clear weather. There are ample navigational lights and light-vessels, and the channels in their narrower parts are well buoyed. There are several radio aids.

Although there is no appreciable tide the waterlevel is liable to considerable seasonal variations and may rise or fall as much as 7 feet above or below the mean level. Continued strong winds in the Baltic or northern approaches to the Sound have considerable effect on the level.

Signals are displayed in various places to indicate the variation in level.

The currents in the Sound are uncertain and varied; in general they are north-going and south-going, the former predominating. Their direction and rate are considerably affected by air pressure and winds and over the shoaler areas by the changes in the water level, but mostly they conform to the main directions of the fairways. In the narrow part off Helsingor their rates may attain at times 4 or 5 knots.

There are a number of ports in the Sound. In the winter these are kept clear of ice. Køpenhavn, the capital of Denmark, is situated on the western side close north of Amager. Here there are depths of up to 39 feet in the roadstead, plenty of alongside accommodation and all modern port facilities; alongside berths have depths up to 32¾ feet.

On the Swedish side are Malmø, Landskrona, Helsingborg, Limhamn and Hoganas.

Malmø, east of Saltholm, has depths in the roadstead of about 8 fathoms and ample alongside accommodation in depths up to 30 feet with all necessary facilities.

Landskrona, about 15 miles north of Malmø, has depths in the roads up to 36 feet; in the port there is plenty of quayage with depths alongside of from 20 to 30 feet.

Linhamn, about 3 miles south-west of Malmø, has depths at its quays of approximately 25 feet; at the tanken quay two or three vessels of 16-18,000 tons can berth simultaneously.

Helsingborg, on the eastern side towards the narrow northern end of the Sound, has quayage with depths alongside up to 32 feet and all facilities.

Hoganas, 13 miles north of Helsingborg, is a small harbour with depths of between 14 and 21 feet.

A canal with depths of 23 feet has been cut through the isthmus of the peninsula of which Falsterbo Udde forms the south-west end. Considerable driftnet fishing takes place in the Sound during certain months of the year.

4. There are no drying features charted from which the limits of the territorial sea can be extended, as there is no tide. The following are small above-water rocks which qualify to do so:

On the western side:

Middlegrund Fort, nearly 2½ miles east of the northern end of København.

Flak Fort, about 4 miles east of København and 2 miles north of Saltholm.

A number of small rocks close off the north end of Saltholm, and a number of similar ones east and south-east of the south-eastern end of that island. The most distant is 1½ miles offshore.

On the eastern side:

A small rock nearly a mile south of Landskrona.

A number of small rocks lying up to a mile offshore off the north-eastern shore of a bay or indentation of the coast, north-eastward of Falsterbo Udde.

A group of small rocks, lying between three quarters of a mile and 1¾ miles southward of Falsterbo Udde.

33. Singapore Strait (Annex, maps Nos. 35 and 36)

References: Charts Nos. 2403, 1353.
Malacca Strait Pilot, Third Edition, 1946.

1. For the purpose of this study the Singapore Strait, which separates the Indonesian islands lying off the Sumatra coast from the southern coasts of Johore and Singapore Island, will be considered as the continuation of the southern end of the Strait of Malacca lying between the intersection of 12-mile arcs centred on the opposite shores at the north-western and eastern ends of the Strait. The Strait is a focal point for international shipping, and joins the high seas of the Malacca Straits to those of the South China Sea. The Durian Strait, Sugi Strait, Chombol Strait and Riouw Strait all lead south-eastward to the South China Sea between the Indonesian islands on the southern side of the Singapore Strait.

2. The western end of the Strait may be considered as the intersection of 12-mile arcs centred on Tokong Belanda, an above-water rock about 3 miles north-west of Groot Karimun, and Pulau Pisang, about 19 miles northward, and the eastern end as the intersection of similar arcs centred on the low-water line of Tanjong Berakit and on the easternmost drying rock of the group of above-water and drying rocks on which stands the Horsburgh Lighthouse, which is maintained by the Government of Singapore. This group lies 7 miles north of Pulau Bintan and about 5¾ miles east-south-east of Stork Reef, a drying reef 2 miles off the Johore coast.

3. The length of the Strait between the above limits is about 75 miles.

(*a*) The Strait at the western end first narrows to a width of 7¾ miles between Pulau Iju and Pulau Kukub. Distances within the Strait will be given from the line joining these islands.

(*b*) 6 miles within, the breadth is 8¾ miles and thence it widens rapidly, with the entrances to Durian, Sugi and Chambol Straits on the south side and the western approach to the Johore Strait on the north side.

(*c*) 17 miles within, the Main Strait is restricted to a breadth of 4 miles between the reef on which is Pulau Nipa and Pulau Pawai, 6½ miles south of Singapore Island.

(*d*) 22 miles within, the breadth is just under 3 miles between Pulau Takong and the islet on which is Raffles Lighthouse.

(*e*) For the next 10 miles, a general breadth of between 2½ to 3 miles is maintained between the islets and the drying reefs lying off Pulau Batam on the south side and Singapore Island on the north.

(*f*) About 41 miles within, the Strait is 8 miles wide between Pulau Batam and Singapore Island, it thence widens into the eastern approach to Johore Strait and Kuala Johore, and narrows again to about the same width a further 7 miles within.

(*g*) Thence the Strait widens with the approach to Riouw Strait on the southern side after which it retains a general width between Pulau Bintan and the south-east coast of Johore of about 12 miles over a distance of about 9 miles.

(*h*) Towards the eastern end, the group of rocks on

which stands Horsburgh Light divides the Strait into two. South Channel, the southern part, is 5½ miles wide between the north coast of Pulau Bintan and a drying rock 1½ miles south-west of the Horsburgh group, and 9¾ miles wide between the group and Tanjong Berakit. Middle Channel, the northern part, is 5¾ miles wide between the Horsburgh group of rocks and a drying reef 2 miles off the south-eastern point of Johore.

4. The main fairway of the Strait runs between the territory of Indonesia and that of Malaya and Singapore ; it is comparatively deep and depths in general vary from 10 to 30 fathoms, although there are a few shoal patches. It is well marked for both day and night navigation. There are a number of drying reefs on both sides of the Strait, but these lie within short distances of land permanently above water. The rise of the tide is about 9 feet ; tidal streams may be strong with many overfalls and eddies. Heavy rain squalls frequently reduce the visibility.

5. Ports within the area on the northern side are Singapore, with a roadstead and alongside accommodation with all modern facilities for vessels up to 33-feet draught ; Pulau Bukom and Pulau Sebarok, 5 miles south-west of Singapore, with oil loading and discharging facilities and depths alongside up to 45½ feet and 38 feet respectively. On the southern side are Pulau Sambo, about 9½ miles east of Raffles Lighthouse, with oil loading and discharging facilities and depths alongside up to 30 feet ; Tandjong Uban, close within the Riouw Strait, with alongside depths up to 41 feet.

