island and the base of Mount Herman. Grass is quite pronounced on the higher slopes of Spruce Island. The higher summits are barren. The waters adjacent to the northern and eastern shores of the island have not been completely surveyed.

About 1 mile off the western shore of Spruce Island and approximately on a line between Three Brothers and Wooded Island are two dangers: a kelp-marked shoal with a depth of 2 fathoms lying about 1 mile from Three Brothers and a rocky islet, 24 feet high, lying 0.9 mile from Wooded Island.

Reefs extend 600 yards off the western shore of Spruce Island, 0.8 mile northward of Uzinki Point, described later in this chapter.

Wooded Island, 174 feet high, lies 300 yards off **Zapadni Point,** the promontory on the west side of Spruce Island. It is heavily wooded. A fair anchorage protected from easterly winds can be had just to the southward of the island. A 3-fathom shoal lies 700 yards 098° from the southwest end of Wooded Island.

The Triplets, 2 miles westward of North Cape, are a chain of three high, grassy islets extending 1 mile in a general north-and-south direction. The northernmost islet, 275-foot **Taliudek Island,** is the highest of the group.

North Cape, the northern headland of Spruce Island, is a wooded knob 551 feet high. Rocky islets and rocks bare at various stages of the tide fringe the northern side of the cape within 400 yards of the shore. A shoal of 2¼ fathoms lies 0.4 mile off the eastern point of the cape.

Island Bay, just southward of North Cape and opening to the eastward, has not been surveyed. It affords fair anchorage for medium-size craft from westerly wind. If small craft use the head of the bay, care should be taken to pass northward of a rock awash at low water about 0.3 mile from the head.

Knee Bay is the outer portion of the indentation in the north shore of Spruce Island about 2 miles southward of North Cape. **Balika Cove,** narrow and about 1 mile long, is the continuation of Knee Bay. The bay and cove have not been surveyed. The first enclosure of Balika Cove affords excellent shelter for small craft, but can be entered only at high tide on account of a ledge at the entrance to the cove.

The north shore of Spruce Island between Knee Bay and East Cape is bordered by rocky islets and rocks awash at various stages of the tide. Some of these lie over 0.3 mile offshore.

East Cape, the northeastern end of Spruce Island, is a wooded flat extending about 0.8 mile inland to the base of Mount Herman. A group of bare rocks lie within 300 yards eastward of the cape. Banks with depths partly under 10 fathoms extend nearly 2 miles northeastward of the cape.

A rock awash at low water lies about 0.5 mile southward of the point of East Cape and 400 yards from the eastern shore of Spruce Island.

Two wooded islands, forming **Ostrof Point,** about 1 mile southward of East Cape, are surrounded and connected to the eastern shore of Spruce Island by a reef. The outer part of this reef terminates in a rock which uncovers about 2 feet, 300 yards eastward of the outer island. Rocks bare at low tide lie 0.3 mile northeastward of the outer island. A rock which uncovers about 4 feet lies 250 yards southward of the outer island.

Icon Bay is the small indentation in the eastern shore of Spruce Island halfway between East Cape and South Point. This bay as well as the adjoining small bays to the southward have not been surveyed. It is reported that a medium-sized craft may find temporary anchorage in westerly weather. A rock baring near low water lies 300 yards from the head and 150 yards from the north shore of Icon Bay.

Narrow Strait, between Spruce and Kodiak Islands, is used by vessels bound from Kodiak to Shelikof Strait. It has a clear width of 1 mile at its eastern end, while at its western end the channel is 150 to 300 yards wide with a least depth of about 7 fathoms. With easterly gales a heavy swell sets into the strait, but this generally loses much of its force toward the western end.

At the narrow part of Narrow Strait, commonly known as Uzinki Narrows, vessels use the passage southward of Prokoda Islet. The best water in the eastern part of the south passage is midway between the southeast point of Prokoda Islet and the mainland point to the southeastward, and then along a midchannel turn until abreast of Prokoda Islet Light. From abreast of the light to abreast of Uzinki Point, the route is practically a straight course and passes between Otmeloi Point and a daybeacon marking a rock which uncovers about 6 feet. The daybeacon has a white square daymark on a mast. Careful attention to piloting is required in the Narrows as the currents will set a vessel into danger rapidly.

The western approach to Narrow Strait is southward of Three Brothers and across the 7-fathom bank 0.3 mile north-northeastward of Low Island.

The best anchorage in Narrow Strait is in the middle of the cove between Prokoda Islet and Uzinki, in 18 to 20 fathoms, somewhat exposed to an easterly swell. A small vessel and small craft can anchor at the head of the cove near Uzinki, slightly favoring the western side, in 5 to 10 fathoms.

South Point, the eastern end of the Spruce Island shore to Narrow Strait, is marked by a high black rocky islet lying 600 yards off the point. This rocky islet is 65 feet high; several lower ones lie just to the southward and westward thereof.

Two islands are on the north side of Narrow Strait. **Eider Island,** the eastern one, is very uneven and grassy on top. A small low rocky islet lies 400 yards eastward of the eastern island, and a rock awash at low water lies 200 yards southward of the eastern island. **Nelson Island,** the western one of the two islands, is higher and wooded. A group of rocks, which uncover 5 feet, lie 350 yards southward of Nelson Island and similar rocks lie 0.3 to 0.4 mile westward of the island.

The passages leading to the cove back of Nelson Island

are mainly foul or composed of broken bottom. They should be avoided by vessels of any size, except perhaps by small craft with local knowledge.

Sunny Cove, the bight on the north shore of Narrow Strait, 2.3 miles northwestward of South Point, affords anchorage for small craft in 3 to 4 fathoms, sand bottom. A ledge covered 1½ fathoms lies 0.3 mile south from the western point of the entrance to Sunny Cove. Two bare rocks lie off the middle of the entrance. A rock which uncovers, lies 90 yards northwest from the eastern point of the entrance. In entering, the western shore of Sunny Cove should be favored.

A rocky patch, covered 2¾ fathoms and marked by kelp, lies 0.3 mile from the north shore of Narrow Strait just eastward of **Black Point.**

Prokoda Islet, in the middle near the western end of the strait, is 114 feet high and partly wooded. An islet lies 100 yards off its northeast end, and kelp extends 100 yards off the islet and the southeastern side of the island.

Prokoda Island Light (57°54.7′ N., 152°30.2′ W.), 40 feet above the water, is shown from a small white house on the southwest point of the islet. The light is a guide for navigating the passage south of the islet.

The channel northward and westward of Prokoda Islet is 300 yards wide and clear, but the turns are sharp and difficult to make when the current is running.

Uzinki (1960 population 214; P.O. Onzinkie) is a small native village at the head of the cove in Spruce Island northward of Prokoda Islet. Fishing is the principal industry in Uzinki. A salmon cannery and wharf are on the western side of the cove. A dilapidated wharf, which is unsafe for vessels, and an abandoned cannery are on the eastern side. About 60 yards off the wharf on the eastern side of the cove, and practically on line with the northwestern side of the wharf, is a rocky patch, covered 13 feet and marked at times by thin kelp. This danger is otherwise unmarked.

The cannery wharf on the west side has a face of 104 feet and a least depth alongside of about 20 feet. Radiotelephone and radiotelegraph communications are maintained with the Alaska Communication System.

In entering Uzinki from the eastward, care should be taken to avoid the reef which extends some distance off the southeast shore of Prokoda Islet. A small general store is at Uzinki.

Uzinki Point, southwest end of Spruce Island, is the point on the north side of the western entrance to Narrow Strait. At the point are cliffs above which a wooded slope rises steeply to a knoll about 110 feet high. The knoll is connected with the land back of it by a low, narrow, grass-covered neck.

Kelp is close to Uzinki Point and the point should be given a berth of about 125 yards.

Entrance Point, on the south side at the western entrance of Narrow Strait, is grassy with some scattered trees, and a rock 12 feet high lies 100 yards off its eastern side. A kelp-marked shoal with 7 to 12 feet over it extends 250 yards northward from Entrance Point.

Neva Cove, between Entrance Point and Otmeloi Point, provides good anchorage for medium-size craft from all winds except northwesterly, in 13 fathoms, soft bottom.

Uzinki Narrows is the name given to the narrow passage of Narrow Strait in the vicinity of Otmeloi Point and Prokoda Islet.

Otmeloi Point is on the south shore of Narrow Strait about 0.4 mile from the west entrance. A rock, which uncovers about 6 feet and marked by the daybeacon previously mentioned, lies about 275 yards northward of Otmeloi Point. It is 40 yards southward of a line from the southern end of Prokoda Islet to Uzinki Point.

The channel southward of the rock, marked by a daybeacon, has a depth of 7 fathoms and is 125 yards wide between the rock and a shelving spit with kelp which extends 125 yards from Otmeloi Point. Vessels pass southward of the daybeacon at a distance of 80 yards to avoid the shelving spit at Otmeloi Point.

In the passage south of Prokoda Islet (Uzinki Narrows) shoal water of 5 fathoms or less extends 200 yards southeastward of the island, and shoal water of 4 fathoms or less extends 200 yards northward from the small mainland point 0.5 mile eastward from Otmeloi Point. Between these shoal-water areas are depths of over 10 fathoms for a width of 150 yards. Vessels pass midway between Prokoda Islet and the small mainland point and then along a midchannel turn until abreast of Prokoda Islet Light. From abreast of the light to abreast of Uzinki Point the route is practically a straight course and passes 80 yards southward of the daybeacon.

Course Point, on the south shore of Narrow Strait, 2 miles eastward of Otmeloi Point, is prominent and is marked by a small rocky grass-covered islet 150 yards from shore.

A pinnacle rock, 70 feet high, lies near the south shore of Narrow Strait about 0.9 mile south-southeastward of Course Point. The cove southeastward of the pinnacle is foul except for a small area in the center. A 4¼-fathom shoal is 400 yards from the south shore near **Azimuth Point.**

Termination Point is the eastern limit of the southern shore of Narrow Strait. Foul ground extends nearly 0.5 mile northward of the point.

Monashka Bay, just eastward of Termination Point, is clear inside except within 0.3 mile of the shore. Anchorage may be found near the southeast part of the head of the bay, but there is full exposure to northeast weather.

Miller Point, on the eastern side of Monashka Bay entrance, is partly wooded and terminates in a rocky bluff. High, bare rocks extend more than 200 yards off the point, and rocks baring at various stages of the tide lie outside of them. The outermost rock uncovers 9 feet and is 0.6 mile 040° from Miller Point. The range, consisting of the northeastern end of Long Island open northward of the outer Hanin Rock, clears the rocks off Miller Point.

Tidal currents in Narrow Strait are weak except in the western entrance where the velocity is about 1.5 knots.

The times of the slacks and strengths may be obtained from the Tidal Current Tables.

Charts 8534, 8535, 8545.—Chiniak Bay, a 13-mile-wide indentation in the northeast coast of Kodiak Island between Spruce Cape and Cape Chiniak, is the approach to the important commercial port of Kodiak on the north side and a naval station in Womens Bay on the west side.

Kodiak (1960 population 2,628; P.O.) is the fifth largest and one of the oldest towns in Alaska; the domes of the old Russian church are conspicuous. Most of the people are employed in the fishing industry. The town has a hospital. The principal receipts are food, gasoline, fuel oil, other petroleum products, and building materials, while shipments consist mostly of fish and fish products.

The March 1964 earthquake caused a bottom subsidence of 5.8 feet at Kodiak. Until a complete survey is made of the area, caution is necessary because depths may vary from those charted and mentioned in the Coast Pilot.

Prominent features.—The northern part of Kodiak Island westward of Chiniak Bay is mountainous; there are several prominent peaks near the shore. Spruce Cape, Cape Chiniak, and the islands overspreading the northern part of the bay are comparatively low.

Devils Prongs, 2 miles northwestward of Kodiak, are three prominent peaks that appear nearly equal in height approaching from southeastward; the middle one is flat on top and the northern prong is 2,075 feet high and sharp.

Pillar Mountain, a short 1,274-foot ridge, rises steeply from the shore back of Kodiak.

Barometer Mountain, 5 miles southwestward of Kodiak and 2 miles inland from the western shore of Chiniak Bay, is 2,488 feet high and a useful guide in clear weather for the northern approach. A notch shows on the western side of its summit from northward. An aero light, 1.5 miles eastward of Barometer Mountain, is 178 feet above the water and useful in the approach to Chiniak Bay when it is not obscured by the islands to the northeastward and the mainland to the southward.

Spruce Cape, the northwest point of Chiniak Bay, is a low bluff, grass covered on top and backed by woods. Bare rocks and foul ground extend 0.6 mile northward from the cape to **Hanin Rocks** which are two masses about 30 feet high with an extensive surrounding ledge. **Hanin Rock Light (57°50.1′ N., 152°18.7′ W.),** 43 feet above the water, is shown from a white cylindrical house on the southwest rock. A reef, mostly bare at low water, extends 250 yards northward of Hanin Rocks.

Cape Chiniak, the southeastern point of Chiniak Bay, is low and wooded for 0.8 mile back and then rises to higher land. **Chiniak Island,** 0.5 mile northeastward of the cape, is flat and grass covered; numerous high bare rocks extend 1.1 miles northeastward from it. **Cape Chiniak Light (57°37.7′ N., 152°09.1′ W.),** 120 feet above the water, is shown from a small white house on the northwesterly side of the island.

Channels.—There are three marked approaches to the wharves in **Kodiak Harbor.** From northward, the channel is north of Woody Island and Near Island; the controlling depth is 22 feet in the 190-foot-wide dredged channel north of Near Island. From southward, the channel is south of Long Island, west of Woody Island, and north of Near Island; controlling depth, 22 feet; or south of Long Island, southwest of Puffin Island, and thence in St. Paul Harbor west of Gull Island; the controlling depth is 25 feet.

Anchorages.—Inner Anchorage, locally known as Winter Anchorage, is 0.4 mile westward of Kodiak, 250 to 300 yards off the Kodiak Island shore. This is considered a good anchorage, in 7 to 8 fathoms, but williwaws are sometimes heavy and may cause vessels to drag.

Chiniak Bay and approaches are full of dangers that must be avoided.

Williams Reef, 5 miles eastward from Spruce Cape, is the outermost danger in the northeastern approach to Chiniak Bay. The reef consists of two rocks, 100 yards apart, that uncover at lowest tides; deep water is close-to and breakers generally occur, except near high water with a smooth sea. A lighted whistle buoy is northeastward from Williams Reef.

A small patch, covered 3¼ fathoms, is 1.7 miles 285° from the outer Williams Reef.

Hutchinson Reef, 0.8 mile northeastward of Spruce Cape, is 0.3 mile in extent and is partly bare at low water. A large kelp patch lies between the reef and Hanin Rocks. A lighted whistle buoy, 0.4 mile northeastward of Hutchinson Reef, marks the western side of the northern approach to Kodiak.

Broken ground, 0.9 mile eastward of Spruce Cape, is covered 4½ fathoms and marked by a buoy.

On the western side of the channel, 0.4 to 1 mile southward of Spruce Cape, are two bare reefs; the outer edges are about 600 yards from shore. **Channel Rock,** on the southern reef, is black, 7 feet high, amid extensive ledges. Kelp surrounds the reefs and extends south-southwestward of Channel Rock, gradually trending toward the shore and joining the shore kelp. Deep water extends close to the edge of the kelp at 150 yards off Channel Rock.

A rock, covered 1½ fathoms, is 0.9 mile southeastward from Spruce Cape; it is marked by a lighted whistle buoy.

Woody Island, 2 miles southward of Spruce Cape, is about 200 feet high and heavily wooded except for a high grass-covered bench at the southern end and a small area back of **Icehouse Point,** the site of an orphanage. The tall white church tower and orphanage buildings are conspicuous from the westward. An aero radio range is on the southeastern side of the island.

Anchorage is prohibited in the area between Woody Island and the Kodiak shore as shown on chart 8545.

Foul ground extends 1.3 miles northward from the northeast side of Woody Island. A shoal, covered 3¾ fathoms, is 1.5 miles 092° from Woody Island Light.