6. Navigation would be possible on each side of a median line through the Strait.

ANNEX

MAP No. 1
Straits of Bab el Mandeb
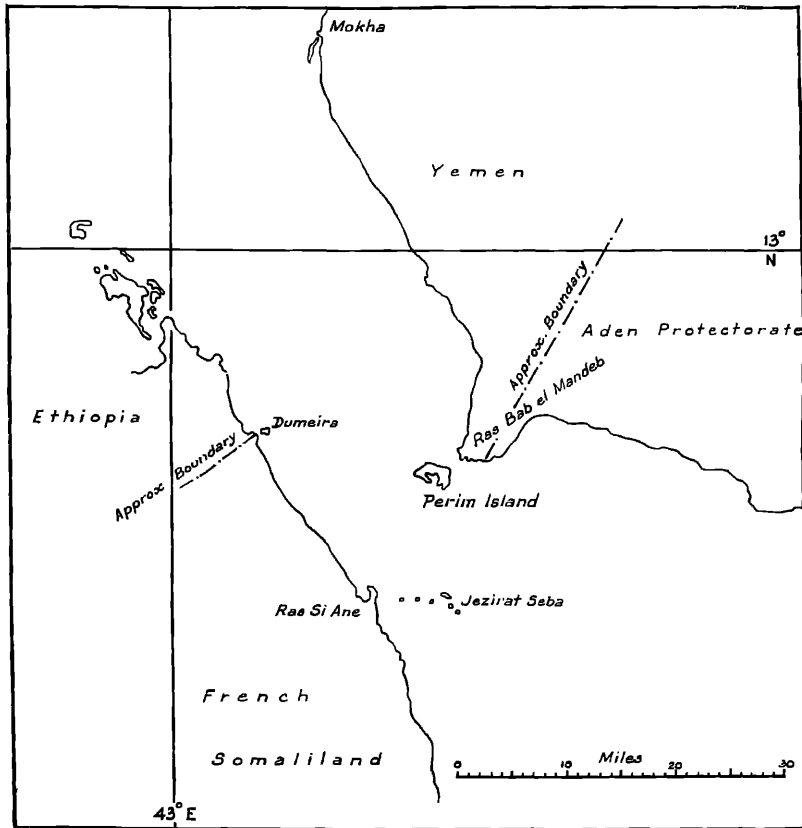
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Strait of Gibraltar
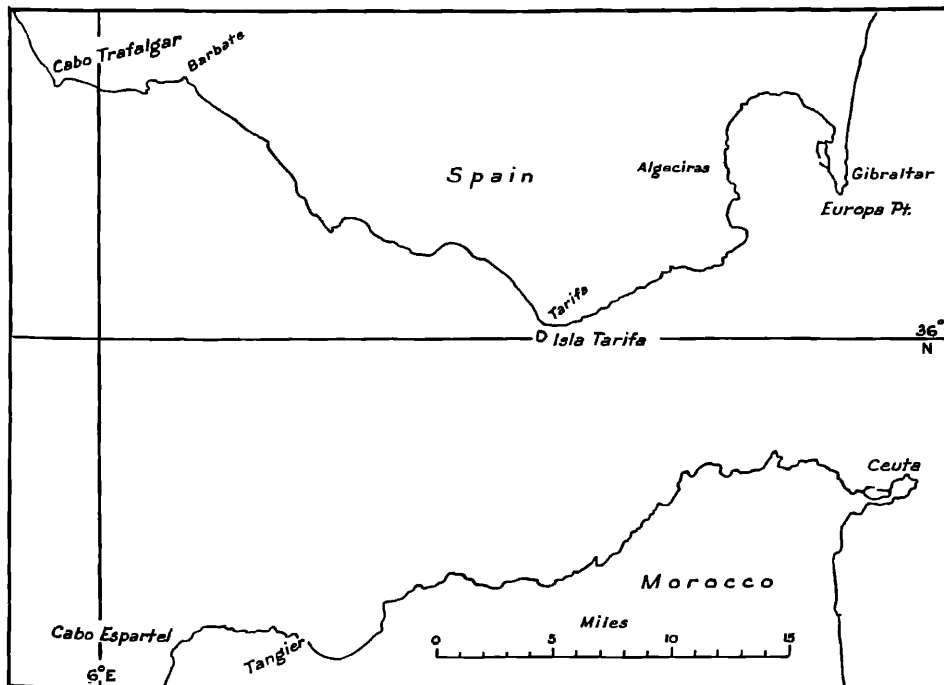
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Zanzibar Channel
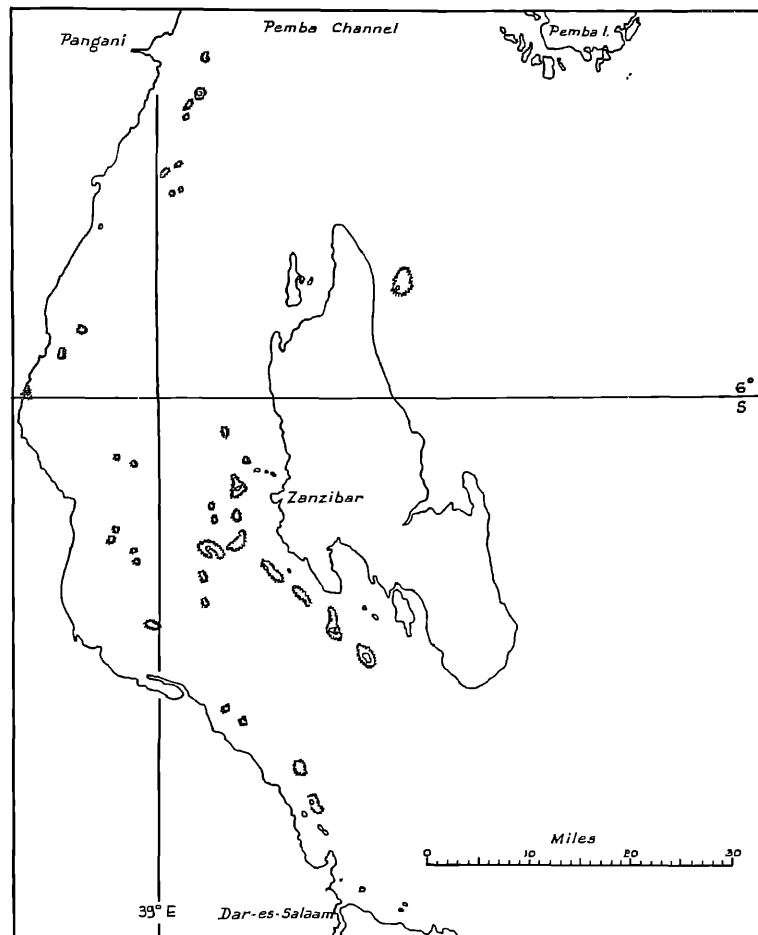
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Serpents Mouth
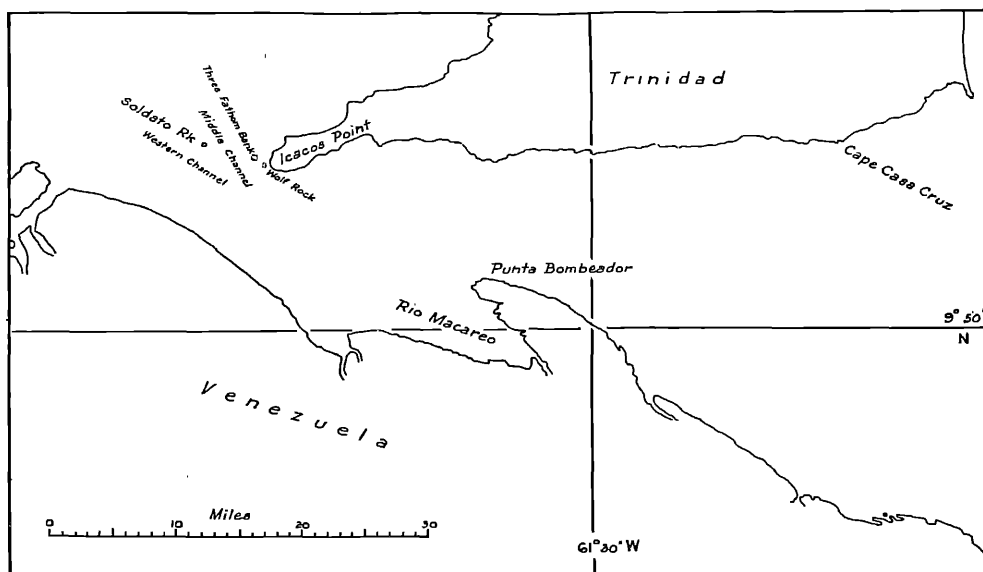
MAP No. 5

Dragons Mouth
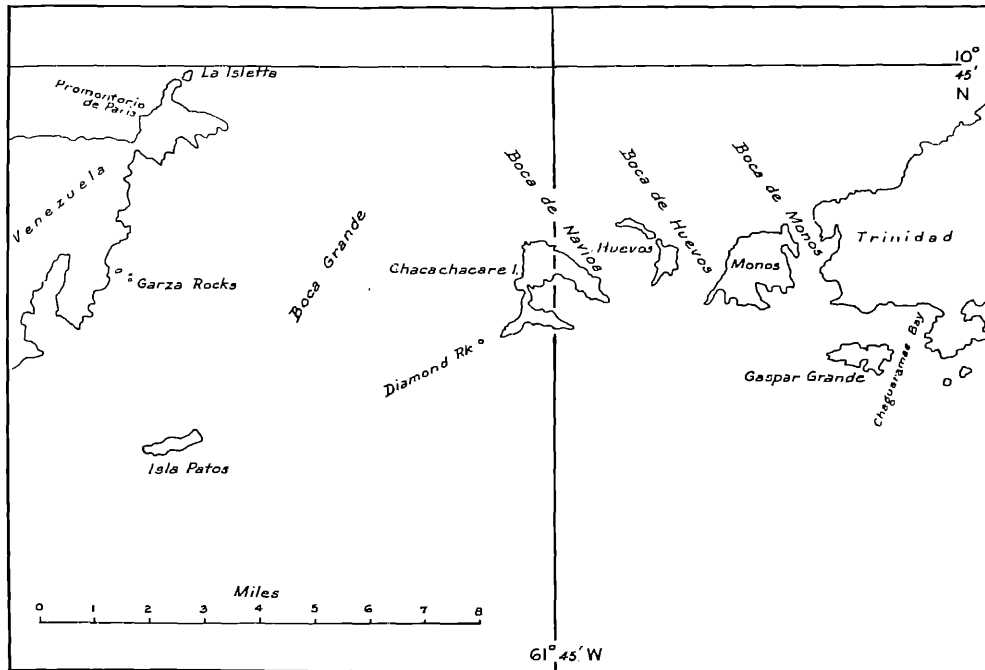
MAP No. 6

St. Lucia Channel
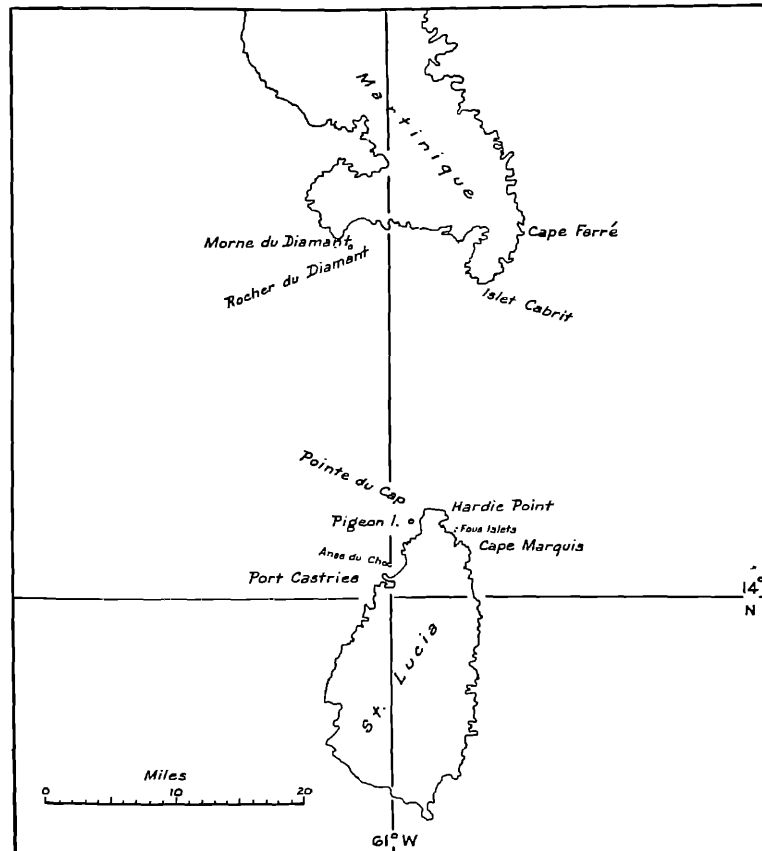
MAP No. 7
Strait between St. Lucia and St. Vincent
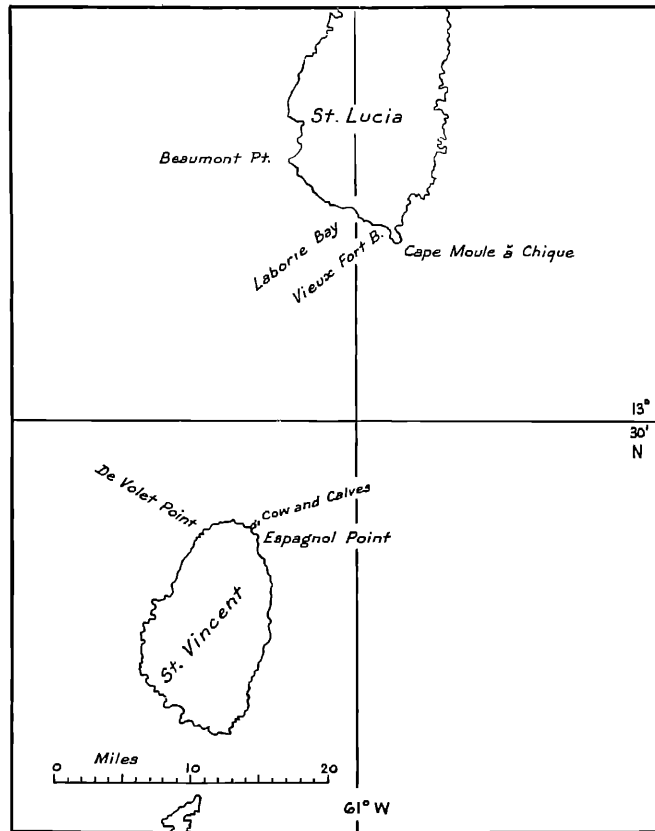
MAP No. 8
Dominica Channel
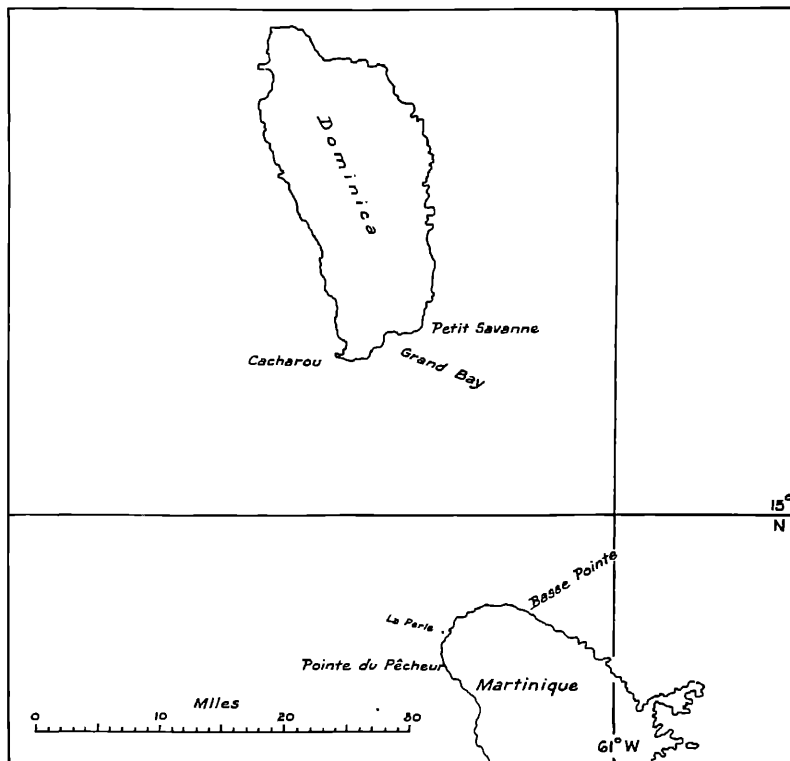
MAP No. 9