There are three large white buildings back of **Shahafka Cove** on the north shore across the channel from Woody Island.

Woody Island Light (57°47.8′ N., 152°20.2′ W.), 50 feet above the water, is shown from a small white house at the top of the bluff on the west side of the northern point of the island. The light marks the eastern side of

the passage between Woody Island and the mainland. The outer limits of foul ground and kelp surrounding the northern part of Woody Island are 0.4 mile westward and 0.6 mile north-northeastward from the light.

A kelp patch of a 4-fathom shoal, marked by a buoy, is 0.35 mile 255° from Woody Island Light. Another kelp patch of a 4-fathom shoal, marked by a bell buoy, Is 0.7 mile 265° from the light. The recommended channel is between these shoals.

The group of islands westward of Woody Island is surrounded hy foul ground. **Bird Islet,** the easternmost of the group, is 68 feet high, small, and grass topped; foul ground and kelp extends 550 yards northward and 350 yards southward of the islet. A 2¼-fathom spot is about 550 yards sonth-southwestward from the southernmost extremity of Bird Islet. **Holiday Island,** westward of Bird Islet, is 131 feet high and wooded on its northern half. **Near Island,** the largest of the group, is 202 feet high and grass covered.

The area between the north side of Near Island and the Kodiak shore is shoal and mostly foul, except for the 190-foot wide dredged channel at the eastern approach to Kodiak. **Cyane Rock,** 350 yards northeastward of Near Island, uncovers at lowest tides; a lighted bell buoy marks the rock. The northeastern entrance to the dredged channel is between the buoy marking Cyane Rock and the foul ground which extends nearly 200 yards from the bight northwestward of the rock.

Long Island, the easternmost island in the northern end of Chiniak Bay, is 3.5 miles long, 251 feet high, hilly, with cliffs at the water, and wooded except toward its northern end. The northeastern end of the island is formed by two grass-covered knolls; the eastern one is joined to the other by a narrow neck almost covered at high tide. The northwest corner of the island is a prominent vertical bluff more than 100 feet high, rising to a grass-covered knoll 178 feet high. Two prominent pinnacles, 50 feet high, with lower bare rocks nearby, lie off the northern extremity of the island.

Kodiak Rock, covered 7 feet, is about halfway between Long Island and Williams Reef. Extensive reefs, partly marked by kelp and having some high bare heads, extend 0.6 to 0.9 mile northward from the northern shore of Long Island. Shoal spots lie between the end of these reefs and Kodiak Rock. Shoal rocky spots, covered 3¾ to 8 fathoms, extend 1.8 miles eastward of Kodiak Rock; a rock, covered 2½ fathoms, is 1.6 miles westward of Kodiak Rock.

The southeastern side of Long Island is fringed with rocks and kelp; detached dangers are 0.3 to 0.5 mile from the shore. **Refuge Island,** a small, steep, grass-covered rocky islet, 80 feet high, connected with Long Island by a reef, is off the southern extremity of Long Island.

An extensive covered ridge with extremely broken bottom extends north-nortbeastward for 10 miles from the south side of Chiniak Bay. A distinctive submarine valley borders the western side of the ridge; its seaward outlet leads around the northern end of the ridge, while the southern part leads into Kalsin Bay. The valley forms a deep basin southward of Long Island.

The outermost danger on the ridge is a rock, covered 4¼ fathoms, 4.2 miles eastward from Refuge Island, which breaks in a heavy swell.

Humpback Rock, 2.8 miles southeastward from Refuge Island, is low and of small extent. Vessels should pass not less than 1 mile northward of the rock to avoid the broken ground; a lighted whistle buoy is 0.6 mile northeastward of the rock.

Numerous reefs comprise the ridge from Humpback Rock to the southern shore. **Kalsin Reef,** 1.8 miles southwestward from Humpback Rock, is awash at high water.

A well-enclosed bay, making in from the west side of Long Island, is accessible to small vessels and affords good shelter and holding ground of mud. An island lies just inside the middle of the opening and is connected with the eastern bay shore by a bar. A black rock about 6 feet high lies between the island and the south point of the opening. To enter the southern part of the bay steer 179° and pass between the black rock and the south point, slightly favoring the rock and then the west bay shore at the point. Anchor in the center of the basin. Access to the northern part of the bay requires local knowledge.

Vasilief Rock, covered ½ fathom and marked by kelp, is about halfway between the south point of Woody Island and Refuge Island.

Inner Humpback Rock, 0.5 mile 170° from the south point of Woody Island, is an 11-foot high pinnacle; the intervening area is foul. Foul ground extends 600 yards southwestward of Inner Humpback Rock.

A detached rocky patch, covered 3 fathoms, is 0.6 mile westward from the south end of Woody Island.

A rock that uncovers is 0.4 miles southwestward of Icehouse Point; a shoal, covered 3½ fathoms, is 600 yards 348° from the point. A rock which uncovers is between the 3½-fathom shoal and Bird Islet. The channel westward of Woody Island is marked by buoys.

St. Paul Harbor, the western part of Chiniak Bay between **Crooked Island** on the north and Cliff Point on the south, is fronted with many reefs and islets, but affords a southern passage to Kodiak.

St. Paul Harbor Entrance Light (57°44.4′ N., 152° 25.7′ W.), 38 feet above the water, is shown from a small white house on skeleton tower, 0.9 mile northward of Cliff Point. A buoyed channel through the reefs is 500 yards northward of the light.

A 3½- and 5½-fathom spot are about 600 yards westward, and 800 yards south-southwestward, respectively, from the light.

Puffin Island, near the center of St. Paul Harbor, is 80 feet high, small, and grass covered. The end of the foul ground extending 600 yards southwestward from the island is marked by a lighted bell buoy.

A 4-fathom spot is about 175 yards northwestward from the northwesternmost extremity of Puffin Island. A 6¼-fathom spot is about 625 yards northward from the northeasternmost extremity of Puffin Island.

The western part of St. Paul Harbor is bordered by dangerous reefs and shoals up to 0.6 mile offshore.

Gull Island, 0.5 mile westward of Near Island, is 24

feet high and narrow. A shoal extending 350 yards southwestward from the southern point of the island is marked by a light. The foul ground northward of the island is marked by a lighted buoy about 300 yards off the northern point.

Tides and currents.—At Kodiak the mean range of tide is 6.6 feet and the diurnal range is 8.5 feet; daily predictions are given in the Tide Tables.

In Chiniak Bay, the flood current sets northward and the ebb current southward with considerable velocity in places around the islands. In the northern entrance, the tidal currents have a velocity of 2 to 3 knots during the strength of the larger tides. They turn sharply around Spruce Cape and across the reefs north of it.

In the narrows off Kodiak, the current velocity is about 0.8, knot. The flood sets northeastward; for predictions, see the Tidal Current Tables.

Routes.—From northward: In coming from Narrow Strait, pass 1 mile northward of Hanin Rock Light, thence eastward of Hutchinson Reef lighted whistle buoy, and then follow the buoyed channel northward of Woody and Near Islands to Kodiak Harbor. From Marmot Strait, a **206°** course will enter Chiniak Bay eastward of Hutchinson Reef lighted whistle buoy, then follow the buoyed channel to Kodiak Harbor. The routes from northward pass over or near 6-fathom spots northeastward of Spruce Cape which have not been examined with the wire drag.

From northeastward: Keep northward of the line to Spruce Island summit bearing **294°** until the cliffs near the southwest end of Long Island are well open west of the sheer cliff at its northwest corner. Then steer **241°** for about 4 miles with Barometer Mountain ahead and Spruce Cape slightly to the right. This course passes eastward of Hutchinson Reef lighted whistle buoy, thence through the buoyed channel to Kodiak Harbor.

The northern approach to Kodiak Harbor is not difficult in clear weather, but is dangerous at night or in thick weather. Exercise care to avoid Williams Reef and the other dangers in the entrance. Depths are irregular in the approach so that soundings cannot be relied upon as a guide to the entrance or to avoid danger.

The narrow passage northward of Near Island leading to Kodiak Harbor requires careful piloting; strangers should not attempt it without thorough knowledge of the dangers, and tide and current conditions.

From eastward and southward: Enter Chiniak Bay northward of Humpback Rock lighted whistle buoy, then follow the buoyed channel through the reefs northward of St. Paul Harbor Entrance Light and St. Paul Harbor to Kodiak Harbor. If it is desired to approach Kodiak Harbor through the narrows north of Near Island, use the buoyed channel westward of Woody Island after entering Chiniak Bay northward of Humpback Rock. Exercise caution to avoid Inner Humpback Rock and the dangers southwestward of it.

In approaching Chiniak Bay, the bank with a least depth of 4¼ fathoms, 3.5 miles southeastward of Long Island, and the reefs extending from Humpback Rock southwestward to the mainland should be avoided.

Customs.—Kodiak is a port of entry.

Immigration and **Quarantine** are handled by Anchorage, although at times the custom official in Kodiak may handle immigration, and the naval authorities quarantine.

Wharves.—The waterfront facilities are at the large wharf 0.5 mile west of Kodiak.

Kodiak City Dock occupies the 400-foot center section of the wharf; depth alongside is about 30 feet. The city wharfinger is at the dock. The Anchorage-Kodiak ferry ties up at the city dock.

Alaska King Crab cannery wharf joins the city dock to the northeastward. The wharf has a 170-foot face with about 19 feet alongside.

Alaska Ice and Cold Storage wharf joins the city dock to the southwestward. The wharf has a 150-foot face with about 30 feet alongside. The plant has a freezing capacity of about 4 million pounds.

Union Oil Company Pier, west of the large wharf, is an oil station with a 68-foot float and about 27 feet alongside; lights mark the ends of the piers.

The small-boat basin on the west side of Kodiak was destroyed by the March 1964 earthquake. Restoration is presently underway with completion sometime in 1965. **Gibson Cove,** 1.3 miles southwestward of Kodiak, is being used as a temporary small-boat basin.

The Donnelly and Acheson Wharf and the Fish and Wildlife Service wharf at Kodiak, across the narrows from Near Island, were completely destroyed by the March 1964 earthquake. Piling and submerged ruins may exist in the immediate area.

Supplies.—Marine hardware in limited quantities and provisions are obtainable. Fresh water, gasoline, and diesel oil are available at the wharves. In addition, kerosene and lubricating oils can be obtained at the Union Oil Company Pier.

Repairs.—General repairs can be made by local machine shops.

Communications.—Vessels call weekly during the summer and monthly during the winter with freight and passengers. Radiotelephone and radiotelegraph communications are maintained with the Alaska Communication System. Ferry service to Anchorage, Seward, Homer, and Seldovia is available from Kodiak City Dock.

Chart 8546.—Womens Bay, southwestward of St. Paul Harbor at the extreme western end of Chiniak Bay, is the site of a naval station. The area in and about Womens Bay is a Naval Defensive Sea Area; limits are shown on Charts 8546, 8545, and 8535. **No vessel may navigate within this area unless it has an entry authorization.** Entry authorization may be obtained by filing application either by letter or telegram to Commanding Officer, Navy No. 127, Box 10, c/o Postmaster, Seattle, Wash. Application should be mailed in sufficient time to allow ten working days for processing. The entry authorization letter must be in the possession of the operator of the vessel when traveling in the Naval Defensive Area.

Prior to entering into the channel to Womens Bay, the master of the vessel must first obtain channel clearance permission from the navy harbormaster. Channel clearance may be obtained by calling "Kodiak Control" on a

primary frequency of 2716 kc., or on secondary frequencies of 2196 kc. or 2182 kc. Qualified navy pilots are available at the naval station.

The March 1964 earthquake caused a bottom subsidence of 5.3 feet in Womens Bay. Until a complete survey is made of the area, caution is necessary because depths may vary from those charted and mentioned in the Coast Pilot.

The entrance to Womens Bay is obstructed by numerous and extensive rocks and reefs; some are awash at extreme low water while others are up to 6 feet high. A 400-foot wide buoyed channel passes through this foul area northwestward of Zaimka Island to deeper water inside. The controlling depth to the wharves is about 29 feet.

Cliff Point, on the south side of the entrance to Womens Bay, is the end of a prominent 192-foot high headland which is covered with grass and scattered brush; two prominent pinnacle rocks are among the reefs under the point. **Cliff Island,** 0.3 mile northward of Cliff Point, is small and 62 feet high with steep cliffs on all but the southeast side; pinnacle rocks are on the northeast and south sides.

Zaimka Island, the largest of the islands at the entrance to Womens Bay, is 151 feet high, bordered with cliffs, and covered with bushes and grass. **Blodgett Island,** 0.7 mile southwestward of Zaimka Island, is 70 feet high and connected with the mainland by a sandy isthmus at low water.

Nyman Peninsula, on the west side of the entrance to Womens Bay, forms a protected inner bay. **Nyman Spit,** extending 650 yards southeastward from the southern end of the peninsuln, is a nnrrow sandspit that uncovers; a lighted buoy marks its outer end.

In the outer part of Women's Bay, the currents follow the general direction of the channel, flowing southwest on the flood and northeast on the ebb with a velocity of about 1 knot. An eddy has been reported north of Blodgett Island which will set a vessel to the southward at the strength of an ebb current; this should be guarded against. Also, the ebb current flows northeast across Nyman Spit. Ships passing near the spit at such a time might experience a set onto it. There are marked eddies near Frye Point at the west end of Womens Bay. Although deep water is close to this point, ships should guard against passing too close to it.

Vessels authorized to enter Womens Bay, may approach from northeastward through the channel west of Woody Island, thence through the buoyed channel northward of St. Paul Harbor Entrance Light, and then follow the marked channel southwestward into Womens Bay. From eastward and southward, the approach is the same as that for the southern approach to Kodiak until St. Paul Harbor Entrance Light is passed, then the buoyed channel should be followed to Womens Bay.

Permission will not be granted for large vessels to negotiate the channel to or from Womens Bay and between the shoal waters of St. Paul Harbor entrance after dark during low visibility unless a qualified pilot is on board the master assumes full risk. Nor will vessels, except at the master's risk, enter or depart from Womens Bay and between the shoal waters of St. Paul Harbor during periods of wind velocities of 35 knots or more, except in emergencies or extreme necessity and then only by authorization of the Commanding Officer, U.S. Naval Station, Kodiak.

There are three wharves in the inner bay at the uorth end of Womens Bay, of which only two are usable. The 1,400-foot marginal wharf on the southwestern face of Nyman Peninsula, has a depth of about 27 feet alongside and the fuel pier, 250 yards to the northward has a depth of about 28 feet along its north and south ends. The cargo pier on the northwesterly side of the inner bay was severely damaged during the March 1964 earthquake and is no longer used. The fuel pier and marginal wharf are awash at spring high tides.

Docking spaces are assigned by the navy harbormaster.

Chart 8535.—Middle Bay, between Cliff Point and Broad Point, is exposed to northeasterly weather. **Viesoki Island,** near midentrance, is 101 feet high, small, and flat topped with sheer rock bluffs. A rock that uncovers is 0.4 mile northeastward from the island.

Broad Point is the end of a long peninsula separating Middle Bay from Kalsin Bay. Broken ground with some dangers extends 1 mile northward from the point.

Kalsin Bay, the largest indentation in the southwestern side of Chiniak Bay, provides anchorage for large and small vessels. The low valley between Kalsin Bay and Ugak Bay, 9 miles southwestward, is used as a portage.

Queer Island, Kalsin Island, and other small islands in the western part of the entrance to Kalsin Bay, are surrounded by foul ground. A large expanse of reefs and small islands overspreads the eastern part of the bay.

The foul ground can be avoided by entering Kalsin Bay 0.8 mile southeastward of Queer Island, then favoring the west shore. The recommended anchorage is 2 miles from the head about 0.5 mile off the eastern shore in 9 to 10 fathoms; this anchorage may be untenable during a northeast storm. Caution is necessary to avoid the rock that uncovers 9 feet on the west side of the bay and the rock that uncovers 4 feet on the east side of the bay.

A well defined channel along the eastern shore of Kalsin Bay leads to a V-shaped cove southeastward of **Svitlak Island,** where excellent anchorage for small vessels is afforded in any weather.