Straits between Dominica and Guadeloupe
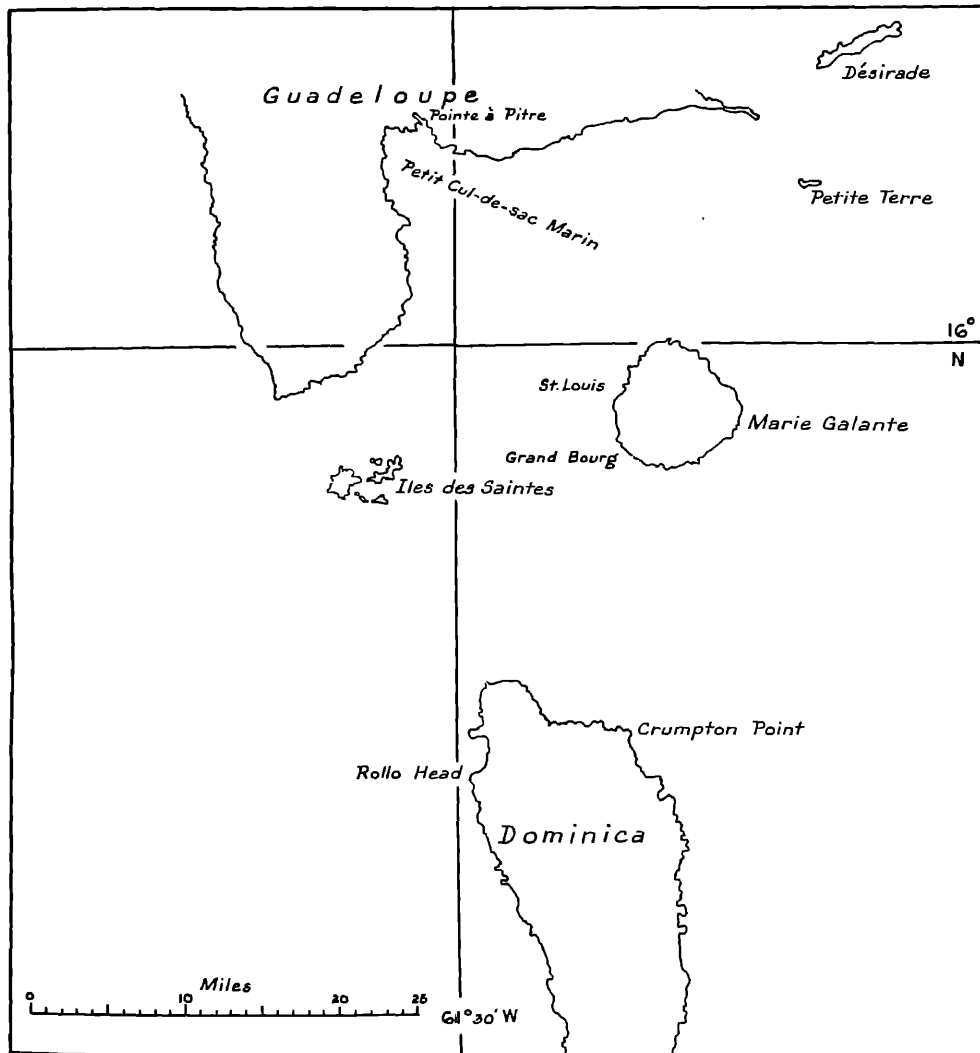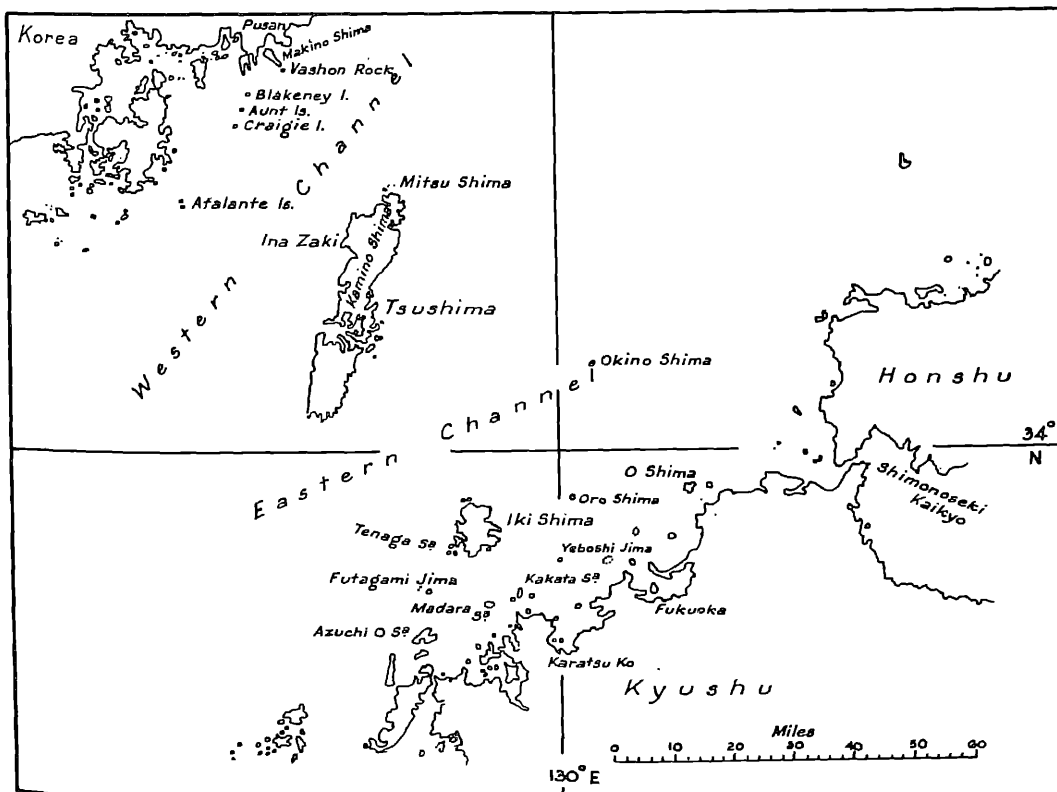
MAP NO. 10

Magellan Strait (Western Part)
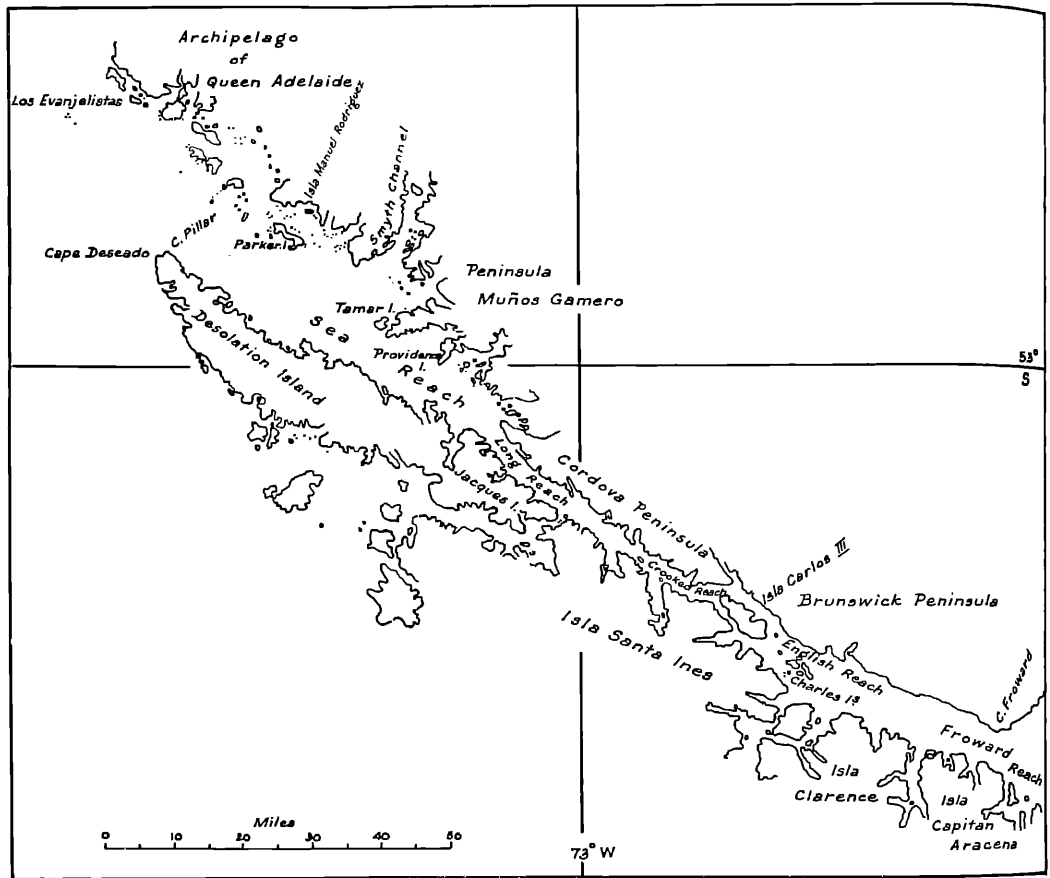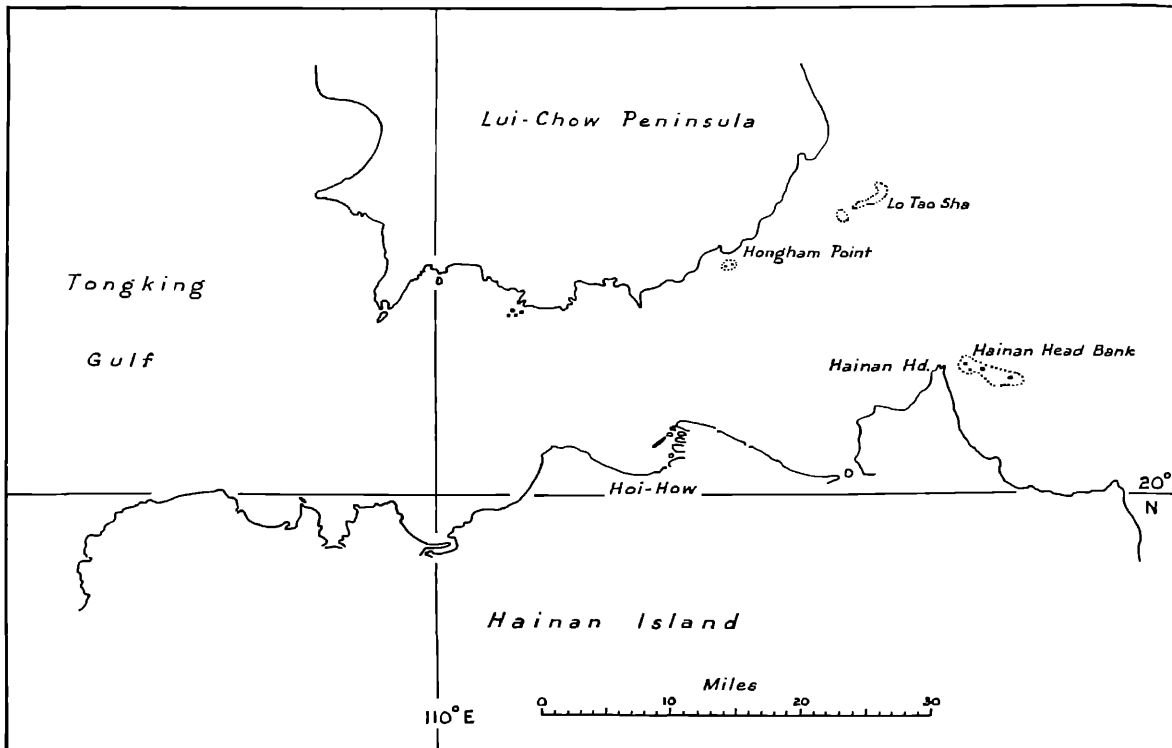