To reach the V-shaped cove southeast of Svitlak Island from a position 1.2 miles 000° from Cape Chiniak Light, steer **267°,** heading for **Kekur Island** with **Middle Island** summit on range, until the sharp point on the west end of Isthmus Bay bears 191°. Then turn left to course **240°** and head for the large square rock south of Svitlak Island until abeam of the north end of Svitlak Island, then turn left to **220°** and head for the point at the south entrance of the cove until the large square rock bears four points on the starboard bow. Then steer **180°** and anchor in 6½ to 7 fathoms 400 yards off the south shore. To go farther into the cove requires local knowledge. The channel abreast Svitlak Island is narrow with shoal water on both sides and caution should be exercised to avoid depths less than 10 fathoms. The shoal water on the east side

of the channel is extensive and surrounds the point forming the northern limit of the cove.

Isthmus Bay, just east of Kalsin Bay, affords anchorage for vessels in southerly weather. The range of Kekur Island and the summit of Middle Island, course 267°, clears the dangers off the eastern end of Isthmus Bay. In an emergency a vessel may be beached on the sand at the head of the bay.

Chart 8556.—Kodiak Island, southeast coast.—A comprehensive survey was made of the waters along the southeastern coast of Kodiak Island to and including part of Albatross Bank. A vessel equipped with echo sounding apparatus would be aided in determining its position by soundings taken while cruising over this area.

The shoaler, outer parts of two extensive submarine plateaus form Albatross Bank. A trough of deep water lies between them and branches extend into both entrances of Sitkalidak Strait and toward Sitkinak Strait. A very regular trough, northeastward of Albatross Bank, leads directly from seaward to Chiniak Bay.

A depth of 8 fathoms, rocky bottom, is in 56°22.5′ N., 152°56.0′ W. on Albatross Bank.

Canneries are located at Shearwater Bay, Lazy Bay, and Olga Bay.

Chart 8535.—Cape Chiniak, the southeastern point of Chiniak Bay, was described previously. An anchorage, 1.3 miles northwestward of Cape Chiniak Light, provides protection from southerly weather in 18 to 20 fathoms. The cape should be cleared by 1.5 miles to avoid the offshore rocks.

Cape Greville, 2 miles south of Cape Chiniak, is fronted by several rocky islets. Broken bottom extends 0.8 mile in a northeasterly direction from the cape. In approaching from the vicinity of Ugak Island, Cape Greville should not be mistaken for Cape Chiniak.

The land is thickly wooded for about 5 miles southward from Cape Chiniak, then to Narrow Cape it is bare except for scrubby brush in the gulches and valleys and some grass and scattered clumps of small spruce trees on the lower slopes. The valley, 8 miles southward of Cape Chiniak, terminates in a sand beach.

Covered rocks and rocks awash extend up to 0.5 mile offshore for 8 miles southward from Cape Chiniak, then they extend up to 1 mile offshore to Narrow Cape; there is thick kelp in the vicinity of Narrow Cape. Outside these areas the bottom is mostly sand and gravel with some rocky sections off the points. No anchorages are recommended along this coast.

A 10-fathom bank is 8.3 miles 166° from Cape Greville.

Narrow Cape, 13 miles southward from Cape Chiniak, is flat, but gradually drops close to sea level about 0.3 mile back of the cliff, having the appearance of an island when seen off Cape Chiniak. From this low part, grassy slopes with a few scattered spruce trees roll gradually upward to the mountains north of Ugak Bay. The southeast face of the cape is an abrupt grass-topped cliff 165 feet high and 1.1 miles long.

Ugak Island, 2.5 miles off Narrow Cape, is discernible against the distant background of higher mountains from well out to sea. A ridge over 1,000 feet high runs the full length of the island close to the offshore side. The shore is steep and rocky and fringed with rocks and reefs, except at the northwest end where a grassy slope spotted with a few scattered spruces descends gradually to a sandspit.

A rock and sand bar extends from Ugak Island to the southern tip of Narrow Cape; the least found depth near the middle is 6½ fathoms. Although not wire dragged, the passage is considered safe for moderate-sized vessels. It is regularly used by fishing boats of 8- to 10-foot drafts. Tide rips are experienced, particularly on and near the bar, except at slack water. These rips increase with strong northeast winds, producing breakers and causing the false impression that the passage is foul. At such times the passage is dangerous for small craft.

The current floods in a northeasterly direction through the passage between Ugak Island and Narrow Cape. There are strong cross currents north and south of Ugak Island and tide rips near the shore.

If the passage southward of Narrow Cape is used to Ugak Bay, avoid the rock awash at minus tides 0.7 mile southwest of the southern tip of Narrow Cape, a rocky 4-fathom shoal 3.6 miles westward of the cape, and a ½-fathom rock 6.6 miles westward of the cape.

Ugak Bay has its entrance between Pasagshak and Gull Points and extends 19 miles in a general westerly direction, its inner end branching into a basin at the north and a narrow arm at the south. In entering, vessels should pass southward of the ½-fathom rock lying a little northward of midentrance. Depths of 40 to 55 fathoms will be found 1 mile off the points along the south shore from the entrance to Saltery Cove, then the bottom abruptly shoals to about 10 fathoms and deepens again to about 45 fathoms near the junction of the basin and arm at the head of the bay. Magnetic boat compasses have been observed to swing 15° to 180° in the bay.

Pasagshak Point, 4 miles westward of Narrow Cape, is a prominent, narrow mountainous headland 894 feet high. The point presents the appearance of a pyramid when viewed from a southwest direction.

Pasagshak Bay is rectangular shaped, 1 mile wide at its entrance, and has its eastern side formed by Pasagshak Point. It is shallow a short distance inside and exposed to any existing swell.

The 127-foot island off the north shore of Ugak Bay westward of Pasagshak Bay is rocky and grass topped. It is surrounded by a reef and numerous rocky islets. There is foul ground between the island and the north shore and 1.2 miles southeastward of the island.

Portage Bay is the rounded bight 4.5 miles westward of Pasagshak Bay. This bay is identified by a small flat-topped, sheer-bluff islet 42 feet high in the middle of the entrance, and a pinnacle rock 34 feet high 270 yards southwest from it. Both are surrounded by deep water. The bottom has a gentle slope toward the head of the bay.

Eagle Harbor is an open cove on the south side of Ugak Bay, 5.5 miles from the entrance. Its northwesterly point is marked by two pinnacle rocks. At the northwest shore

of the cove are several shacks of the deserted village of **Eagle Harbor.** There is no secure anchorage here. The cove is exposed to easterly swells.

Between Portage Bay and Kalsin Bay, and between Eagle Harbor and Shearwater Bay are portages.

Saltery Cove, on the north shore of Ugak Bay and 8.5 miles above the entrance, is a half-moon shaped bight. It is marked on its eastern extremity by a reef point surmounted by a pinnacle rock 32 feet high. The cove has a gently sloping sand and mud bottom, but shoals abruptly to flats along the shore. A high-water rock lies just outside of the flats near the head of the cove. The recommended anchorage is along the 10-fathom curve near the eastern end of the bight. This is regarded as the best general anchorage in Ugak Bay.

Hidden Basin, the northern branch at the head of Ugak Bay, has a slightly curving bottle-neck entrance. The controlling depth through the approach is only 5 feet. The channel is along the western shore of the approach. Strong currents are encountered in the entrance. Depths charted in the approach to the basin are reported to be inaccurate; this and the swift and turbulent current during periods of maximum and minimum flood make the entrance hazardous.

The southern branch at the head of Ugak Bay is about 7 miles long and has an average width of 0.5 mile. A rock bare at about half tide lies near the middle of the constricted part of the arm. The channel lies southward of the rock which may be avoided by keeping 200 yards off the south shore in 10 fathoms.

Gull Point and the point 1.8 miles southward have bold rocky faces with islets of massive rock close by. The small cove on the south shore of Ugak Bay westward of Gull Point provides anchorage for small boats in southerly weather. A sand beach is at the head.

The cove about 3 miles southward of Gull Point is connected by a tidal channel to a marsh which is flooded at high tide. The bottom at the entrance to the lagoon and along the beach for about 1 mile northward is sandy and apparently free from rocks. A rock covered 2½ fathoms lies 0.8 mile northeastward from the rocky point at the south end of the cove.

Chart 8536.—Dangerous Cape, on the southeast coast of Kodiak Island between Ugak and Kiliuda Bays, is the southern end of a ridge. On the south side of the cape is a bluff over 500 feet high. A large rock about 30 feet high lies about 400 yards southward of the cape. **Dangerous Cape Light (57°16.7′ N., 152°42.6′ W.),** 192 feet above the water, is shown from a small white house on the west side of the cape.

Boulder Bay, just westward of Dangerous Cape, affords fair anchorage on hard sand bottom. There are numerous rocks lying several hundred yards offshore. These rocks are mostly submerged or awash at high water, and some care should be taken in navigating this bay.

Inner and Outer Right Capes form a double cape lying about 5 miles southwestward of Dangerous Cape. **Outer Right Cape** is comparatively low with eroded bluffs about 200 feet high; however, landslides extend almost to the summit of the mountains along the coast 1 mile northeastward of the outer cape. On a clear day these are recognized a long distance offshore. **Inner Right Cape** rises to 512 feet. Broken ground extends about 1 mile offshore between the outer and inner capes.

Kiliuda Bay has its entrance between Left Cape and Inner Right Cape. It extends about 4 miles in a northwesterly direction and then about 6 miles in a westerly direction.

Indenting the northeast side of Kiliuda Bay are Santa Flavia Bay and Shearwater Bay. The shore between these bays is fringed with islands and rocks.

Kiliuda Rock, 2 feet high and about 1 mile westward of Inner Right Cape, is on the range of the tangents of Inner and Outer Right Capes and about on the range of the small points along the western shore of Santa Flavia Bay. The rock is surrounded close-to by depths of 17 fathoms.

Santa Flavia Bay, between Inner Right Cape and **Ermine Point,** is apparently clear in the center with depths of 13 to 15 fathoms, sand bottom, but is exposed to swells and seas accompanying southeasterly weather. Kiliuda Rock should be avoided in entering.

Shearwater Bay, the northeast arm of Kiliuda Bay, is about 2.5 miles in extent. Rocks awash extend from either side of the entrance. In the entrance channel between the rocks there are depths greater than 20 fathoms for a width of 0.4 mile. The rocks extending 0.2 mile westward of Pillar Point bare at low stages of the tide, and shoal water extends about 200 yards channelward from the outermost rock. Near the outer end of the group of rocks on the northwest side of the entrance is a dry patch of rock 3 feet high. The outermost rock uncovers, and lies 300 yards from the dry patch in a direction toward the head of the bay.

Pillar Point marks the southeastern side of the entrance to Shearwater Bay. **Pillar Point Light (57°19.4′ N., 152°54.8′ W.),** 40 feet above the water, is shown from a small white house on the islet adjacent to Pillar Point. **Bluff Point,** 0.5 mile farther inside the bay, is marked by the eroding bluff of a knoll which overlooks the lowland back of Pillar Point.

The small enclosure, back of the narrow strip of land at Bluff Point, provides secure shelter for small craft with local knowledge.

About 0.7 miles from its head, Shearwater Bay contracts to a width of about 0.4 mile between **Observation Point,** the site of a cannery, and the opposing point on the southeast side. Anchorage may be had about 0.3 mile beyond this contraction midway between the shores in about 6 fathoms, mud bottom, avoiding shoal water extending 200 yards northward of the opposing point and the shoal depths adjacent to the flats along the northwest side at the head of the bay.

The cannery wharf has a face 100 feet long with a reported depth of 24 feet alongside. Fresh water is piped to the wharf. The adjacent oil wharf has a 60-foot face with a depth of 17 feet alongside. Timber skidways for hauling out launches are laid on the beach on the north side of the cannery site. The timber skidway which can handle 38-ton craft drawing 6 feet forward and 10 feet

aft is reported in poor condition. Gasoline, diesel, and fuel oils are stored for cannery use. The company operates a machine shop where emergency repairs can be made.

Routes, Shearwater Bay, from the southwestward.—Round Cape Barnabas 2 miles off and make good the following courses: (1) **331°** for 9.5 miles to Pillar Point Light bearing 066°, 1.5 miles; this course passes 1.1 miles off Left Cape and heads for Shearwater Point. (2) **048°** for 1.4 miles to Pillar Point Light abeam, 0.4 mile; this course heads for the Cannery Wharf at Observation Point. (3) **056°** for 1.3 miles to abreast of the Cannery in Shearwater Bay.

From the northeastward.—Round Dangerous Cape 3.5 miles and make good the following courses: (1) **276°** for 3.5 miles to Outer Right Cape (eastern end) bearing 000°, 2.5 miles. (2) **305°** for 3.4 miles to Inner Right Cape bearing 052°, 1.6 miles; this course heads for the tangent of the bold shore about 2 miles northwestward of Left Cape. (3) **331°** for 3.8 miles to Pillar Point Light bearing 066°, 1.5 miles; this course heads for Shearwater Point. Then follow courses (2) and (3) of the preceding paragraph.

The northern side of Kiliuda Bay is indented by an open bay about 1.2 miles wide between **Shearwater Point** and **Coxcomb Point.** Foul ground extends 0.3 mile from Shearwater Point to Coxcomb Point. A rock 4 feet high lies 0.5 mile east of Coxcomb Point. The entrance channel is 200 yards eastward of this rock. A northerly course leads to the center of the open bay which has a depth of 3 fathoms. The bottom has a gentle rise to extensive sand beach at the head. A vessel may be beached here in the event of an emergency.

A rock, 45 feet high and 0.5 mile southwestward from Coxcomb Point, marks the outer limit of shallow depths. A triangular-shaped bank lies outside the line drawn from the rock to Shearwater point and northward of **Pivot Point.** Anchorage depths on the bank are 14 to 17 fathoms, sand bottom.

The point on the northern side of Kiliuda Bay about 3 miles to the westward of Coxcomb Point is a low grass-covered sandspit. The axis of a channel of deep water is 300 yards from the sandspit, and the 40-fathom curve is only 150 yards from the spit. Just southward of this channel the depths are very irregular and the area should be avoided.

Left Cape is a bold headland separating Kiliuda Bay from the eastern part of Sitkalidak Strait. The southeastern face of the cape is covered with a series of long rockslides extending almost to the mountain summit back of the cape. Numerous boulders lie close inshore and submerged rocks fringe the cape.

Sitkalidak Island, about 18 miles long, is adjacent to the southeast coast of Kodiak Island. The island is grass covered and in general devoid of trees. The easternmost mountain summit at Cape Barnabas is a good landmark from the eastward and southeastward.

Sitkalidak Strait borders both the northern and western sides of Sitkalidak Island, separating that island from Kodiak Island. Sitkalidak Passage is the name applied to the narrow part of the strait.

That part of Sitkalidak Strait northward of Sitkalidak Island extends from the eastern entrance between Dangerous Cape and Cape Barnabas to Sitkalidak Passage. The broken bottom northeastward of Barnabas Rock has been examined with the wire drag and no dangers were revealed. This part of the strait is navigable by all vessels as far as Sheep Island, and offers several secure anchorages. The controlling depth through Sitkalidak Passage is 12 feet. The passage and its eastern approach are marked by lights.

During June and July thick white fogs occur around the south end of Kodiak Island which sometimes last for several days. These fogs generally drift about the sea, but frequently do not enter the strait and adjacent bays. The east entrance to Sitkalidak Strait is frequently clear when a thick fog lies less than 1 mile offshore.

Cape Barnabas, the eastern end of Sitkalidak Isalnd, is marked by a conspicuous monntain 1,705 feet high. There are rockslides on the slopes of this mountain and a series of eroded bluffs along the northeastern face. Submerged rocks and rocks above high water border around the cape and numerous kelp patches lie several hundred yards offshore. In thick weather this cape is usually easier to pick up than Dangerous Cape.

Vessels making Sitkalidak Strait from the southeastward should pass Cape Barnabas 2 miles off and steer **321°,** heading for the northeast tangent of Left Cape until Table Island Light bears 195°, then change course to **252°** and follow directions given below.