MAP NO. 12

Strait of Juan de Fuca
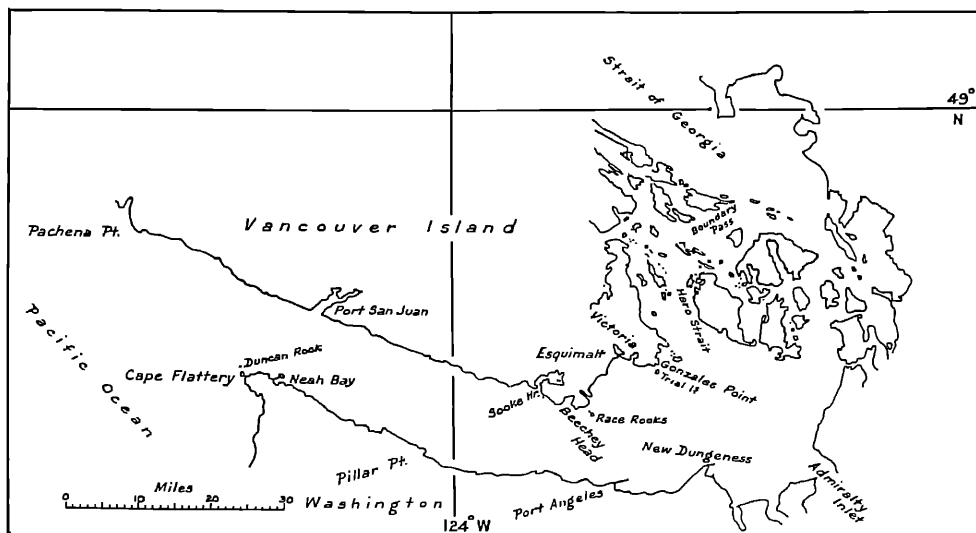
MAP No. 11
Magellan Strait (Eastern Part)
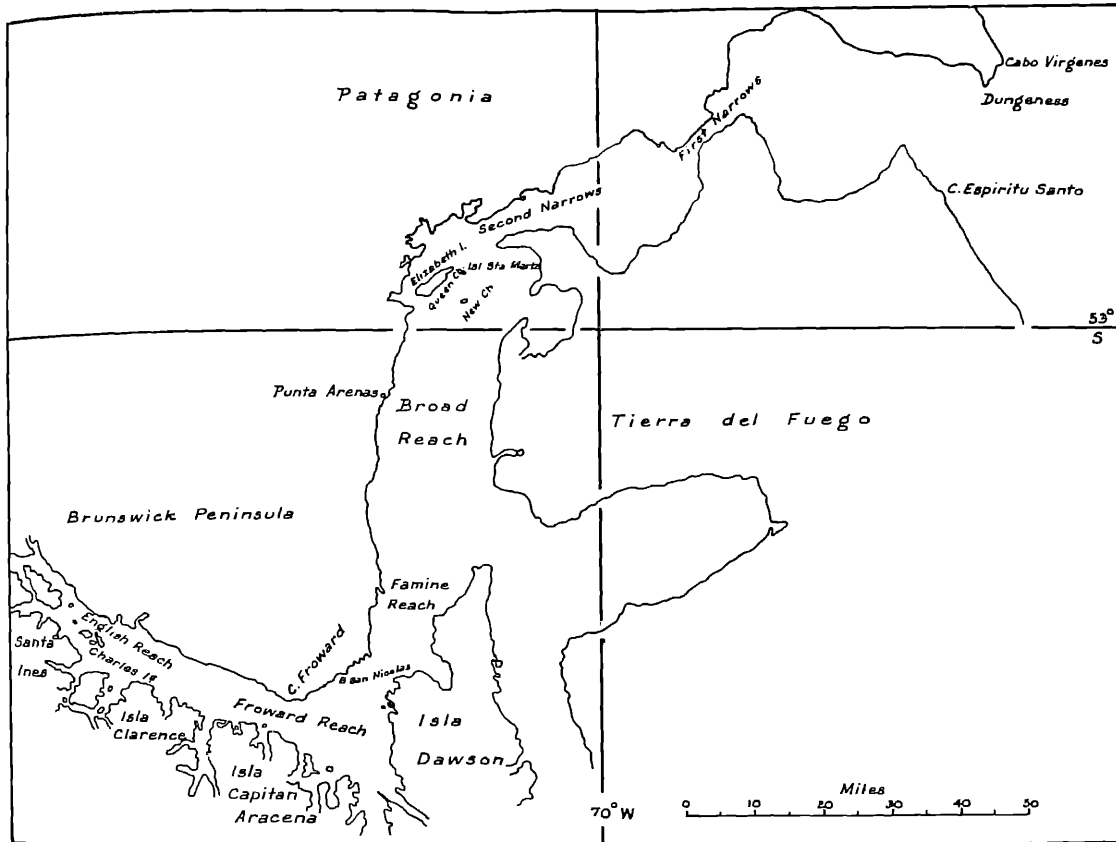
MAP No. 13
Chosen Strait

MAP No. 14
Hainan Strait

MAP No. 15
Palk Strait
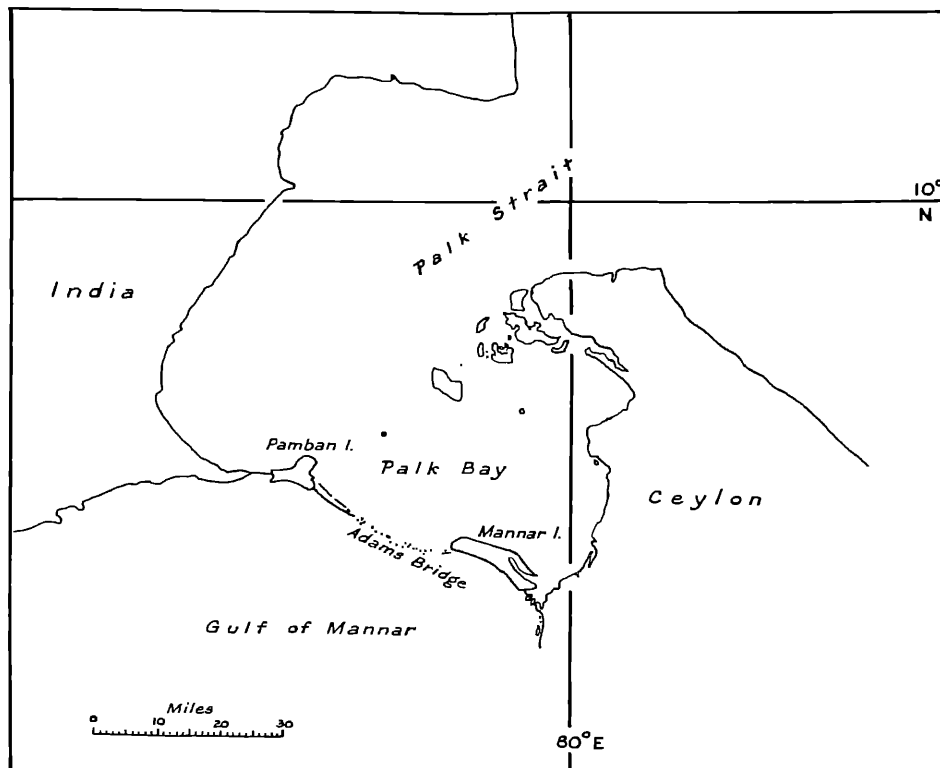
MAP No. 16
Strait of Malacca
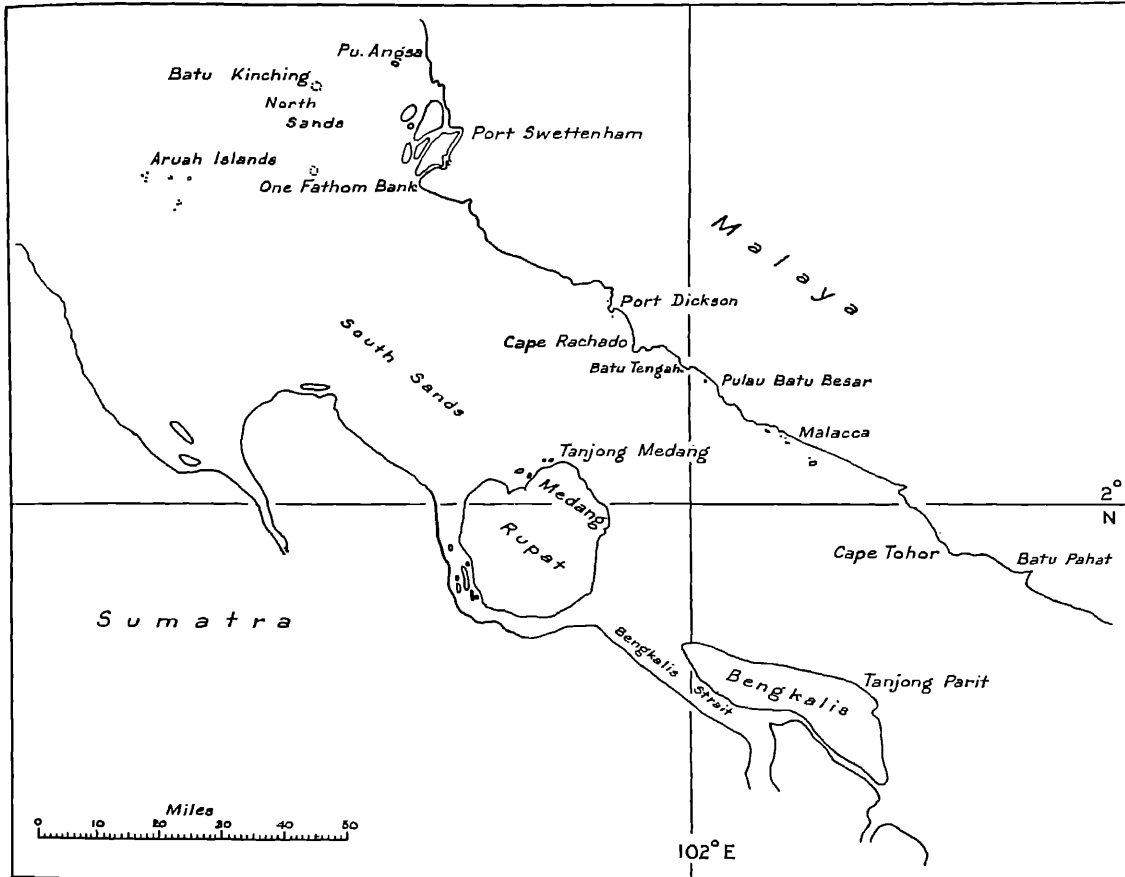
MAP No. 17
Ombae Strait
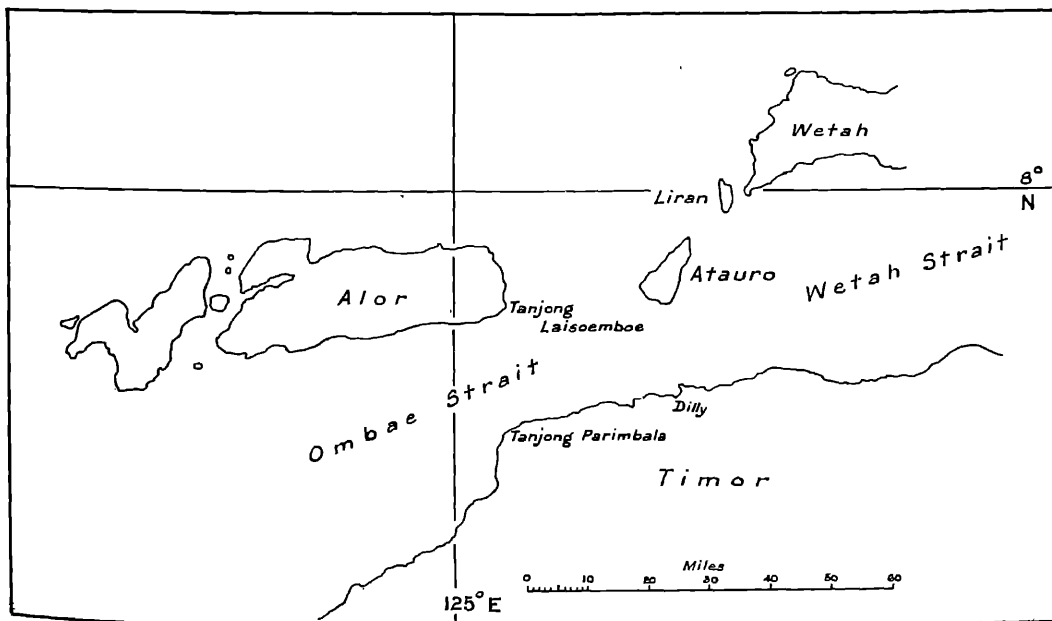
MAP NO. 18