Barnabas Rock is a rock which uncovers about 3 feet and lies 0.8 mile 075° from Table Island. The sea breaks over this rock at high tide when there is a moderate swell, but often in calm weather at high tide there is no indication of the rock. It has no kelp. The passage between the rock and Table Island is apparently clear and has been used by steam whalers operating from Port Hobron; but dne to uncertain currents the passage is not recommended. The water between Table Island and Sitkalidak Island is foul with submerged pinnacles.

Table Island is a flat-topped island about 100 feet high lying 2 miles west-northwest from Cape Barnabas. **Table Island Light (57°11.4′ N., 152°55.1′ W.),** 106 feet above the water, is shown from a small white house on the northern end of the island.

Tanginak Anchorage, the bight eastward of the entrance to McDonald Lagoon, is a good anchorage in southerly weather. A rock awash at low water is about 0.5 mile off the eroded bluff forming the western end of the bight. Shoal water lies between the rock and the point.

McDonald Lagoon, about 4.5 miles westward of Table Island, almost divides Sitkalidak Island. It has a bottleneck entrance. A bar channel, 13 feet deep, is westward of the ½-fathom shoal lying 0.2 mile northwestward of the bottleneck and follows the northern side of the west entrance point until about 200 yards westward of the bottleneck; here it is necessary to avoid a small shoal making out from the northern side of the point. Strong currents

run in the entrance and in northerly weather the bar breaks all the way across. Small vessels with local knowledge may enter the lagoon which deepens inside and has good holding ground.

Port Hobron is the second deep-indenting bay along the northern side of Sitkalidak Island westward of Table Island. The bay is a good harbor for all vessels except during a northeasterly gale, when a comparatively heavy sea enters the bay.

A former whaling station and wharf are on the eastern side of the Port Hobron. The face of the wharf is 155 feet long and has a least depth of 29 feet. A rock awash at low water lies about 150 yards northward of the wharf and in line with its face.

At the head of Port Hobron is a small settlement known as **McCord.** A company operating a cattle ranch has built a small wharf on the south side of the sandspit on the east shore. The wharf has a face of 80 feet, with a least depth of 22 feet alongside. The water shoals suddenly south of the dock and maneuvering room is restricted. There is no fresh water on the dock.

Cathedral Island, the largest island in Sitkalidak Strait, lies in the middle of the strait at the entrance to Port Hobron. The island is 192 feet high and is covered with grass. It is dome shaped, with steep eroded cliffs on all sides except on the southerly side. The best water is found passing south of the island.

Nut Island Light (57°12.3′ N., 153°09.5′ W.), 40 feet above the water, is shown from a small white house 0.9 mile westward from Cathedral Island.

Aberdeen Rock, in the middle of Sitkalidak Strait 0.7 mile westward of Nut Island, is covered 1 fathom. It is unmarked and breakers occur over it only in the heaviest northeasterly weather at extreme low tide.

The recommended passage in the vicinity of the three midstrait obstructions—Cathedral Island, Nut Island, and Aberdeen Rock—is to the southward of them. To avoid Aberdeen Rock when using this passage and when in the vicinity of the rock, do not go northward of the line between Nut Island and Bush Point Lights. The passage northward of the three midstrait obstructions is clear and is used by local craft. **Three Sisters Rocks,** near the north shore, are low; after passing southward of these when bound westward in the northern passage, care must be taken to stand well over toward the north shore in vicinity of Aberdeen Rock.

Amee Bay, 2 miles westward of Port Hobron, is clear in midchannel and offers fair anchorage, but violent williwaws blow out of this bay in southerly weather.

Shag Rock, 6 feet high, is about 150 yards northward of **Cub Island** which in turn is about 2.4 miles westward of Cathedral Island. Shag Rock forms an important turning point for vessels using the narrow parts of Sitkalidak Strait. It is reported that on the rising tide a southerly set is noticeable between Shag Rock and Bush Point.

Bush Point is on the north shore of the narrow part of Sitkalidak Strait 2.8 miles westward of Cathedral Island. **Bush Point Light (57°13.1′ N., 153°12.9′ W.),** 15 feet above the water, is shown from a small white house on the southern extremity of the point.

Midway Bay, known locally as **Sheep Bay,** is that part of Sitkalidak Strait located between the narrows at Bush Point and Sitkalidak Passage. **Sheep Island,** 48 feet high, covers the central part of Midway Bay. The bay affords the best anchorage in the general vicinity of the strait. The recommended anchorage for large vessels is between Sheep Island and Bush Point; small vessels usually anchor northeastward of Sheep Island in 5 fathoms, sticky bottom.

The through passage is southward of Sheep Island. A shoal bar strewn with boulders extends westward from the shoal area surrounding Sheep Island to the eastern end of the northern shore of Sitkalidak Passage. The channel for entering Sitkalidak Passage borders the south side of the shoal area and bar. The shoal on the south side of this channel is marked by a light shown from a small house on a dolphin in 8 feet of water.

Sitkalidak Passage separates the northern end of Sitkalidak Island from Kodiak Island and is the link between the two sections of Sitkalidak Strait. The controlling depth is only 12 feet at low water through the passage. The passage is fairly straight and about 1 mile long. Inside the eastern entrance the channel slightly favors the northern shore; in the western half of the passage it slightly favors the southern shore.

Sitkalidak Passage Light (57°12.6′ N., 153°16.4′ W.) 30 feet above the water, is shown from a small white house on the north side of the west end of the passage.

Currents.—The currents seem to meet at Sitkalidak Passage under ordinary conditions of wind and weather, but in strong southerly weather the current occasionally flows northeastward continuously. No current velocities have been measured, but it is estimated that the maximum velocity never exceeds 3 knots.

Routes.—From eastward, enter Sitkalidak Strait on a midchannel course; when 0.5 mile 163° from the east end of Cathedral Island, pass 200 yards southward of Nut Island Light, 400 yards southward of Aberdeen Rock, 150 yards north of Shag Rock, and 175 yards south of Bush Point Light. When 400 yards 155° from the west end of Sheep Island, pass 75 yards eastward of Sheep Island Light; make a slow left turn to enter the narrows, avoiding the shoals westward of Sheep Island. Keep in midchannel through Sitkalidak Passage, favoring the southeast side opposite Sitkalidak Passage Light. Continue on a midchannel course through the southwestern end of the strait.

Outer coast of Sitkalidak Island.—For several miles westward from Cape Barnabas, the outer coast is particularly bold and rocky and seldom free of breaking seas. A series of mountain peaks stands close to the rounded outline of this projecting coastal section.

About 5 miles westward of Cape Barnabas, a channel navigable by launches in moderate weather leads to a lagoon. Practically all of the lagoon dries at low water.

Partition Cove, having a small islet in the center and separated from McDonald Lagoon by a low narrow neck of land is foul.

Ocean Bay, the pronounced indentation of the outer coast of Sitkalidak Island, has a wide sand beach several miles long. The waters adjacent to a long section

of the beach are apparently free of rocks. A sheltered anchorage during prevailing southwesterly weather may be found in 4 fathoms in the lee of the prominent rocky point marking the southern end of the sand beach.

On the coastal ridge between Ocean Bay and Black Point are two tips, 1,646 feet and 1,527 feet high, between which the ridge sags in a smooth curve. This feature may be recognized from seaward even against the distant background of higher mountains.

Black Point, the southwest end of Sitkalidak Island, is a low grass-covered cape sloping gently to the adjacent hills. It does not show darker than the surrounding country, but there are some low eroding bluffs around the cape and scattered boulders along the shore.

A coastal shelf, approximately defined by the 18-fathom curve around Black Point, extends 4 miles offshore and spreads fan shaped about the point. Very broken bottom exists on the shelf. In some places the survey indicated rather deep water where live kelp appeared. It is recommended that Black Point be given a berth of at least 4 miles.

That part of Sitkalidak Strait westward of Sitkalidak Island extends from its southern entrance between Black Point and Twoheaded Island to Sitkalidak Passage.

The most prominent point on the southwest end of Sitkalidak Island is at the western extremity of the coastal ridge back of the lowland in the vicinity of Black Point.

Ship Rock, 6 feet high, is at the southeastern entrance of Sitkalidak Strait. Vessels should give the rock a wide berth to avoid the broken bottom extending almost 2 miles southwestward of it.

Puffin Island, 75 feet high, is a grass topped irregular mass of rock lying 1.6 miles northeastward of Ship Rock. Several bare rocks, some of the pinnacle type, lie near the island. The passages on either side of the island are not safe.

Tallapoosa Shoal, with the least depth of 9 fathoms over it, lies in the middle of the strait 3.5 miles northwestward of Ship Rock.

Rolling Bay, the first bay on the eastern side of Sitkalidak Strait from the southern entrance, has a sand beach and tide lagoon at the head, and a valley leads to Ocean Bay. The bay is exposed to the prevailing southwesterly swell.

A prominent rock, 83 feet high, having vertical sides and terminating in a dome-shaped top, lies on the extensive reef projecting from the north point of Rolling Bay. A needle-top rock 40 feet high lies near the point.

Sitkalidak Lagoon is the upper part of **Natalia Bay,** the 5-mile inlet just northward of Rolling Bay. The restricted entrance to the lagoon around the end of the spit is navigable only by small craft.

Natalia Peninsula, the rectangular mountainous headland on the eastern side of Sitkalidak Strait opposite Cape Kasiak, has two knolls; one of these is at the northwest end of the headland, the other is at **Natalia Point,** the southwest end. A 3½-fathom shoal lies 0.5 mile off the headland.

Newman Bay is on the eastern side of Sitkalidak Strait opposite Three Saints Bay. A 5-fathom shoal lies 0.5 mile off the northern entrance point. Several dangers are near the southern shore. A shoal of 4 fathoms extends 400 yards northward of the point marked by a 50-foot elevation which appears as an island from a distance. Anchorage is available in 8 to 9 fathoms in the center of the upper bay.

Old Harbor (1960 population 193; P.O.) is a native village on the west side of Sitkalidak Strait 1 mile from the western end of Sitkalidak Passage. A school and a trading post are in the village. The trader has a small wharf with a face of 25 feet; the face of the wharf is reported to dry at about 4 feet above low water. A fish-trap extends 350 yards out in the channel from a point about 50 yards southward of the wharf.

Between Old Harbor and the round point on the opposite shore, Sitkalidak Strait narrows to 0.5 mile in width. The western half of this part of the strait is a sandy shoal having depths less than 3 fathoms. A small reef which uncovers 4 feet lies 100 yards off the eastern shore of the strait opposite Old Harbor.

Barling Bay is the first bay southward from Old Harbor. In northwesterly weather violent williwaws blow out of the bay. The bay near its head affords excellent holding ground for small craft and is secure except in northwest weather. The anchorage for large vessels is just inside the entrance.

A broad grass-covered sandpoint projects into Sitkalidak Strait forming the south entrance point of Barling Bay. One mile southward of the point and about 0.6 mile off the western shore of the strait are a cluster of dangerous rocks marked by kelp. The least depth over them is 1 foot at low water. The outermost rock is 0.9 mile 204° from the point. The area between the rocks and the western shore is shoal.

Three Saints Bay, on the west side of Sitkalidak Strait, affords anchorage at the head in 14 to 18 fathoms, mud bottom. At the entrance, which lies between Cape Liakik and Cape Kasiak, a shoal borders the southwest shore.

A spit, with some rocks awash, and covered 2¾ fathoms near its outer end, extends about 0.6 mile south-southwestward of **Cape Liakik. John Island,** 90 feet high, lies near the outer end of the spit, with another islet between it and Cape Liakik. Foul ground extends from John Island to a sunken rock 2.2 miles northward and about 150 yards off the eastern shore.

A course through the middle of the entrance leads between the shoal on the southwest shore and a 4-fathom shoal 0.5 mile northwestward of John Island.

The first Russian settlement on Kodiak Island was established on this bay in August 1784 and named for the vessel THREE SAINTS.

The cannery on the sandspit on the west side of Three Saints Bay, was destroyed by fire in 1931. The face of the cannery wharf remains. Depths at the wharf are 11 feet at the northwest corner, 4 feet about 5 yards farther inshore, and 24 feet at the downstream corner. Southeastward of the wharf the low water shore areas extend be-

yond the line of the face of the wharf. A port landing is always made. With a heavy wind broadside on, it is impossible for a vessel under her own power to leave the wharf.

An excellent anchorage for small vessels is in the cove formed by a long sandspit inside the entrance on the southwest side of Three Saints Bay. A vessel about 65 feet in length may anchor here. The native village of **Nunamiut** has been abandoned.

Two streams enter at the head of Three Saints Bay draining separate valleys. The south valley is said to have a trail leading across Kodiak Island to Uyak Bay.

The three rocky peaks on the ridge that terminate at the headland at the turn of Three Saints Bay are locally known as **The Three Saints.** The peaks are over 3,000 feet high and when clear form a leading mark at sea for identifying the south entrance to Sitkalidak Strait.

Cape Kasiak is a prominent headland on the western side of Sitkalidak Strait southward of the entrance to Three Saints Bay.

Kaiugnak and **Kiavak Bays,** collectively known as **Wide Bay,** indent the western shore of Sitkalidak Strait between Cape Kasiak and **Cape Kiavak.** A small shoal of 3½ fathoms lies 1 mile southwestward of Cape Kasiak. A shoal of 2 fathoms lies near the middle of the upper part of Kaiugnak Bay. A rock which uncovers 5 feet lies 0.5 mile northeastward of Cape Kiavak. A rock awash, about 700 yards offshore, is about a mile northwestward of the cape. There are two lagoons, one at the head of each bay; neither permits entrance except at high water. A large waterfall is in the northwestern branch of Kaiugnak Bay.

Anchorage for all weather except easterly gales is provided in the southwestern part of Kaiugnak Bay. Large vessels should not proceed westward of a line bearing south from the small island off the projecting point at the head of the bay.

Knoll Bay lies about 2.5 miles southward of Cape Kiavak and northward of Twoheaded Island.

The coast from Cape Kiavak to the northern entrance point of Knoll Bay is foul for 0.3 mile offshore. The coast and shore of the bay are fringed with covered and visible rocks, which extend about 0.2 mile offshore.

Knoll Point, the southern entrance point to the bay, is fringed with many dangers. A rock awash, marked by kelp, lies about 0.4 mile eastward of the point, and a large group of rocks, with kelp close eastward, lie about 0.5 mile southward of the point.

Anchorage in Knoll Bay may be had in 12 fathoms during westerly weather, and small craft may anchor under the bluff in the southwest corner of the bay.

8537.—Twoheaded Island, lying off the southern entrance of the western shore of Sitkalidak Strait, rises to irregularly rounded peaks; the higher, 1,838 feet, northeastward of the southern extremity of the island, the lower 1,724 feet lies westward. A ridge, 1,442 feet high, extends along the northeastern part of the island.

The coast of the island is bold and precipitous, with numerous large boulders, and rocks awash along the shores. Two bare rocks, 24 and 28 feet high, lie near the southwest shore. The 28-foot rock is block shaped and the 24-foot rock is shaped like a finger pointing up from a heavy base.

The passage north of Twoheaded Island, to Jap Bay and Kaguyak Bay, has a channel width of 0.8 mile. In navigating the passage, vessels should avoid the foul area extending southward of Knoll Point, and favor Twoheaded Island.

Jap Bay, consisting of an inner and outer bay, is narrow and has its entrance 2 miles northwestward of Twoheaded Island. A rock, covered 2 fathoms and generally not marked by kelp, is in the middle of the entrance. Broken bottom extends northeastward of the rock to a group of large rocks, 60 feet high, which overspread the eastern part of the entrance. The eastern and western shores of the bay are fringed with many sunken and rocks awash. The channel for entering the bay is westward of the 2-fathom rock.

Vessels may anchor near the head of the outer bay. After entering proceed midchannel until the inner tangent of the group of large rocks in the entrance is in range with the outermost of the two high rocks off Twoheaded Island. Then anchor in 15 to 16 fathoms, mud bottom.

The restricted entrance to the inner bay is about 100 yards wide. The channel curves around the end of the gravel spit but has a depth of 11 fathoms. An excellent anchorage is in the inner bay just north of the spit. The swinging radius is about 270 yards in a basin having depths of 9 to 10 fathoms, mud bottom. A vessel may be beached on the north side of the spit.

Cape Kaguyak is about 2 miles southwest of Twoheaded Island and between them is the passage leading to Jap Bay. The area in the vicinity of the cape is foul. The 163-foot rocky islet at the southeastern tip of the cape has the appearance of a huge sun dial. The outermost danger is a rock covered 2½ fathoms lying 0.6 mile northeastward of the cape. **Kaguyak Bay,** immediately westward of the cape, affords anchorage at the head of the bay in 6 to 9 fathoms from westerly and southerly winds. With northeast winds small craft may find a fairly comfortable anchorage under the bluff on the southeast side of the head of the bay.

The native village of **Kaguyak** (1960 population 36) is at the head of Kaguyak Bay. No supplies are obtainable.

The coast of **Aliulik Peninsula** from Cape Kaguyak to Cape Trinity, the southwestern extremity of Kodiak Island, is bordered by foul ground. Extensive foul areas also surround Geese Islands and Aiaktalik Island which lie along this coast. Geese Channel is not navigable except for small vessels, and ships proceeding along this coast pass through Sitkinak Strait. Old Kaguyak Bay and Russian Harbor provide anchorage for small vessels.

The southernmost peak, 2,200 feet high, on Kodiak Island is about 5 miles westward of Cape Kaguyak. This detached mountain is regular in outline and forms a distinctive mark. From the mountain toward Cape Trinity is a long gradual slope.

Flat Island, about 0.9 mile off the entrance of Old Kaguyak Bay and 6 miles southwestward of Twoheaded Island, is flat topped and 119 feet high. This island has sheer rocky bluffs. A pinnacle rock 38 feet high and another rock outside of it, lie close to the southwest end of Flat Island. The rocky reef extending 0.7 mile to the northeastward shows in small groups of rocks.

A channel exists between Flat Island and the mainland; its width is narrowed by heavy kelp beds lying on either side.

Old Kaguyak Bay affords protection to small craft in northerly weather. A rock, 28 feet high, lies in the center of the entrance and a rock which uncovers about 3 feet lies 100 yards southwest of the elevated rock. To enter pass between the elevated rock and Boot Point but favor the shore around Boot Point to avoid the rock that uncovers 3 feet. Anchor in about 3 fathoms, sandy bottom, a little northward of the center of the bay.

Boot Point, forming the western side of the entrance of Old Kaguyak Bay, is marked by a humped hill 496 feet high.

About 0.5 mile southwestward of the western extremity of the headland forming Boot Point are two islets close together. The highest part, the northern end of the western islet, is 41 feet. The islet 0.2 mile farther offshore is 19 feet high. The islet 0.1 mile inside is 10 feet high.

Geese Islands, three in number, are flat in appearance, the easterly and highest being 150 feet high. The passages between the islands are dry at extreme low tide and the area for 1 mile south of the islands is foul.

A reef and shoal area extends 3 miles eastward from the eastern Geese Islands, terminating in a rock covered 2½ fathoms. The rock breaks in a moderately heavy sea but not in ordinary weather. The reefs, 1 mile inside of the rock, bare 4 to 7 feet. It should he noted that the bottom shoals very abruptly in this locality.

Aiaktalik Island, about 2.5 miles westward of the westernmost of the Geese Islands, shows as two knolls; the eastern one 308 feet, being the sharper and higher.

The native village of **Aiaktalik** with a Greek church, is on the cove on the northwest side of the island. The natives of this village move to Alitak Bay to work in the canneries during the summer, hut return at the end of the cannery season. The area south of the island is foul for 1.5 miles offshore.

A cylindrical grass-covered rock, 50 feet in diameter and 58 feet high, stands on the shore reef at the western end of Aiaktalik Island.

Sundstrom Island lies just off the southwest end of Aiaktalik Island. Several wart-like projections rise above the general level of the island which is about 70 feet; the highest is 158 feet. The shores consist of rocky bluffs.

The passage between Sundstrom and Aiaktalik Islands should prove useful to small craft in that it avoids the tide rips around the southwest point of Sundstrom Island. Both sides of the narrow passage are lined with heavy kelp bnt the midchannel is clear of kelp and has a controlling depth of about 2½ fathoms.

The passage between Aiaktalik and Geese Islands is navigable for small vessels and has a controlling depth of about 6 fathoms. The chart is the best guide.

The passage hetween Kodiak Island and the chain composing Aiaktalik Island and Geese Islands, via Geese Channel and Russian Harbor, is used considerably by small local vessels.

Geese Channel, the passage northward of Geese Islands, has a controlling depth of about 3¾ fathoms. Shoals and reefs lie scattered in the passage. Several buoys mark the channel; they are numbered from west to east. Heavy kelp marks the shoal patch 0.5 to 0.9 mile westward of the west island of the Geese Islands.

Russian Harbor, between Aiaktalik Island and Kodiak, is a temporary anchorage in moderate weather, in about 8 fathoms, hard sand bottom. There is but little shelter and strong tide rips are frequent.

In general it is difficult to make courses good passing through Russian Harbor due to strong currents, swirls, and eddies. **Aiaktalik Island Light (56°43.9′ N., 154°02.9′ W.),** 57 feet above the water, is shown from a small white house on the north point of the island. A middle ground in Russian Harbor has depths of 2½ fathoms.

In **Aiaktalik Cove,** the seas and wind sweep around the point in moderate weather, making the cove an uncomfortable anchorage. The best anchorage for small vessels, affording excellent protection from the prevailing northeast weather, is on the Kodiak Island side of Russian Harbor. This anchorage is 0.8 mile northward of the point located 4.4 miles eastward of Cape Trinity, opposite a stretch of sand beach in a break of the shore reef. The anchorage is in 4 fathoms, soft sand hottom.

Sitkinak Strait is the broad strait lying between Trinity Islands and Kodiak Island. It is navigable for large vessels.

The eastern approach is marked by Geese Islands on the nortb and **Cape Sitkinak,** the eastern end of Sitkinak Island, on the south. As viewed from seaward, this end of Sitkinak Island shows as precipitous dark rock and shale bluffs dominated by two peaks or heads, the northern one 605 feet high and the southern one 821 feet.

Two groups of two bare rocks lie 0.5 mile and 1 mile off Cape Sitkinak. The outer group, light gray in appearance, is 17 feet high, and the inner group is 13 feet high. Rocks awash lie outside of the outer group of bare rocks.

An extensive fan-shaped reef, the limits of which are marked by thick growing kelp, extends almost 2 miles east and south of the southeast point of Aiaktalik Island. It is made up of two rocky ledges and many individual rocks, most of which uncover. It is believed that the rock on which the PAVLOF struck is located near the edge of this reef.

A bank of considerable extent, with a least depth of 4½ fathoms, lies near the middle of Sitkinak Strait about 2 miles north of Whirlpool Point.

Whirlpool Point, northern point of Sitkinak Island, is

low, flat, and sandy. **Whirlpool Point Light (56°37.0′ N., 154°05.5′ W.)**, 51 feet above the water, is shown from a small white house on a skeleton tower on the point.

Currents.—The currents in Sitkinak Strait set westward on the flood and eastward on the ebb. There are heavy tide rips in the strait particularly southwest and west of Alaktalik Island. So far as observed, they are heaviest with a westerly wind and a flood current. The tide rips are often dangerous for small craft and troublesome for small vessels. At times when the current opposes seas from eastward in the vicinity of Whirlpool Point, the seas become very steep. Current predictions for Sitkinak Strait may be obtained from the Tidal Current Tables.

Routes, Sitkinak Strait.—A rocky ridge on Albatross Bank on which a depth of 8 fathoms was found, lies in the seaward approach to Sitkinak Strait from the southeastward. The ridge lies about 42 miles 105° from the summit of Sitkinak Island. It should be avoided.

Enter the strait on a **270°** course passing about 4.3 miles north of Sitkinak Cape and 1.2 miles off Whirlpool Point Light. Continue on this course for 4 miles until Dolina Point bears 190°. Then change to **000°** and continue to a position 2.2 miles west from Cape Trinity. Due regard must be had for the strong currents in this strait.

If bound for Alitak Bay, follow routes given later in this chapter.

Chart 8556.—Albatross Bank lies about 45 miles off the southeast coast of Kodiak Island. The depths on this bank range from 8 fathoms to about 61 fathoms.

An area, having depths ranging from 12 to 20 fathoms and covering approximately 50 square miles, lies between 153°00′ W. and 153°20′ W., and between 56°20′ N. and 56°28′ N. The bottom characteristics noted on this area include gray mud, fine black sand and gravel, and rock. Kelp has been seen on this area at various times. On occasion, moderate tide rips have been noted.

A rocky shoal is a short distance to the eastward of the kelp shoal just described. The depths range from 8 to 10 fathoms with a very irregular rocky bottom. The shoalest part is a sharp rocky ridge with a depth of 8 fathoms. It is located in 56°22.5′ N., 152°56.5′ W. Currents having a velocity of about 3 knots were observed in this area. It should be avoided in heavy weather on account of possible breakers.

A 7-fathom bank is in 56°40′ N., 152°10′ W. There may be less water. This shoal is separated from the shoals previously described by an extensive trough of deep water. This trough extends in a northerly direction and appears to extend into both entrances of Sitkalidak Strait and eastward Sitkinak Strait.

Barry Islands, off the south end of Kodiak Island, south of Sitkinak and Tugidak Islands inhabited only occasional hunters and fishermen in the summer and deserted in winter. Unsurveyed areas include the southeast of Sitkinak Island and all of Tugidak Island except the northern end. Soundings in these unsurveyed areas are from reports.

The island beaches are heavy shingle, gravel, and in places fine sand; a few alder bushes are on both islands. Landings are easy with offshore winds, but with any change the sea makes up rapidly. Fresh water can be obtained from the ravines and pools on the islands.

Sitkinak Island (see also chart 8537), the eastern island, is divided into two parts by **Sitkinak Lagoon,** which is navigable through the northern entrance by small vessels, except during easterly swells or seas. The south entrance, fringed with rocks that uncover, should be attempted only with a calm sea; a small launch may enter at high water. The lagoon is a flat traversed by tidal channels, which are fairly deep near and inside the entrance, but the connecting channel between them is only 3 feet deep at high water.

Sitkinak Dome, 1,640 feet high, prominent, and with a smooth rounded top, dominates the western side of Sitkinak Island. A 625-foot high tower is about 2.2 miles southeast of the dome.

The east end of Sitkinak Island and Whirlpool Point have been described under Sitkinak Strait.

The island eastward of the lagoon is composed of many hills, some of which are separated from one another by low valleys. The northwest side of the island, southwestward of **Dolina Point,** is made up of earth cliffs several hundred feet high, broken by narrow ravines.

The south coast of Sitkinak Island is foul and should be avoided. Kelp beds extend 0.5 to 2 miles off the eastern and southern shores. A bank having its center 9.5 miles south-southwestward from Cape Sitkinak has not been fully surveyed. The depths on this bank range from 11 fathoms to 20 fathoms. The bank covers an area varying from 0.5 to 1.5 miles in width, 6 miles in length, and extending in a north-northeast and south-southwest direction. The bank is an extension of an extensive area along the south coast of Sitkinak Island having depths less than 20 fathoms with irregular bottom in most places.

A temporary anchorage is off the south entrance to Sitkinak Lagoon. This part of the south coast of the island is recognized offshore by the flatland at the lagoon. A prominent rocky point with an arched opening 50 feet high marks the entrance to the lagoon. To reach this anchorage from outside the 20-fathom curve, steer for the point with the arched opening bearing **026°**, and anchor in not less than 11 fathoms about 1 mile from the point.

Tugidak Passage, between Sitkinak and Tugidak Islands, has very strong and freakish tidal currents and rips. Only the north approach has been surveyed. The south approach is apparently blocked by shoals. Tide rips in the middle of the passage are extremely dangerous to small boats and should be avoided by hugging the Tugidak Island shore.

Tugidak Island, in its northern part, is chiefly sandflats, but little above high water. A level boulder patch which uncovers, lies 0.5 mile off the north coast of Tugidak Island, 5 miles westward of Tugidak Passage.

The higher parts of the island are low grassy sandhills which terminate in bluffs in places along the shores. The northern part is separated from the southern or higher

part by a large lagoon having one entrance from the southeast.

The lagoon is reported to bare, except near the sonthwestern side of the entrance where there is a pocket or basin of about 5 to 6 fathoms, sand bottom. The basin is suitable for anchoring a small boat, protection from the sea being afforded by a long sandspit extending eastward from the entrance point on the southwest side. A narrow channel leads from Tugidak Passage to the basin. This channel follows the southeast side of Tugidak Island. It is almost bare at low water so passage in and out is possible only at half or greater tide.

In 1909, Mr. S. Applegate located the foul and broken area which extends about 10 miles southward from the south end of Tugidak Island, as shown on the chart, by compass bearings on Tugidak Island and the summit of Sitkinak Island. Until a survey is available it is considered unsafe for vessels to cross this area. The bottom is very uneven, the depths changing abruptly from 2 to 4 fathoms in places, and boulder reefs with little depth may be expected. There are strong currents and heavy rips and overfalls.

The waters off the northern end of Tugidak Island have been surveyed. The general absence of kelp in this comparatively shoal area may be taken as an indication of the existence of bnt little if any ledge rock. The bottom apparently is composed of loose material including boulders leveled down by the action of the sea to form the more or less flat area of this region of 5 to 7 fathoms. Slight shoaling occurs in patches where apparently there is a predominance of boulders resisting the general leveling action of the sea.

The north and west sides of Tugidak Island may be generally approached as close as 1.5 miles in good weather by a careful use of the lead. Care should be exercised near the middle of the west side of the island, as an unsurveyed bank reported to be covered as little as 2 fathoms lies possibly 2 or 3 miles off.

Ptarmigan have been found in great number on Tugidak Island.

Chirikof Island (see also chart 8851) lies about 60 miles south-southwestward of the Trinity Islands. The southern part of the island has bold, high peaks and bluffs, from which it gradually slopes to the north end, terminating in a low, green undulating country. An islet is near the southeast end. The island is easily recognized and is visible for many miles in clear weather.

Anchorage may be found in the bight at the southwest corner, **Southwest Anchorage,** at the mouth of the stream and opposite the houses; or in 10 fathoms, on the west side off the bluff just south of the stream, possibly 2 miles from the northwest point. There is foul ground between Chirikof Island and the islets west of it. These islets are known as **Nagai Rocks**; the largest, **Round Rock,** resembles a haystack.

On numerous occasions breakers have been observed off the southern end of Chirikof Island. The position of the breakers is reported to be 55°42′ N., 155°36′ W. A least depth of 4 fathoms was reported on the reef. The area of possible shoal water does not appear to be over 50 to 100 yards in diameter.

A shoal is reported to extend from the east side near the middle of the island; breakers have been reported 3 miles 114° from the middle of the island. A breaker is reported in an estimated position 4 miles east-southeastward from the southeast point of the island. A shoal with kelp is reported to extend about 1 mile westward from the northwest point of the island.

In 1923 the U.S.S. CARDINAL was wrecked on the east side of Chirikof Island and the survey ship DISCOVERER while engaged in rescue work struck a reef about 1.5 miles offshore.

The wide passage between Chirikof Island and Tugidak Island has not been adequately surveyed. From widely scattered soundings taken in this locality, it appears that a snbmarine ridge with depths less than 10 fathoms extends from one island to the other. Foul and broken bottom extends about 10 miles southward from Tugidak Island. Fairly regular depths across the ridge are indicated in the more closely sounded area 10 miles northward of Chirikof Island. Tugidak Island is low and featureless and cannot be used as a navigational guide in the passage. Vessels bound for Chignik from the eastward use this passage.