Soenda Strait
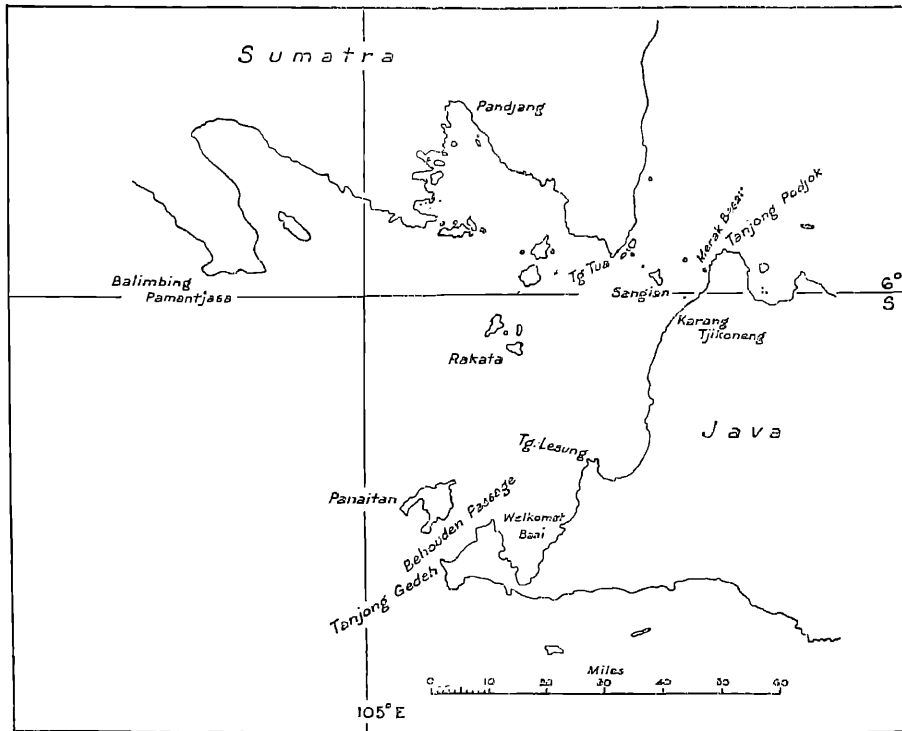
MAP NO. 19

San Bernardino Strait
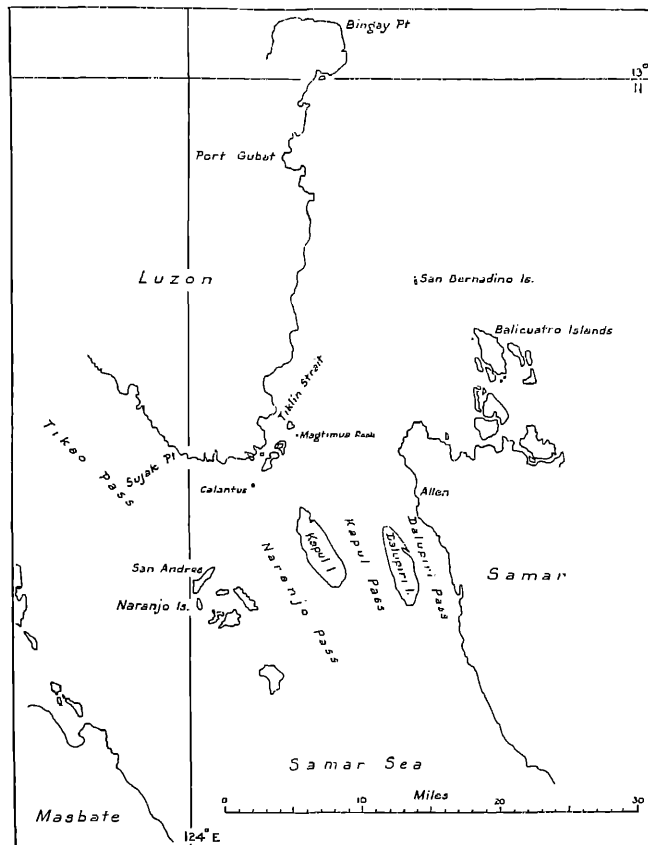
Map No. 20

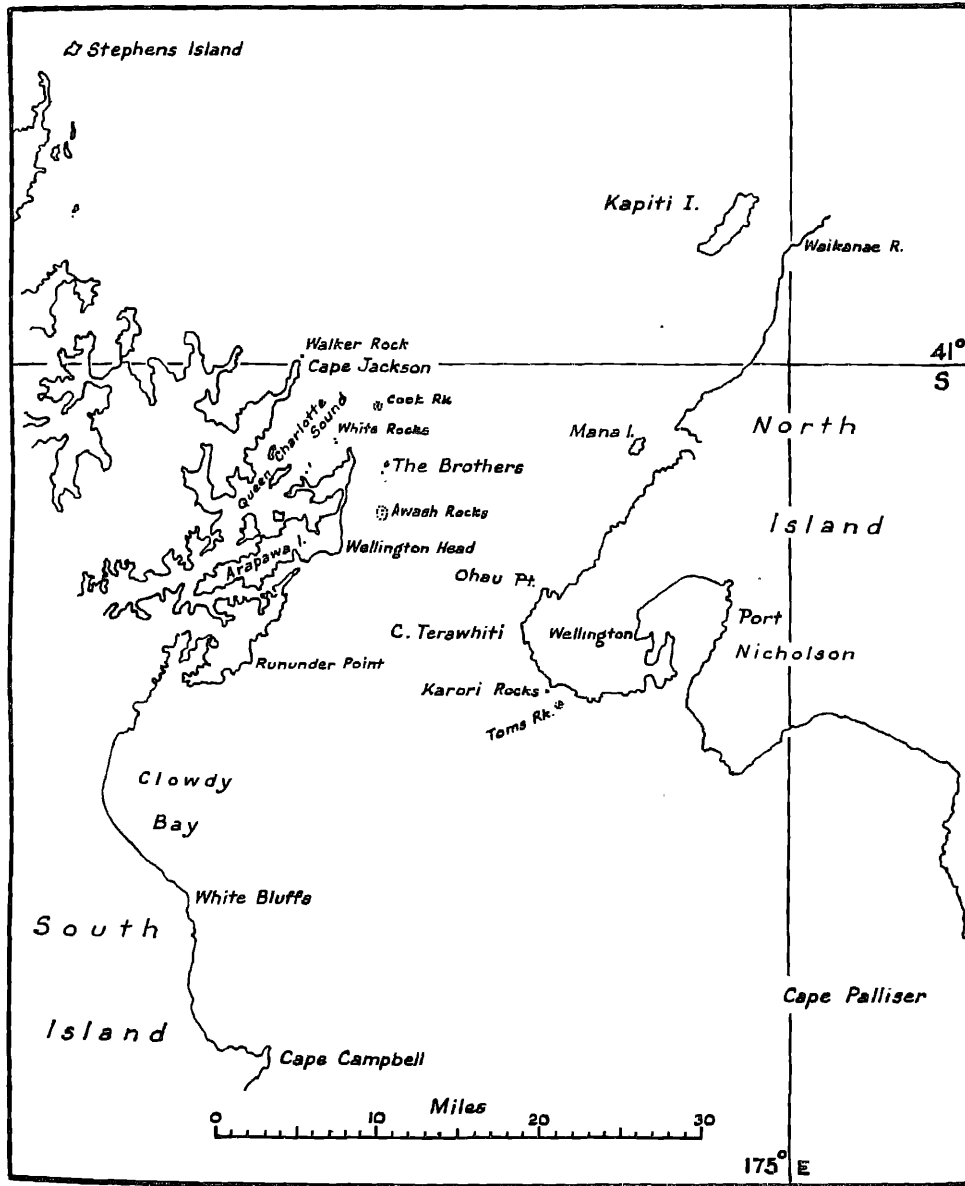**Surigao Strait**
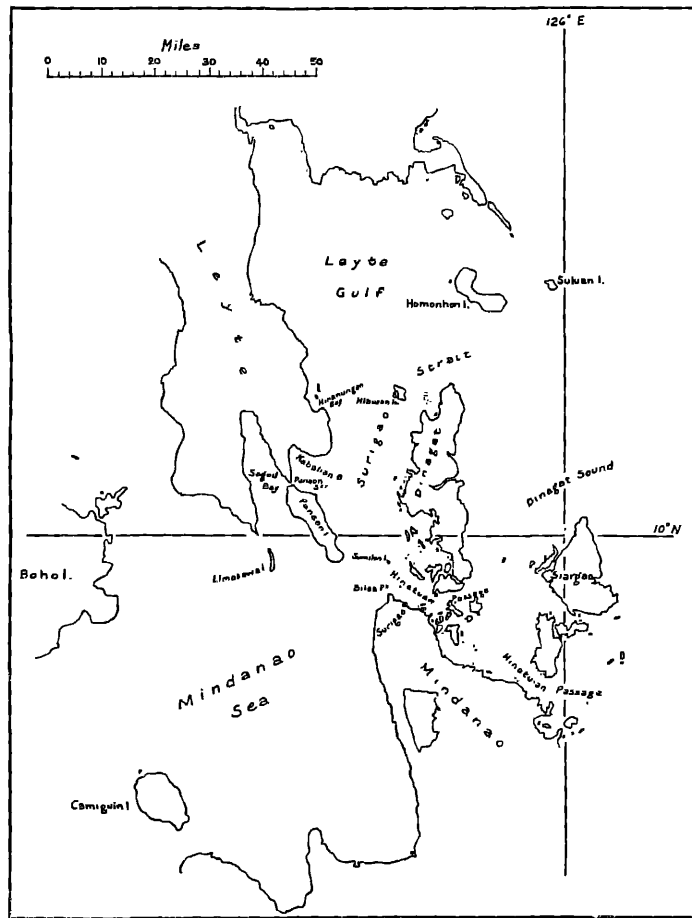
Map No. 21

Strait of Hormuz
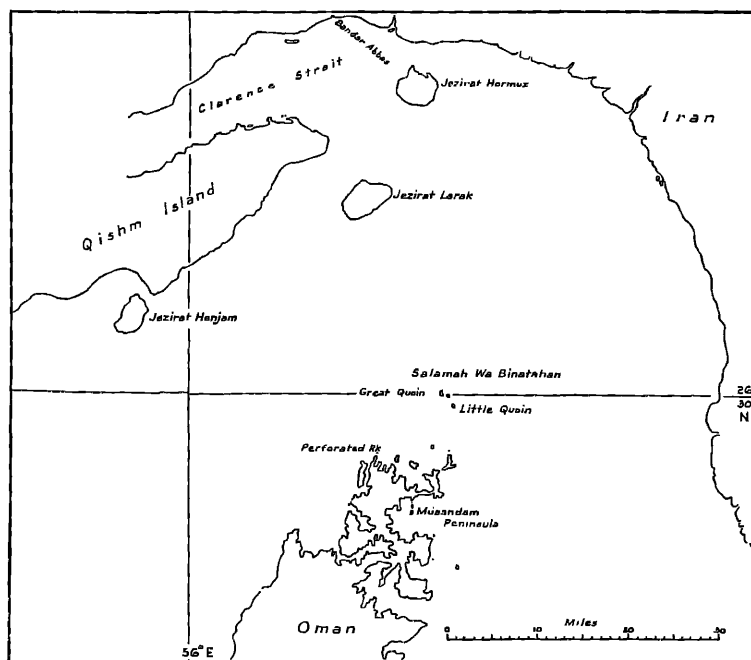
MAP No. 22

St. George's Channel (Bismarck Archipelago)

Bismarck Sea

4° N

New
Ireland

Makada I.
West Ununga
Duke of York I.
Duke of York
Group
C. Tawui
Rabaul
Praed Pt
Blanche Bay
Credner Is
C Gazelle

New

Britain

St. George's Channel

Waterca Pt
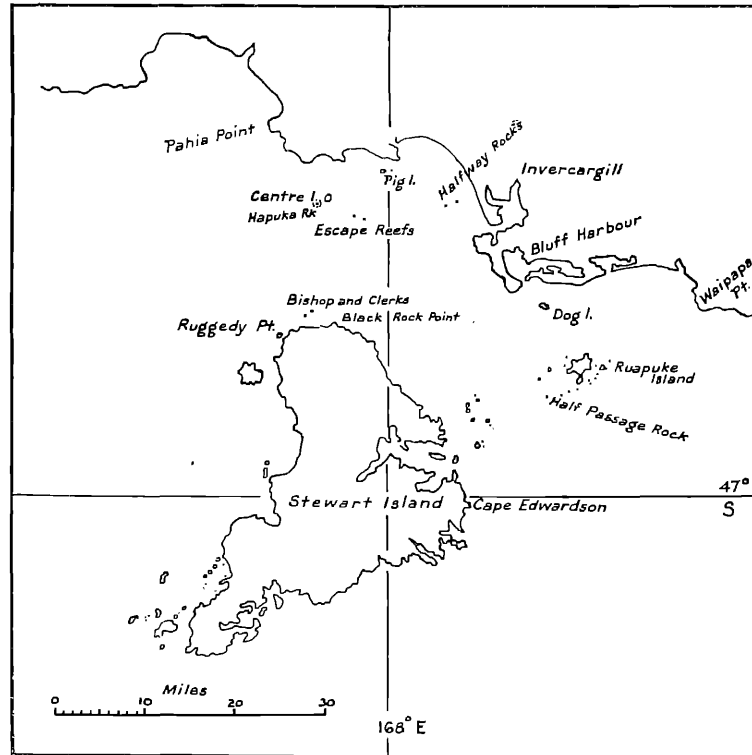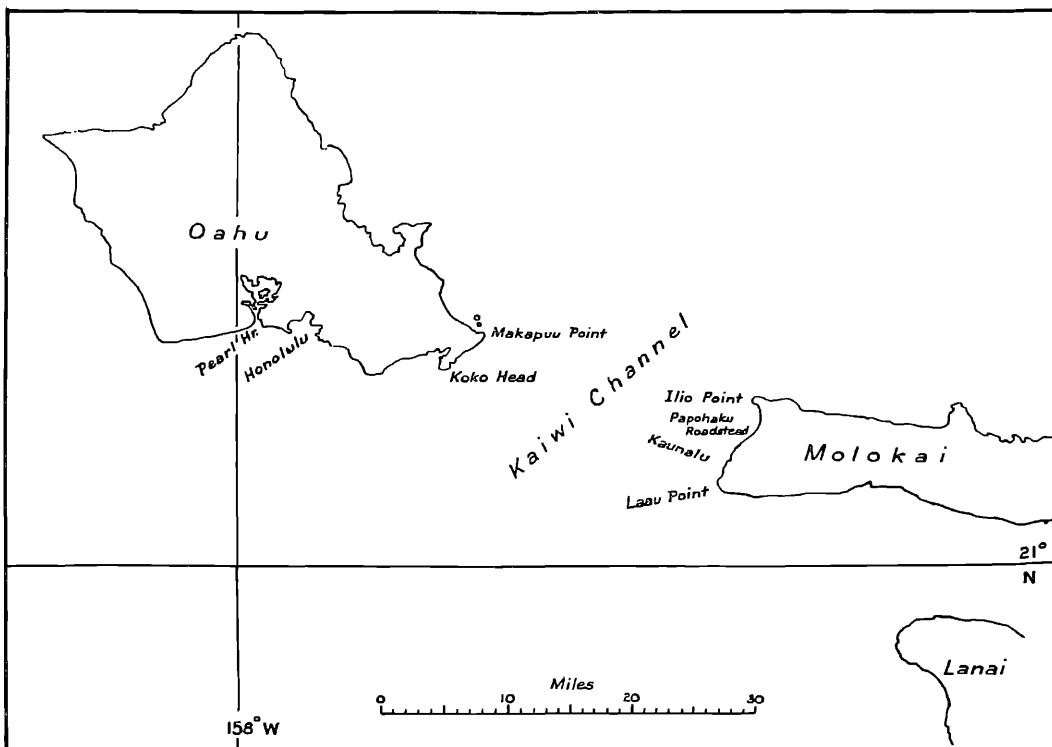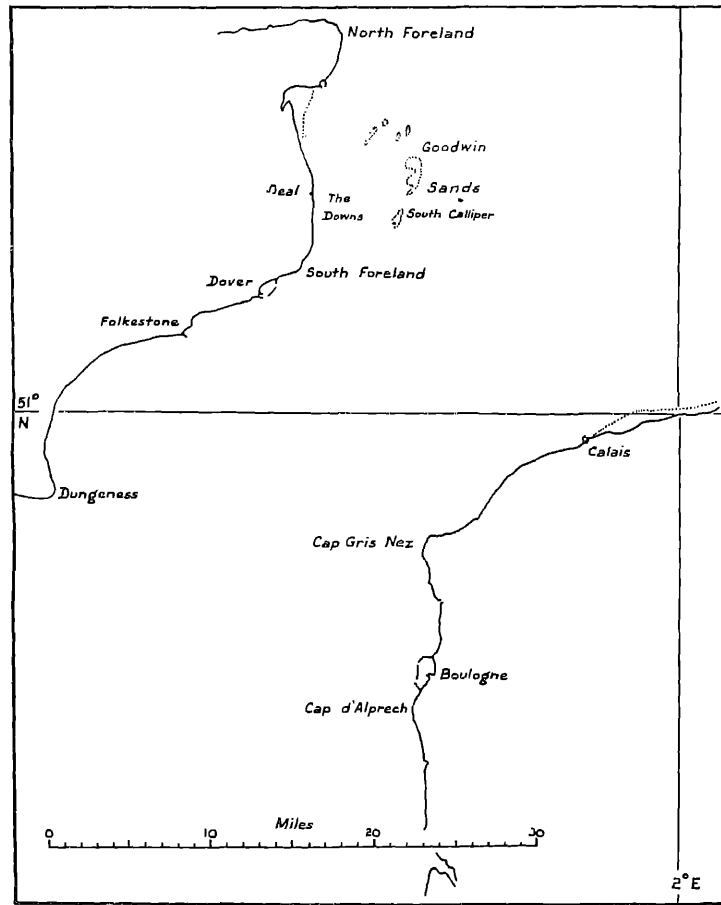
Solomon Sea