Currents.—Between Sitkinak and Chirikof Islands the general set of the current is reported to be about 240°, 0.5 knot. The current between Chirikof Island and Lighthouse Rocks has a southerly set, less than 0.5 knot. From Lighthouse Rocks to Kupreanof Point the current sets generally 260° and varies from 0.3 to 0.7 knot.

On three runs between Chirikof Island and Castle Rock, Shumagin Islands, a southerly set was experienced each time, an average of as much as 1.5 knots having been noted.

Vessels crossing the Gulf of Alaska westbound are often subjected to a strong northerly set and should verify their position by sounding when approaching the meridian of Chirikof Island. It was this northerly set in conjunction with thick weather that was responsible for the loss of the CARDINAL in 1923.

Charts 8537, 8575.—Alitak Bay, at the south end of Kodiak Island has its entrance between Cape Alitak and Cape Trinity, and extends 26 miles in a northerly direction to the head of Deadman Bay. Lazy Bay is a good anchorage, convenient to Cape Alitak and the site of a salmon cannery operated by the Pacific American Fisheries. The cannery of the Alaska Packers Association is located on Olga Bay at the head of the northwest arm of Alitak Bay.

The conntry is treeless and except for outcropping ledges of bare rock on the knolls and peaks, the land is covered by thick moss and grass. A herd of reindeer is maintained in the vicinity of Lazy Bay by the natives.

The only mail service is that furnished by the cannery steamers dnring the fishing season. During the winter the only commnnication is by an occasional halibut boat or trading vessel.

The prominent feature in the approach is Twin Peaks on the peninsula between Lazy Bay and Kempff Bay. It can be seen from off Cape Ikolik on a clear day. The peninsula between Kempff Bay and Olga Bay is mountainous and rises to 2,000 feet.

Cape Trinity, the southern entrance point to Alitak Bay, is a tableland terminating in an almost vertical bluff. Rocks and reefs extend a short distance off the cape.

Cape Alitak, the northern entrance point of Alitak Bay, is the south end of a sloping ridge with numerous knolls. It is partly grass covered with much bare rock. Deep water extends close up to the cape on its southwest side, but a long shoal of fine gray sand makes off its southeastern side in the direction of Cape Trinity. The 10-fathom curve extends 3 miles off the cape and the 5-fathom curve lies about 1.3 miles off. At the outer end of the shoal the depth increases rapidly to 20 fathoms. **Cape Alitak Light (56°50.6′ N., 154°18.3′ W.),** 63 feet above the water, is shown from a small white house on the southern end of the cape.

Lazy Bay, lying 4 miles northeastward from Cape Alitak, is well marked by Twin Peaks and Egg Island on its north side, and some white rocky ledges close to its southern entrance point. The shore south of the entrance is clear if given a berth of 0.4 mile with the exception of the shoal making off the southeast side of Cape Alitak.

A cannery with a wharf is located on the north shore about 1 mile westward from Egg Island. The length of the face is reported to be 140 feet and the depth alongside 28 feet. Fresh water is available at the wharf and the cannery has limited machine shop facilities. Diesel and fuel oils are stored in some quantity for cannery use. The cannery maintains a store the year round, and radiotelephone and radiotelegraph communications are maintained with the Alaska Communication System. A slipway capable of hauling out vessels up to about 130 tons, with a maximum draft of 6 feet forward and 8 feet aft is located here.

The northern part of the bay beyond the sandspit above the cannery consists of mudflats and many boulders.

Anchorage in 9 to 15 fathoms, mud bottom, may be had ween the cannery and the eastern entrance point to man Reach. With easterly gales the wind blows ctly in Lazy Bay and there is little room in case of ging or parting a cable. Northwesters blow with t force into Lazy Bay from over the ridge back of the of the bay. Small craft can find excellent shelter smooth water in the entrance to Rodman Reach during rly weather.

dman Reach is a narrow arm which extends southard from Lazy Bay and inside of **Tanner Head** to Alitak where it forms a shallow basin from which **Lagoon,** also shallow, extends 3 miles northward, separated from the sea by a narrow shingle spit. 100 yards off the eastern entrance point is a rock bares 9 feet at mean lower low water. Excellent for small craft will be found in the entrance to n Reach.

Island is the low, flat rocky islet off the northern entrance to Lazy Bay. **Lazy Bay Light (56°53.5′ N., 154°12.9′ W.),** 25 feet above the water, is shown from a small white house on the south side of the island.

Twin Peaks, between Lazy and Kempff Bays, are a mark from as far westward as Cape Ikolik. **North Twin Peak,** the higher one, is 1,495 feet and **South Twin Peak** is 1,310 feet. Both peaks are fairly definite, devoid of vegetation, and very rocky and stony. From the westward they are first raised as an island.

Kempff Bay, on the north side of Twin Peaks, is too deep for convenient anchorage and on its north side has broken bottom that should be avoided. There are neither settlements nor improvements in Kempff Bay.

Favoring somewhat the south shore through the bay, anchorage can be selected near the head in about 18 fathoms. A spit with deep water close-to extends 350 yards from the north shore at a point 0.7 mile from the head.

A reef covered at high water, lying between **Drake Head** and **White Rock,** extends 0.5 mile from the shore just southward of Kempff Bay. White Rock, 10 feet high, should be given a berth of 0.3 mile when passing east of it in Alitak Bay and the same distance when passing north of it entering Kempff Bay.

Akhiok (1960 population 84), a native village on the beach of **Akhiok Bay** about 1.5 miles northeastward from Kempff Bay, has a schoolhouse and a Greek Catholic church. A foot trail leads from the cannery at Lazy Bay to Akhiok. Akhiok is best reached by launch via the passage from Kempff Bay. This passage is shoal and has many rocks. A pilot can usually be obtained at the Lazy Bay cannery.

Round Hill, 193 feet high, is a symmetrical, round grassy knoll at the east end of **Akhiok Island** which forms the north side of the entrance to Kempff Bay.

Akhiok Reef, awash at extreme high water and always showing, is a group of black jagged rocks lying about 0.6 mile off the southeast point of Akhiok Island. In clear weather the reef makes a good landmark. A deep pocket of 30 fathoms is 350 yards southeast of Akhiok Reef.

Small vessels, with local knowledge, when bound from Lazy Bay to Moser Bay pass between Akhiok Reef and Akhiok Island. Strangers are advised to keep to the east of Akhiok Reef.

Middle Reef covers an area about 2 miles long in the central part of Alitak Bay. The northwest end of the reef area is marked by a group of black rocks that uncover about 7 feet and will usually be seen or breaking. A kelp-marked rock which uncovers 2 feet and a ledge which uncovers 5½ feet lie along the eastern side of the reef area. The kelp-marked shoal at the southern extremity is covered 2¾ fathoms. There is little if any warning of shoaling of the general depths of the bay adjacent to the reef area.

Nelson Reef, which has a least known depth of 2½ fathoms, lies 1.5 miles northward of Middle Reef and 2.7 miles east-southeastward from the entrance to Moser Bay. A thin growth of kelp is sometimes seen on this reef.

Moser Bay, the large northwest arm of Alitak Bay, has depths of 10 to 15 fathoms, soft mud bottom. It is a secure

harbor and an excellent anchorage. The entrance is between **Bun Point,** low and sandy, and **Amik Islet,** rocky, on the south; it is obstructed by a rocky shoal which makes northward from Amik Islet for nearly 0.5 mile. The north end of the shoal is marked by a buoy.

The channel between Bun Point and the northern end of the rocky shoal is 175 yards wide and lies close to Bun Point. It has a least depth of about 5½ fathoms and strong tidal currents flow in the direction of the axis of the channel.

About halfway between Bun Point and Fassett Point is a shoal which extends halfway across from the northeast shore toward a spit on the opposite shore. The shoal has a depth of 3 fathoms at its outer end which is marked by a buoy.

A gravel shoal which uncovers extends 400 yards eastnortheastward from the spit on the south shore opposite the shoal described above.

Fassett Point, a low grassy head with lower land back of it, is the turning point on the northeast side of Moser Bay, nearly 2 miles inside the entrance.

Trap Point is the low point across the channel from Fassett Point. The Alaska Packers Association maintains a warehouse, wharf, and ways for hauling out scows here. The wharf has a face of 100 feet and a least depth of 34 feet alongside.

Snug Cove, southwestward from Trap Point, shoals gradually to its head. A pass between the mountains extends from Snug Cove to the sea.

Chip Cove is on the west side of Moser Bay 1.5 miles north of Trap Point. The cannery pier, on the west side of the cove entrance, has depths of 20 feet alongside the working faces.

Radiotelephone and radiotelegraph communications are maintained by the cannery with the Alaska Communication System.

Olga Narrows connects Moser Bay with Olga Bay. It is possible to carry about 21 feet through the passage only by carefully following the narrow and crooked channel. It should not be attempted except with local knowledge.

The **current** in the narrowest part of Olga Narrows attains an estimated velocity of 8 knots. During large tides there is no stage at which there is slack water the entire length of the narrows. During small tides there is said to be a period of slack water lasting from ½ to 1½ hours.

Olga Bay is an irregularly shaped body of water 17 miles long. The western end is separated from the ocean by a strip of land 1 mile wide at a point 6 miles north of Low Cape. The shores of Olga Bay are rocky except at the western end where low grassy bluffs are from 10 to 80 feet high. On the north and south shores of the bay the land rises abruptly from 800 to 2,000 feet.

The bay has the appearance of a lake and the rise and fall of the tide is only from 1 to 2 feet at the cannery which is on the north shore about 8.5 miles above the narrows. A store is open the year round and a limited amount of supplies can be obtained. During the season fresh water may be obtained at the wharf, where the depths vary from 7 to 11 feet. Radiotelephone and radiotelegraph communications are maintained with the Alaska Communication System.

Anchorage for fishing craft can be found at several places along the shores. The best anchorage is in Anchor Cove on the south side of Olga Bay, 5.5 miles above the north end of the narrows. The canuery company has dolphins here where small boats are tied up over the winter.

Deadman Bay is deep except near the head where it divides into two arms. The northerly arm terminates in a mudflat, while the easterly arm, known as Alpine Cove, affords an excellent anchorage. The northwest shore of Deadman Bay is fringed with numerous rocks and reefs, while the southeast shore is bold and unusually clear. No settlements are along the bay, only an occasional cabin used by trappers during the winter season.

Between Bun Point and Fox Island are several offlying islets and rocks and much foul ground. The shore here should not be approached closer than 1 mile except with local knowledge.

Fox Island, lying about 0.5 mile off the west shore near the entrance to Deadman Bay, is bordered by bluffs and is 90 feet high. It is grass covered and comparatively flat. It is a good mark in entering Deadman Bay.

Alpine Cove, the easterly arm at the head of Deadman Bay, is a beautiful cove surrounded hy high rugged mountains. An excellent anchorage is near the entrance in 12 to 15 fathoms, mud bottom, and sheltered from all winds and seas.

From Cape Trinity, the eastern shore of Alitak Bay trends north-northeastward for about 14 miles to Shag Bluff, the southern entrance point of Portage Bay. This section of the coast has many visible and covered rocks, and reefs, extending in places as much as 0.6 mile offshore.

Portage Bay opens into Alitak Bay from the northeast. **Bert Point,** dark and rocky, 3.7 miles westward of Cape Hepburn, separates the bay into two arms.

Sulua Bay, the main or western arm, extends 3.5 miles northerly from Bert Point. Between **Cape Hepburn** and the western entrance point of Sulua Bay, a bank, with reefs and rocks, extends as much as 0.5 mile offshore.

The shores of Sulua Bay are precipitous, except at its head where a stream enters through the flats. Several short gravel spits extend from the west side, and on the two uearest the entrance, are cabins used by fishermen during the season. Mooring piles are on the northern side of these spits.

On the eastern side of this arm, a bank, with depths of less than 5 fathoms, extends about 0.3 mile offshore. Two rocks, the southern one of which uncovers 2 feet, lie on this bank, and are about 1.7 and 2.1 miles, respectively, northward of Bert Point.

The eastern arm of Portage Bay is short and terminates in a large shoal lagoon extending 2.5 miles northeasterly. A stream enters through the flats at the head of the lagoon.

Shag Bluff lies on the southern side of Portage Bay, 2.4 miles southward of Bert Point. A group of visible and covered rocks, the highest, 10 feet, lies about one mile westward of the bluff. Between Shag Bluff and the head

of the eastern arm, a bank covered less than 3 fathoms, extends about 0.4 mile offshore. A shoal covered 3½ fathoms, lies on this bank about 0.5 mile southwestward of Bert Point.

A good anchorage is about 0.5 mile southeast of a 44-foot pinnacle rock at the head of Sulua Bay in 10 fathoms, mud bottom.

Routes, Alitak Bay.—Coming from the westward, steer **075°** for 88 miles from Foggy Cape bearing 327°, 10 miles. This will lead to a position in the middle of the entrance to Alitak Bay 3.6 miles 145° from Cape Alitak. The southernmost peak, 2,200 feet, on Kodiak Island should be about 3° on the port bow while passing Cape Alitak on the course given.

If following the southwest coast of Kodiak Island in approaching Alitak Bay, follow the routes given later in this chapter—Cape Karluk to Cape Alitak bearing 010°, 1.5 miles. Then steer **121°** for 2.7 miles in order to clear the shoal making southeastward from Cape Alitak. This will lead to the midentrance position 3.6 miles 145° from Cape Alitak.

To enter Lazy Bay: (1) From Alitak Bay midentrance position given above, steer **015°** for about 5.5 miles until the south shore of Lazy Bay is abeam. Then change to **309°** until Egg Island is abeam on the starboard hand, 350 yards, then change to **284°** and enter the bay. (2) If coming from Sitkinak Strait, follow routes given earlier in this chapter, to a position 2.2 miles west from Cape Trinity. Then steer **001°** for about 8 miles until the south shore of Lazy Bay bears 287°. Then change to **309°** until Egg Island is abeam on the starboard hand, 350 yards. Then change to **284°** and enter the bay.

To enter Moser Bay: (1) From Alitak Bay midentrance position given above, steer **034°** for 9.2 miles until Akhiok Range bears 297°, 3 miles. Then change to **348°**, heading 300 yards off Bun Point. This course leads 300 yards off the lighttrap on the starboard hand. When nearly up to Bun Point change to **005°**, passing 150 yards off the high-water line at the point. When the buoy bears 237°, haul westward to a **290°** course, passing about 275 yards southward of buoy.

Continue on this course for 1 mile until past the buoy marking the end of the long shoal which makes out from the northeast shore. Then haul to the northward and anchor as desired.

Strong tidal currents will be found at Bun Point setting across the axis of the channel. Large vessels should wait for slack water.

If coming from Sitkinak Strait, follow directions given earlier, to a position 2.2 miles west from Cape Trinity. Then steer **019°** for 11.5 miles until Akhiok Light is abeam on the port hand, 2.6 miles. Then change course, heading 150 yards off Bun Point, and follow directions given above for entering Moser Bay.

To enter Deadman Bay: From a position with the eastern Middle Reefs bearing 121°, 1.5 miles, make good a **041°** course for about 4 miles until the south end of Fox Island is on the port beam, nearly 1 mile. This course leads 0.5 mile northwestward of Nelson Reef, a rock with a least known depth of 2½ fathoms. When the south end of Fox Island is abeam haul to the northward and steer midchannel courses up Deadman Bay, if anything favoring the southeastern shore.

Chart 8556.—Shelikof Strait separates Kodiak and adjoining islands from the mainland of Alaska. From eastward the strait is reached by way of the passages north and south of the Barren Islands, or by way of Kupreanof Strait.

The western shore has not been surveyed, but the prominent points and most of the off-lying islands are correctly charted.

The hydrography of the main part of the strait has been done from Barren Islands to Cape Ikolik. Depths ranging from 80 fathoms in the north end to 140 fathoms in the southern entrance will be found in midchannel. Along the eastern shore, the 100-fathom curve lies from 1 to 3 miles off the various headlands. Suitable depths for temporary anchorage will be found near the shores in most places.

In thick weather when not sure of the position, depths should not be shoaled less than 50 fathoms. For deep-draft vessels it is considered safer to favor the eastern shore.