153°
E

Miles
0   10   20   30
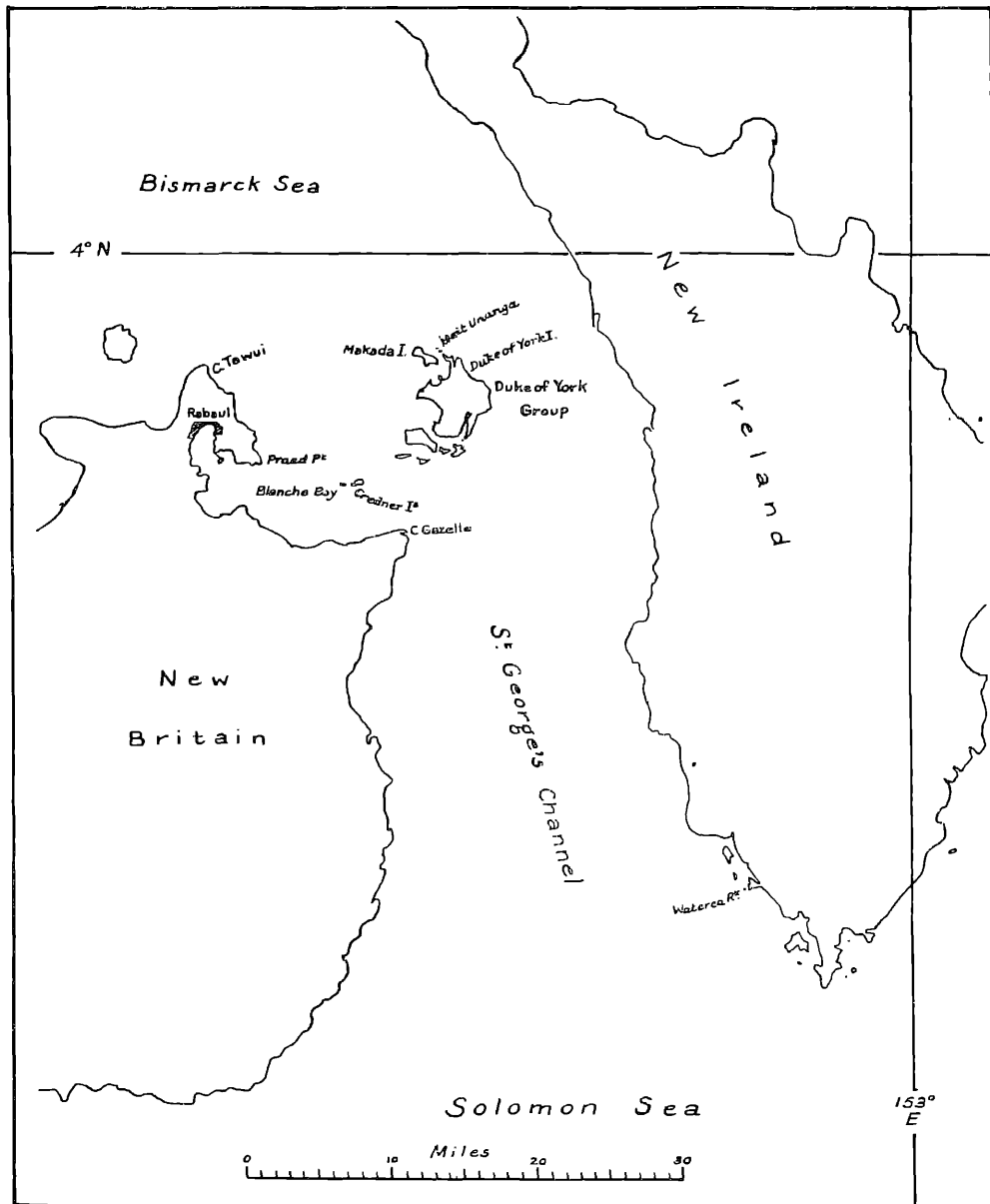
MAP No. 23

Cook Strait

MAP No. 24

Foveaux Strait

MAP No. 25

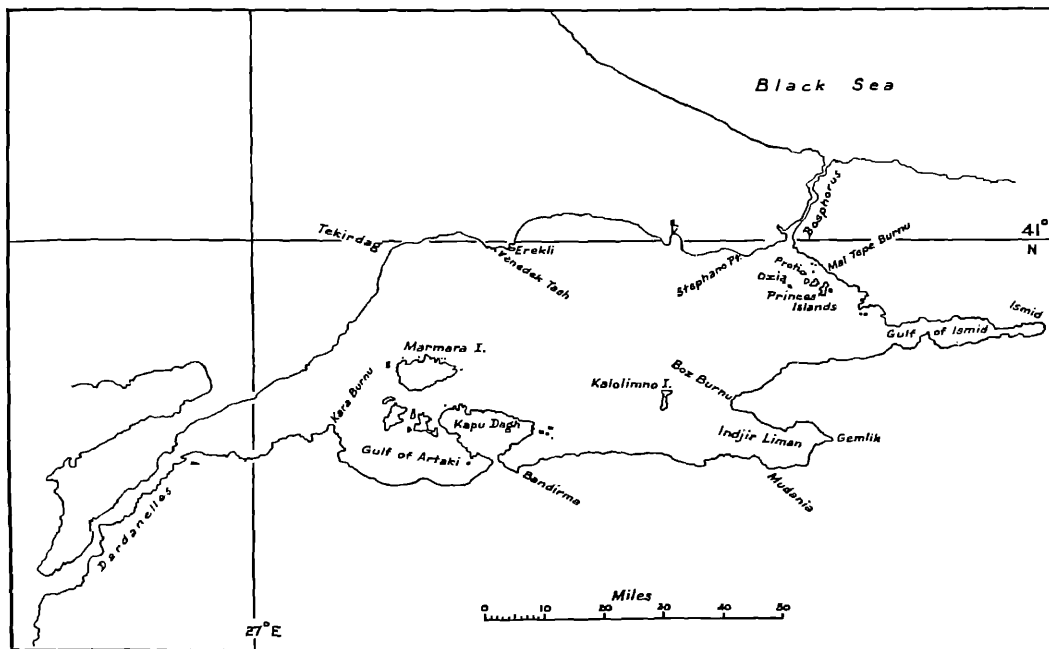**Kaiwi Channel**

MAP No. 26

Dover Strait

North Foreland

Goodwin

Sands

South Calliper

Deal

The
Downs

Dover South Foreland

Folkestone

51°
N

Calais

Dungeness

Cap Gris Nez

Boulogne

Cap d'Alprech

Miles
0   10   20   30

2° E

MAP No. 27

Canal of Menorca

Bajoli de Menorca
Ciudadela 40°
Menorca N

Cabo Formentor

Pollensa Bay

Cabo Dartuch

Alcudia Bay

Cabo Farruch
Farayo de Aubarca
Cabo del Freu

Cabo Pera

Mallorca

Cabo del Pinar

Miles
0   10   20   30

4° E

MAP No. 28

Strait of Messina

STRAIT OF MESSINA

Capo Barbi

Capo Rasocolmo

Capo Peloro

Scilla

Villa San Giovanni

Messina

Sicily

Italy

Reggio

Capo d'Ali

Punta Pellaro

38°
N

Capo del Armi

Miles
0   5   10   15

Capo San Andrea

15°30' E

MAP No. 29

Strait of Bonifacio

Toro Rocks

41°
30'
N

La Prâtra

Les Moines

Corse

Iles Bruzzi

Testa de Gatto

Pointe Capicciole

Cap de Feno

Ile Perduto

Ecueil de Perduto

Bocca Grande

Ile Lavezzi

Ecueil de Lavezzi

Scoglio Cattot

Isolotto La Presa

Isola Razzoli

Corcelli Island

Isola Budelli

Isolotto Munica

Punta Marmorata

Arcipelago

della   Maddelena

Capo Testa

Maddalena

Sardinia

Isolotto Caneddi

Miles
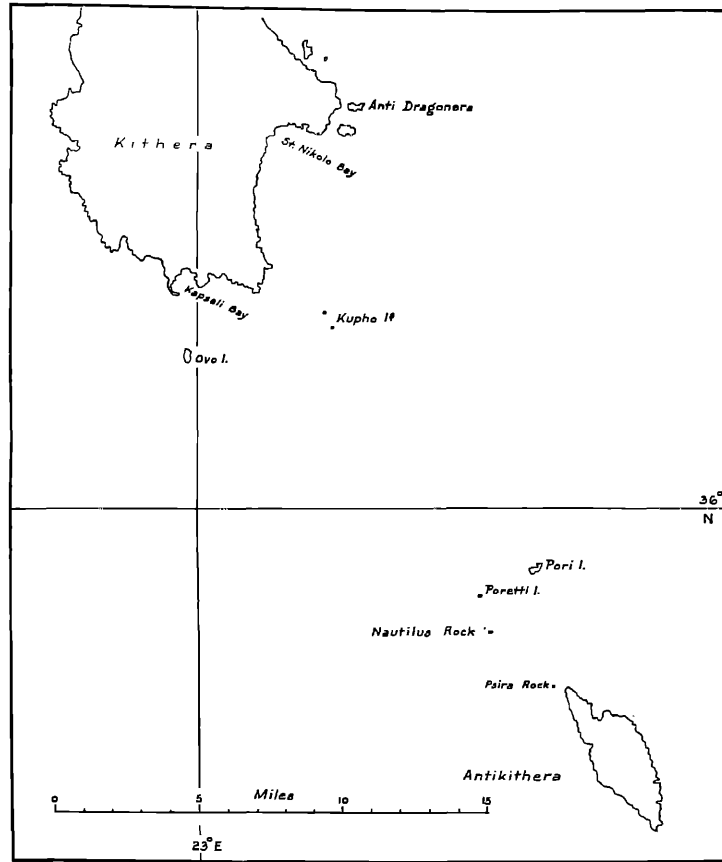0   5   10   15

9°30' E

MAP No. 30

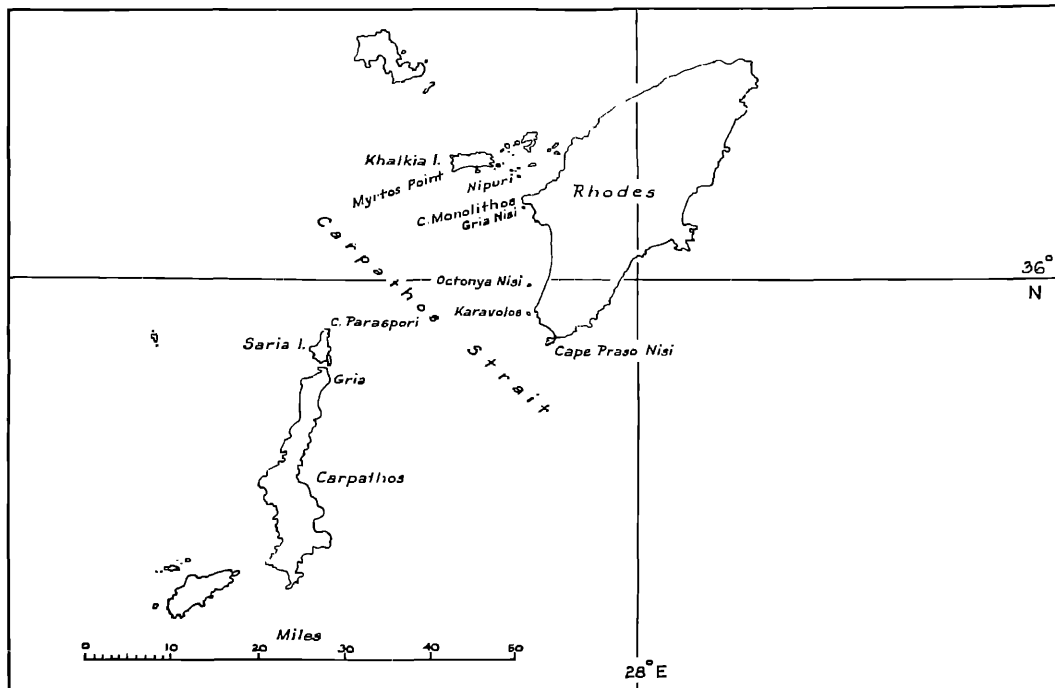**Sea of Marmara**
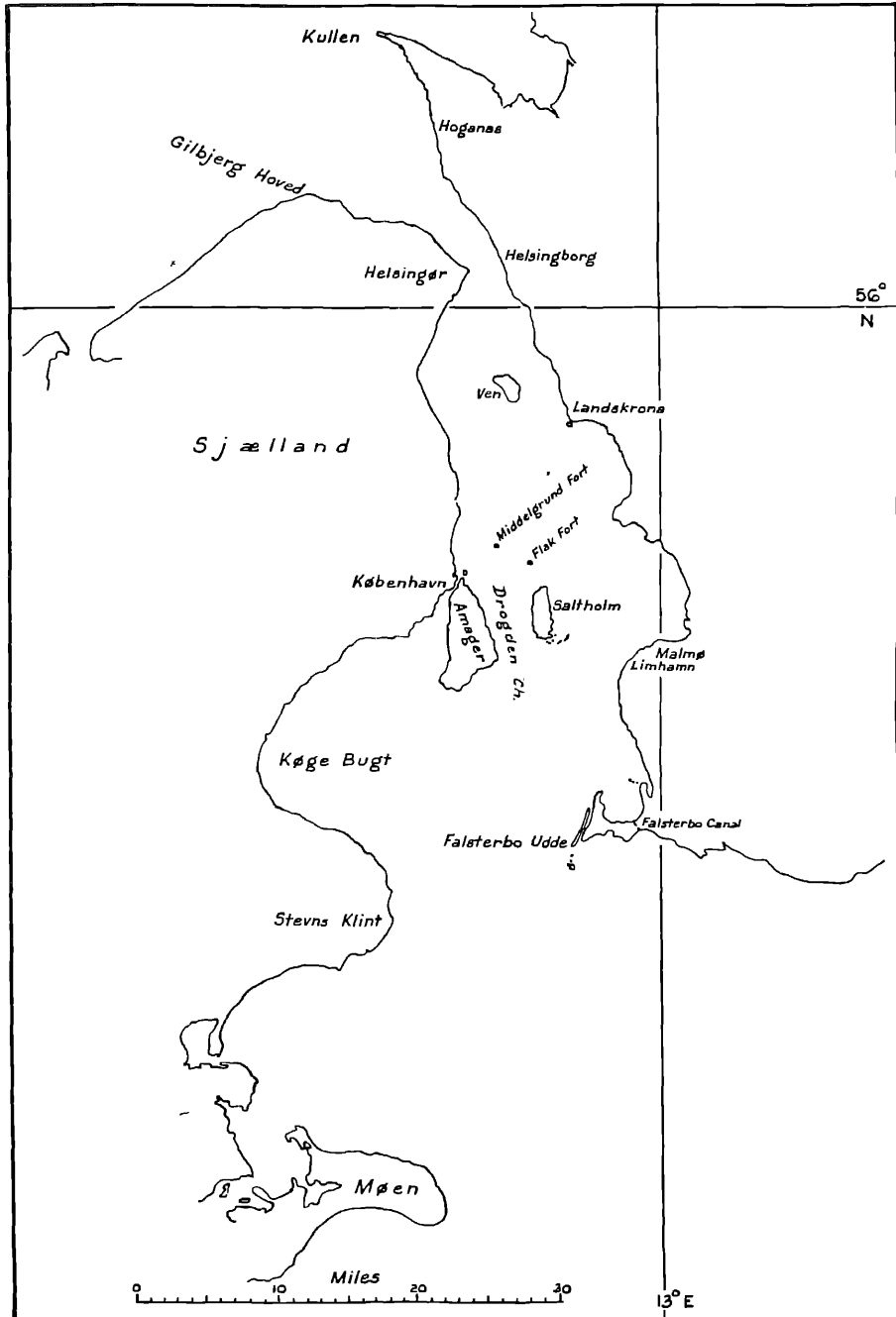

MAP No. 31

The Dardanelles and Bosphorus
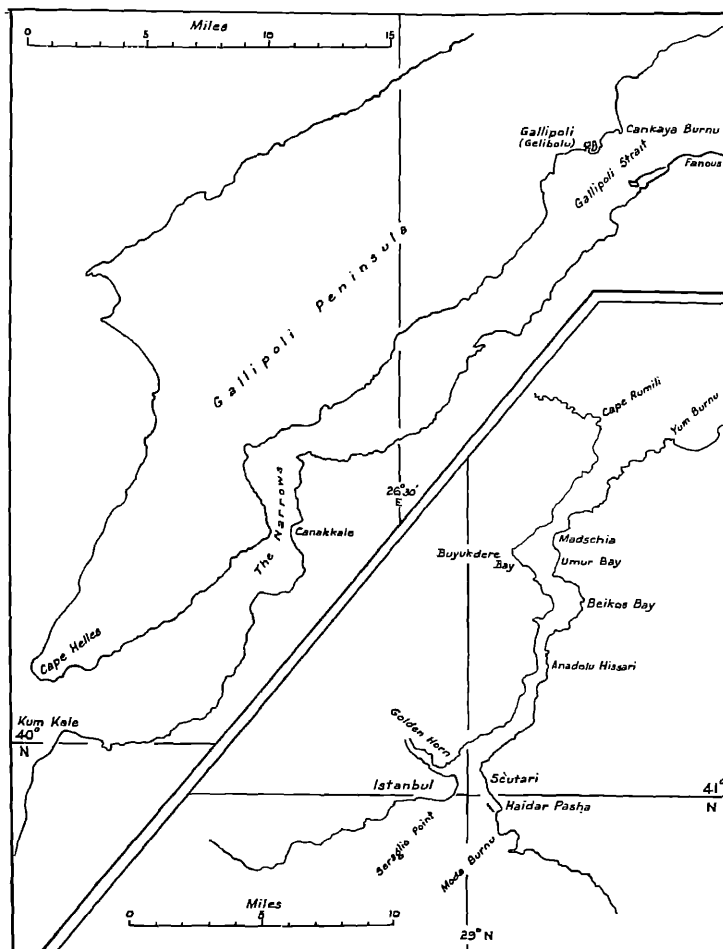
MAP No. 32
Kithera Strait

MAP No. 33
Carpathos Strait

MAP No. 34

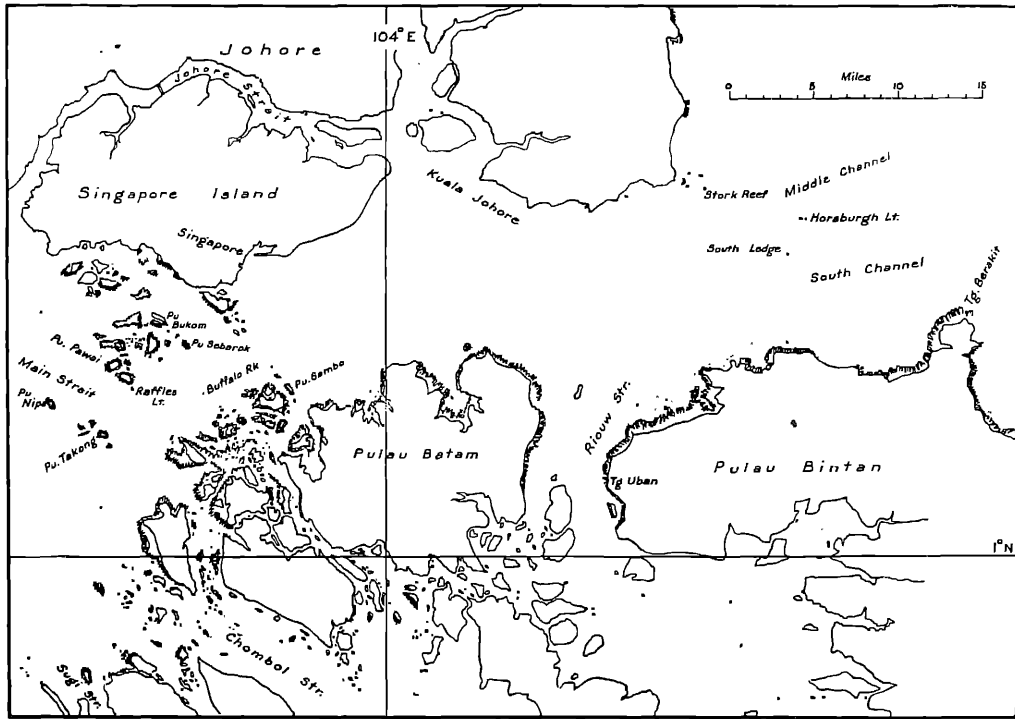**The Sound**

MAP No. 35

Singapore Strait (Eastern Part)

MAP No. 36

Singapore Strait (Western Part)