Currents.—The limited current data available for Shelikof Strait indicate that the flood sets into the strait from both ends.

Current observations have been made for short periods at various anchorages used by surveying vessels near the shore. On the western side of the strait currents of 1 knot have been recorded, setting alongshore in either direction, with the current in the southwesterly direction predominating. Apparently the current is less along the west coast of Afognak Island than on the opposite side of the strait.

At the northeast entrance to the strait in the vicinity of Dark Island and Latax Rocks, heavy tide rips, variable in position, are frequent; strong tidal currents are encountered along the coast of Shuyak Island.

Weather.—During the summer of 1908 gales and rainy conditions were frequent. June was the best month and July perhaps the worst. Northeast winds invariably bring rain and thick weather, and it is from this direction that most of the heavy weather comes. During the greater part of the season the wind when strong from this quarter rarely varied much in direction while its strength lasted, and it never backed. In the latter part of the season a northeast gale almost invariably backed through northwest to west or southwest, blowing with great force.

During the summer of 1929 good weather with a preponderance of westerly winds prevailed throughout June, July, and August. Southeast gales were of frequent occurrence in September, but no northwesterly gales were experienced until after October 1.

Southeast winds generally bring clouds, but may be accompanied by either rain or fair weather.

Southwest and west winds are invariably accompanied by fine clear weather, but they often blow with great force. The southwest gale is perhaps the most to be

dreaded in Shelikof Strait, as it raises a short, heavy sea that is trying to a small vessel.

Southerly winds generally bring a haze, which is sometimes so thick as to resemble fog.

Northwest winds bring fair weather and a clear atmosphere; however, in the wake of the Katmai region, the air may be hazy due to volcanic dust.

During the early spring northwest gales are often accompanied with freezing weather and vessels are in danger of becoming iced down. Small craft especially should hug the northwest shore under such conditions, so that they may seek shelter before the icing becomes serious.

Gales in this region last without intermission anywhere from one to three days.

Northeast winds are generally accompanied by a low barometer and southwest winds by a high barometer, but the rule is not invariable. The barometer is of little value or no value in foretelling the weather, as it accompanies rather than precedes corresponding conditions. The slope of the barometric curve is apt to change suddenly, the weather changing with equal suddenness. A sure sign of rainy weather and wind from the northeast is the gathering of clouds on the northeast side of the mountains.

During strong westerly winds, the atmosphere often becomes filled with a fine volcanic ash reducing visibility to a distance of 1 mile or less.

Little fog was encountered during the season, but blinding snowstorms were frequent in early spring.

The western coasts of Shuyak and Afognak Islands trend 218°. The distance from the northernmost Latax Rocks, described earlier in this chapter, to Raspberry Cape is 48 miles. From Raspberry Cape the eastern coast of Shelikof Strait trends 230° for 45 miles to Cape Karluk.

Chart 8533.—The western side of **Shuyak Island** is irregular and fringed by a chain of islets and rocks about 1 mile offshore. Between them and the island are many rocks and kelp patches. The outer ones lie nearly on a line through Gull Island from Black Cape.

Shag Island, a group of grass-covered islets, is 36 feet high and lies 0.9 mile westward of Party Cape. A bare rock 3 feet high lies 0.6 mile northward of Shag Island.

Wonder Bay, lying southeastward of Shag Island, is rock strewn and should not be entered except by launches with local knowledge.

Gull Island, 2.8 miles southwestward of Party Cape, has a distinctive dome-shaped top, grass covered, and 83 feet high. Several large reddish rocks lie to the north of it. It marks the entrance to **Western Inlet,** which is shallow and foul. Gull Island is connected to the large island at the entrance of Western Inlet by a sandspit which bares at minus tides. This area is extremely foul.

Big Bay, 2.5 miles southward of Gull Island, is of considerable size, having a main arm branching into four smaller arms at its head. The main arm has a controlling depth of 3½ fathoms, and although it affords protection in northeasterly weather, it should not be attempted without local knowledge, as its entrance is obstructed by numerous rocks, many of which uncover. The smaller arms are not accessible except to very small craft.

Chart 8573—Shuyak Strait, between Shuyak and Afognak Islands, is not recommended as a through passage for ships by reason of its restricted eastern entrance and broken bottom in the seaward approach from the eastward. Its western approach in Shelikof Strait is characterized by less uneven bottom and the western entrance is mainly clear and 1.5 miles wide.

Islets and rocks, which uncover, are on both sides of the western approach to Shuyak Strait. The best water is found by favoring the north side of this approach.

Shuyak Strait is apparently clear of dangers in midchannel except as noted below. Soundings indicate depths of 60 to 80 fathoms near midchannel as far east as Redfox Bay. Wooded hills, about 400 feet high, line the rocky shores on both sides, and there is practically no low flatland.

Rocky Islet, 4 miles westward from Lighthouse Point, lies on the south side of the western approach to Shuyak Strait. It is a bare rock 12 feet high and about 100 feet wide. Midway between Rocky Islet and Lighthouse Point, but southward of a line between them, is a reef bare at half tide. The reef is marked by kelp and surrounded by shoal water.

The outermost danger on the north side of the western approach to Shuyak Strait is a rocky shoal of 2 fathoms about 3 miles 052° from Rocky Islet. A rock baring at minus tide is 400 yards northeastward of the rocky shoal, and the area inside of them to **Green Island** and thence to the shore at Neketa Bay is foul.

Neketa Bay is a small bay east of Green Island, very shoal, with a reef extending nearly across its entrance.

A rocky bank of 12 to 17 fathoms is about 1.5 miles northeastward of Rocky Islet. In approaching the western entrance of Shuyak Strait it would be advisable to pass northward of the bank.

Alligator Island, so called from the resemblance from certain directions, is grass covered, 0.3 mile in diameter, and 64 feet high; the island lies 1.3 miles southward from Rocky Islet. **Alligator Island Light (58°28.3′ N., 152°47.6′ W.),** 70 feet above the water, is shown from a small white house on the northwestern side of the island.

Cape Newland, the southwestern extremity of Shuyak Island, is 75 feet high and grass covered to the tree line. Rocks awash at various stages of the tide, are detached 400 yards westward and about 600 yards southward from the cape. Broken bottom extends into the entrance to Shuyak Strait about one-third the way from the cape to Lighthouse Point.

Lighthouse Point, 4.2 miles eastward of Alligator Island and grass covered to the tree line, is on the south side of the western entrance to Shuyak Strait. The bight just east of the point is foul. **Lighthouse Point Light**

(58°29.0′ N., 152°39.0′ W.), 60 feet above the water, is shown from a small white house on the point.

Shuyak Harbor is about 1.3 miles northward of Lighthouse Point, and southeastward of Cape Newland. Two bare rocks, 12 and 5 feet high and 100 yards apart, are in midentrance to the harbor; they are surrounded by rocks awash and are nearly connected at low water. A pinnacle rock, covered three-quarter fathom, is eastward of the midentrance rocks, leaving a narrow channel between it and the eastern entrauce point. The better channel into Shuyak Harbor is westward of the midentrance rocks. The harbor has swinging room of about 200 yards. The salteries in this harbor have been abandoned and the wharves are no longer maintained.

Port Lawrence is a bight on the north shore of Shuyak Strait, 1.5 miles from the western entrance. A small grass-covered 15-foot islet is in the eastern part of the bight. The wharf at the abandoned herring plant is in bad condition and cannot be used.

Port William, 0.5 mile east of Port Lawrence, is 0.3 mile wide and 0.5 mile long. A cannery is operated here. The wharf has a face 184 feet long with a least depth alongside of 21 feet. The direction of the face is 082°. Fresh water is piped to the wharf. Radiotelephone and radiotelegraph communications are maintained with the Alaska Communication System. At a small oil wharf diesel oil and gasoline can be obtained.

A rock, which uncovers 2 feet, and marked by kelp, lies 250 yards offshore between Port Lawrence and Port William. Nearby and closer inshore is a rock about 10 feet high.

Redfox Bay, the largest indentation on the south side of Shuyak Strait, has general depths of less than 20 fathoms, mud bottom, and affords excellent anchorage in any weather.

An islet, 158 feet high, and wooded on its southern half, lies in the middle of the entrance. Westward of the islet, about 100 yards off the western shore of the bay, are some rocks that uncover 2 feet. Freight steamers use the channel between these rocks and the islet, which is about 200 yards wide and clear, and anchor just south of the islet to discharge cargo to boats and barges; swinging room of about 700 yards is available here.

A pinnacle rock, unmarked by kelp, which uncovers 2½ feet, lies off the entrance to a small cove on the eastern shore of the bay 0.8 mile southward from the entrance islet.

The diurnal range of the tide in Redfox Bay is 13.4 feet.

The bay, about 1 mile eastward of Redfox Bay, is foul in places. The bottom is irregular.

Daylight Harbor is 0.5 mile southeast of Port William. The herring plant here has been abandoned, and the wharf is in ruins. From this harbor to **Cape Current,** a distance of about 8 miles, there are no important indentations.

A dangerous patch of small rocky heads with a least depth of 2¾ fathoms exists about in the middle of the strait 2.3 miles from its eastern end. This danger is abreast of two small islets, the western one is about 100 yards in diameter, partly grass covered and wooded. The kelp marking this spot usually is drawn under by the current.

Cape Current Narrows forms the eastern end of Shuyak Strait, and is about 1 mile long. Rocky obstructions in the narrows near the eastern end greatly reduce the width of the channels on either side of them; the channel along the north shore is preferred.

The Shuyak Island shore of the narrows is abrupt, wooded, and about 700 feet high. The Afognak side is grass covered for about 200 feet back from the shore and about 50 feet high with level top and abrupt shore.

The western part of the narrows apparently is clear with general depths over 10 fathoms. Broken ground with numerous rocks, either above water or baring at various stages of the tide, extends from the south shore near Cape Current to within 195 yards of the north shore. Along this part of the narrows, vessels should pass about 100 yards off the north shore where the least found depth is 8 fathoms. A channel exists through the middle of the narrows, passing between the rocks on the broken ground, but it cannot be recommended to those without local knowledge.

The tidal currents at Cape Current Narrows are strong, and bad tide rips are frequent. Current predictions may be obtained from the Tidal Current Tables.

A large kelp patch is off the eastern entrance to the narrows just south of Big Fort Island.

Entering Shuyak Strait from Shelikof Strait, vessels pass about 1 or 1.5 miles northward of Rocky Island and head for the middle of the strait on a course about **113°.**

Bluefox Bay, indenting the shore of Afognak Island southwestward from Lighthouse Point, has an entrance about 2 miles wide.

Teck Island, Hogg Island, and **Bear Island** are the three principal islands overspreading the entrance and the area inside of Bluefox Bay. A herring reduction plant and wharf with fresh water, are on the south side of Hogg Island. A wharf extends to deep water at the eastern end of Hogg Island.

Three channels lead into Bluefox Bay. The western channel has been used by small craft, but it is foul and is not recommended.

The eastern channel is the one in general use, but it also contains several dangers and should be navigated with caution. A rock with a least found depth of 3¼ fathoms lies in midchannel about 200 yards off the middle of the east side of Hogg Island. A rock with a least depth of 1 fathom lies 375 yards east from the southeast point of Bear Island. A rock bare at low tide lies about 0.5 mile south-southeastward from the same point. At this rock the tangents of Hogg and Bear Islands are nearly in range. A rock with 2¼ fathoms over it lies 200 yards off the southeast point of the same island just south of Bear Island.

To enter Bluefox Bay, vessels are reported to hold the course into Shuyak Strait until the eastern channel

opens; then to change course to about **177°** and proceed through the east entrance in midchannel, heading for a wooded point on the east side of the bay near its head, but favoring the west side of the channel near the 3¾-fathom spot mentioned above. Navigation beyond Bear Island is difficult, and the chart should be followed closely.

Chart 8533.—The west coast of Afognak Island from Shuyak Strait to Black Cape is irregular, rocky, and wooded to an elevation of about 700 feet. Some grass appears on the points. The small island about halfway between Black Cape and Alligator Rock is about 0.3 mile in diameter, 48 feet high, and covered with grass. Inside a line from Black Cape to Alligator Island the water is very foul with numerous pinnacles showing at low water.

Devil Inlet, 3 miles northeast from Black Cape, has wooded shores. About 0.3 mile inside the entrance are rapids which run heavily except at high water when there is a depth of about 3 feet. The entrance outside the rapids is a good anchorage in heavy weather for small craft; however, the approaches and the inlet itself are unsurveyed.

Black Cape is low and grassy at the end, and rises gradually in a narrow heavily wooded ridge to a prominent bald knob, 1,151 feet high. Bare and sunken rocks extend a short distance off the cape, and a reef, mostly showing above water, lies on its south side.

The unsurveyed bay between Black Cape and Ban Island has reefs, which do not extend westward of the island.

Ban Island is mountainous, its highest peak being found near its south shore. Kelp is close to its west end. **Paramanof Bay,** between Ban Island and Cape Paramanof, is unsurveyed. It is recommended to favor Ban Island when entering. A survey ship anchored on the south side, 3 miles eastward of Cape Paramanof and about 0.5 mile off a rocky shore, in 22 fathoms, soft bottom. A short sand beach is just eastward of the anchorage and a rocky islet lies close to shore a short distance westward. The anchorage is exposed to westerly and northerly winds. Good anchorage is reported farther in.

The lower levels of Afognak Island in general are wooded with the exception of the eastern coast and the southwestern end southward of Paramanof Bay.

Cape Paramanof is the northwest end of the peninsula included between Paramanof and Malina Bays. It is a low tongue of land projecting 0.5 mile northward from the mountains. A reef lies on the north side of the cape inside Paramanof Bay, and a part of it, about 0.5 mile from shore, is bare at low water.

The peninsula between Paramanof and Malina Bays is marked by two mountain ridges trending eastward, with a small stream in the valley between. The land is grass covered, with bare rocks in places, and there is no timber. The northern ridge rises in steep, grassy slopes to 1,830 feet, with a saddle behind it and then extends eastward with about the same height. **Tanaak Cape** is the northern point at the entrance of Malina Bay.

Chart 8534.—Malina Bay, indenting the west coast of Afognak Island, lies between the mountainous peninsulas terminating in Tanaak and Steep Capes. It is about 10 miles long and is a secure harbor. Water can be obtained from numerous small streams. Some timber is found near the head of the bay and in some of the valleys. Steep Cape and the high cliff at the south point at the entrance, and the rounded grass-covered mountains on the northern side of the bay, mark the entrance.

The bay, 2.5 to 3 miles wide for nearly 4 miles, narrows to a neck about 1.5 miles long with a least width of 0.4 mile, and then separates into two arms. The southern arm, known as Malka Bay, extends from the south side of the neck 1.5 miles southeastward. The eastern arm is about 800 yards wide near its entrance; it then opens out, forming a basin about 2 miles long and about 1.2 miles wide. A shallow arm, about 0.2 mile wide, extends 2 miles eastward from the eastern end of the basin.

The outer part of the bay is clear, with the exception of a rock bare at low water lying 0.2 mile from shore in the bight on the south side nearly 4 miles inside the entrance. Rocks awash at high water extend 300 yards off the south side at the entrance to the neck, and lie 0.5 mile westward of the island in the entrance of Malka Bay. The depths are suitable for anchorage 0.3 to 0.4 mile from shore nearly anywhere in the outer bay. An anchorage, exposed only to westerly winds, can be had on the north side of its eastern end, about 0.3 mile westward of an islet, and the same distance from the shore northwestward, in 15 fathoms, sticky bottom.

In the neck off the entrance of Malka Bay is an island, 0.4 mile long and 116 feet high, with a clump of trees near its middle. There is no safe passage between it and the shore southeastward. An islet 30 feet high lies on the south side of the neck 0.4 mile eastward of the island, and foul ground extends 225 yards from the south shore just eastward of the islet. A rock 15 feet high, with a small one close westward, lies 400 yards northeastward of the islet. The best channel lies between the 30-foot islet and the 15-foot rock. A rock bare at low water lies 400 yards eastward of the 15-foot rock and over 300 yards from the northern shore.

To pass through the neck, pass 200 yards northward of the island, steer **121°**, and pass 100 yards southward of the 15-foot rock, lying in the middle of the neck.

The basin has depths of 30 to 47 fathoms in its western half and shoals gradually eastward, affording secure anchorage. A rock covered at high water lies 400 yards westward from the north point at the entrance to the narrow arm extending eastward, and a shoal extends 600 yards southwestward from a point on the north shore 0.4 mile northward of the rock. The best anchorage is about 0.4 mile off the bight at the northern end of the basin, with the entrance (neck) just closed, in 15 to 18 fathoms, sticky bottom.

Malka Bay is a secure anchorage with a clear width of 0.2 mile. The northwest point of the island in the entrance should be given a berth of over 100 yards; a rock

bare at low water lies 100 yards from the shore southwestward of the same point.

To enter Malka Bay, steer 163°, pass 150 yards southward of the northwest point of the island, and follow the southwest shore of the arm at a distance of about 250 yards. Anchor in the broad part about 0.6 mile from the head, in about 10 fathoms, sticky bottom. A flat extends nearly 0.4 mile from the head.

High and low water in Malina Bay occur about 10 minutes earlier than at Seldovia. The diurnal range of the tide is 14.5 feet.

Raspberry Strait lies between Raspberry Island and Afognak Island. From Shelikof Strait, at its northwest end, to Afognak at the southeast end, the strait is about 16 miles in length and quite uniformly narrow, averaging about 1 mile in width.

The approach to the northwestern entrance is clear of dangers, no known shoals or detached rocks are more than 100 yards offshore. The Shelikof Strait sides of Raspberry Island and Afognak Island are rugged with barren cliffs and bluffs except where valleys make into the interior of the islands.

The southeastern end of Raspberry Strait ends in two passes which lead into Afognak Strait around Little Raspberry Island. Both passes are dry at from 2 to 3 feet above low water, and numerous reefs border the shores of Raspberry Island in this vicinity and of Little Raspberry Island. However, the northeastern pass is used at high water by local boats drawing less than 8 feet. Neither of these is recommended without local knowledge.

Steep Cape, also known as **Twin Heads,** is about 2.5 miles northward of the northwestern entrance to Raspberry Strait, and is the most prominent headland between Malina Bay and the strait. Its bare, gray rocky sides rise abruptly from the water's edge to its twin summits, 1,510 and 1,516 feet high. A light-colored rockslide is very noticeable. A prominent 78-foot-high pinnacle rock about 100 yards offshore; it is indistinguishable when against the cape.

Between Steep Cape and the entrance to the strait is a bight with a gravel beach at the foot of a valley blocked by a bluff of glacial moraine about 250 feet high. The land between the cape and this bight consists of a steep grassy bluff, 213 feet high, grass covered at the top, and has the appearance of a tableland. The bluff is in the form of a point from which shoals extend for 0.5 mile offshore.

The rounding point of the headland on the southwest side of the entrance to Raspberry Strait when seen from the northwest is somewhat similar to Steep Cape. However, its cliffs and rockslides are covered with grassy vegetation and do not have the general gray appearance which makes Steep Cape more prominent. The summit of the headland is 1,963 feet high and the slopes are steep. A pinnacle rock 25 feet high off the southwest side makes a good landmark when not seen against the background of the headland. Between this headland and Raspberry Cape are bights from which low valleys lead into the interior of Raspberry Island. The shores of these bights are gravel and the valleys are easily distinguished from offshore.

Anchorages.—Since Raspberry Strait itself is not wide, small vessels may anchor along the shores throughout the strait where depths appear suitable, depending upon the protection required. The following anchorages are recommended for deep-draft vessels:

On the northwest shore of Raspberry Island in Shelikof Strait are two bights, with gravel beaches located about 3 and 5 miles southwest of the entrance to Raspberry Strait. At the head of these bights deep valleys extend inland. Anchorage may be had in 10 to 15 fathoms, sand bottom, with good protection from easterly storms but exposed to the westerlies. The northeastern of these two bights is clear; the southwestern bight is foul, and coming in from the north vessels should keep at least 800 yards off shore.

North of the entrance to Raspberry Strait and south of Steep Cape is a small bight with suitable protection from easterly storms and where anchorage may be had in 10 to 15 fathoms, sand and gravel bottom. The shore of this bight is a gravel beach just north of which are low grass-covered hills of glacial gravel.

One and one-half miles northwest of Dolphin Point, vessels may anchor off the northeastern shore of the strait, in 12 to 15 fathoms, sand bottom, with good protection from easterly storms about 400 to 500 yards offshore.

Fair anchorage for deep-draft vessels is 0.9 mile about 210° from Dolphin Point Light, in 12 to 15 fathoms, mud bottom.

The best anchorage in the strait for large vessels with protection from easterly storms is 600 yards off the northeastern shore, east from Port Vita Cannery with a small cabin, easily identified, bearing between 070° and 090°. The depth is from 12 to 18 fathoms, sticky bottom.

Another possible anchorage is located in deeper water, in midstrait off Selief Bay in about 18 fathoms, sand bottom.

Anchorage for small vessels with good protection in any weather may be found in Selief Bay.

Dangers.—There are no off-lying dangers or shoals at the northwest approach and entrance to Raspberry Strait. From the entrance of the strait to Selief Bay, the only dangers are inside 300 yards of the strait shore except for a shoal of 3½ fathoms lying almost in midstrait, 0.75 mile 124° from Dolphin Point Light. This shoal is passed to the northward as broken bottom lies between the shoal and the gravel point on the south side of the strait.

From Selief Bay to the southeastern end of the strait are numerous shoals and dangers, and local knowledge is required even by small boats. Deep-draft vessels should not proceed beyond the entrance to Selief Bay. Between this bay and The Narrows, are four rocky shoals well offshore; one of these having a least depth of 11 feet is in midchannel about 0.4 mile northward of Tiger Cape.

From this cape southeastward to The Narrows, sandspits make well out into the strait from many of the points.

Routes.—The northwest entrance to Raspberry Strait may be approached from any direction by keeping 1 mile offshore. Come into the middle of the entrance off Raspberry Strait Light and steer a course **138°** for about 4 miles until Dolphin Point Light is abeam about 700 yards. Thence steer **090°** for about 1.5 miles until abeam the end of a low gravel point which is about 0.75 mile northwest of Iron Creek Cannery. Pass this gravel point about 0.4 mile and change course to **120°**. Hold this course for about 1 mile and when Iron Creek Cannery comes abeam, follow the middle of the strait on a course **160°**.

Approaching The Narrows at the southeast end of Raspberry Strait from Kupreanof Strait set a course **007°** with the east end of Little Raspberry Island ahead. Approaching from the east, that is from Afognak Strait, set a course **270°** with the south tangent of Little Raspberry Island ahead, and pass 500 yards south of the foul ground south of Shoal Point. Give the east tip of Little Raspberry Island a berth of 400 yards as reefs make out 200 yards off the high-water line. Enter the pass favoring the north side and pass about 100 yards off Nochlega Point and the next point which is adjacent. These two points form a double point with a short gravel beach between them. The Narrows uncovers several feet and is not recommended to vessels without local knowledge. This pass can be negotiated at high water springs by vessels up to 8-foot draft with extreme caution.

Tides and currents.—At Dolphin Point high and low waters occur about the same times as at Seldovia, and the diurnal range is 13.6 feet. The tide at Tiger Cape is 5 minutes later than at Dolphin Point and the ranges are about 0.5 foot more. At the south end of The Narrows the tides are about 15 minutes later than at Seldovia and the diurnal range is 12 feet.

Tidal currents in Raspberry Strait are weak, except at The Slough and The Narrows where the range at the north end is greater than the range at the south end as a result of which it is estimated that from approximately midtide to high tide and vice versa, the current flows from Raspberry Strait into Afognak Strait. This current probably amounts to from 2 to 3 knots during spring tides. At approximately midtide the tidal level at the two ends of The Narrows is equalized and as the tide falls below midtide the current reverses and flows from southeast to northwest until the pass goes dry at 2.5 feet above low water.

Weather.—During the survey season of 1941 westerly winds prevailed from June to September, mostly from the southwest. This prevailing wind is attended by good weather, mostly clear skies with little rain. These winds, however, often blow with such force as to build up heavy seas in Shelikof Strait, uncomfortable for all vessels except full-powered steamers. The storms with easterly winds come with a frequency of one or two per month from June to October. During the summer of 1941, July was the worst month as the prevailing wind seemed to be easterly attended by much rain although there were no severe easterly storms.

Raspberry Strait Light (58°09.7′ N., 153°13.2′ W.), 50 feet above the water, is shown from a small white house on a small grass-covered island off **Cape Nuniliak** on the northeast side of the entrance. This island blends with the shore and it is difficult to pick up except when approaching from the north. Inside the strait, about 1 mile southeastward from Raspberry Strait Light on the northeast side is a prominent light-gray rocky bluff, which rises from the water's edge 150 to 200 feet high.

Both shores of Raspberry Strait, from the northwestern entrance to the vicinity of Iron Creek cannery which is about 7 miles inside, consist of rocky ledges and numerous short gravel beaches between small rocky points. The shores rise steeply to the mountains except where valleys intervene. Close along the southwest shore about 1 mile inside the entrance are a number of off-lying pinnacle rocks, 5 to 41 feet high.

Dolphin Point Light (58°06.3′ N., 153°09.0′ W.), 17 feet above the water, is shown from a small white house on a small rocky islet off the end of the point, 4 miles inside the strait. **Dolphin Point,** when approached from Shelikof Strait, appears as a long grass- and tree-covered point with several low hills or nobs between it and the foot of the steep slope inland.

Muskomee Bay, receding 1.5 miles, is about 3 miles east of Dolphin Point on the east side of the strait. This bay is not suitable as an anchorage for large vessels, and it offers little protection for smaller vessels as easterly and westerly winds draw through the deep valleys at the head of the bay. Along its shores are outcropping ledges and a few gravel beaches. The bottom near the head is rocky. At the south side of the entrance 200 yards off the shore is a reef which uncovers 7½ feet. Off the north shore at the entrance to the bay are three rocky shoals with least depths of from 7 to 20 feet. The head of the bay is foul except around the north side of an island lying in the head of the bay.

From Muskomee Bay, the shores of the southeastern part of the strait consist of boulder and gravel beaches, and several low, grass-covered shale or gravel points. The terrain back of these shores is not as steep as in the northwestern part of the strait and is timbered from Dolphin Point. Logging operations are in progress in this locality. The points extend from 200 to 300 yards and have shoals or outcropping ledges extending into the strait another 100 yards or more. One of these is on the northwest side of the strait about opposite Selief Bay.

Reduction and saltery plants are at **Iron Creek, Port Vita,** and **Port Wakefield** on the southwest shore of Raspberry Strait between Muskomee and Selief Bays. During the fishing season commercial vessels call frequently. A mail boat from Kodiak maintains a weekly schedule to this area. Good water is obtainable and usually food supplies in limited quantities. Fuel and diesel oils are stored for cannery use. Radiotelephone and radiotelegraph communications are maintained with the Alaska Communication System at Port Vita and Port Wakefield. No facilities are available for hauling out boats, nor for machinery repairs other than that afforded in the small machine shops of the canneries.

The Iron Creek reduction plant has a wharf 200 feet

long with a berthing face of 100 feet; the least depth off the face is 18 feet. There are two dolphins, one off each corner of the wharf. Large vessels make either starboard or port dockings, the headings being either 153° or 333°. At Port Vita the wharf has a face 160 feet long with a least depth alongside of 15 feet. The reduction plant at Port Wakefeld has a wharf with a 75-foot face and a least depth alongside of 19 feet. Large vessels make port dockings here, with their bows in 30-foot depths next to a dolphin.

Selief Bay is on the southwest side of the strait about 6 miles southeastward of Dolphin Point. The outer part of the small peninsula on the eastern side of the entrance to Selief Bay is a grass-covered glacial hill 93 feet high, serrated at the top and the most prominent landmark southeast of Dolphin Point. This bay offers good protection and anchorage for small vessels iu any weather, particularly from southeasterly or easterly storms. The entrance to the bay is shoal with a bottom formation similar to a har and with a least depth of 8 feet. Inside the bay the best anchorage is with the end of the point at the east side of the entrance bearing about north and in 1½ to 3 fathoms. The bottom is mud and the west side is shoal.

Tiger Cape, about 2 miles southeast of Selief Bay on the same side of the strait, is a low grass-covered shale point with several abandoned houses near the foot. More abandoned buildings of a former sawmill are located about 0.25 mile farther southeastward.

The two islands opposite Tiger Cape and about 2 miles eastward of the entrance to Selief Bay are also prominent. The crests of these islands are wooded and the westernmost is 100 feet high, the other 156 feet.

No other landmarks are between Tiger Cape and the south end of Raspberry Strait.

On the opposite side of the strait north of Tiger Cape is a shallow bay, about 1 mile wide in a northwest and southeast direction, locally known as **Cottonwood Bay.** This bay shoals to I fathom about 300 yards inside the general trend of the northeastern shore of the strait. Throughout the bay the depth varies from 2 to 8 feet. A gravel and rocky spit making into the bay from the southern point at the entrance uncovers. Favor the opposite side in entering.

Another bay locally known as **Waskanareska Bay** is east Tiger Cape and on the southeast side of a gravel spit which separates it from Cottonwood Bay. Depths vary from 3 to 6 feet. The inner part of the bay and the part off the northeast shore for 200 yards offshore uncovers. The eastern half of the entrance is foul and uncovers.

Through **The Narrows,** which is the pass on the northern side of **Little Raspberry Island,** and the approaches to **Ognak Strait,** the shores are mostly rock ledges with off-lying dangers, some of which are dangerous to craft.

Rocks and shoals too numerous to mention are in the passage among Deranof Island, Little Raspberry Island, and Raspberry Island. The pass on the west side of Little Raspberry Island is **The Slough.** These passes are used only hy small vessels with local knowledge, and at high tide only.

The western side of Raspberry Island is mountainous and grass covered, the principal points being three high cliffs, between which are two deep valleys trending eastward. The southern valley, about the middle of the island, is especially low and extends through to Onion Bay. The southern side of Raspberry Island and Kupreanof Strait have been described earlier in this chapter.

Viekoda Bay is on the eastern side of Shelikof Strait between Outlet Cape and Uganik Island. It extends about 15 miles into Kodiak Island in an east-southeasterly direction to a narrow head. Uganik Passage enters Viekoda Bay on the south side about 7 miles inside the entrance. Good anchorage for moderate sized vessels in 12 to 17 fathoms may be had 0.5 to 1 mile northwest from the islands 1.5 miles from the head of Viekoda Bay.

Off the entrance, about 3 miles from Outlet Cape, is a bank on which the least depth fround is 6¾ fathoms.

A narrow point, its end detached, extends 0.4 mile from Uganik Island 1 mile eastward from its northern end. Broken ground, with depths of 4 and 5 fathoms, extends 0.6 mile northward from the point. A fair anchorage in southerly weather is in the higbt on the east side of the point, 0.3 to 0.4 mile from shore, in 10 to 15 fathoms.

A rock covered 4¾ fathoms, which should be avoided, lies 0.6 mile from Uganik Island and 2.5 miles westward of **Naugolka Point.**

This point has an islet near it, and a rock which uncovers, lies 0.8 mile eastward of the islet and 0.4 mile from the south shore of Viekoda Bay. Depths of 3 to 5 fathoms extend 0.3 mile northward of the rock.

Uganik Passage borders the northeast and south sides of **Uganik Island** and connects Viekoda and Uganik Bays. The depths in the passage are too great for anchorage except in Terror Bay.

That part of Uganik Passage on the northeast side of Uganik Island is clear of dangers in midchannel except for a flat which extends about 600 yards from the eastern shore, about 5 miles south-southeastward of Naugolka Point, leaving a channel 350 yards wide. An islet lies close to Uganik Island in the bight about 0.2 mile southwestward of the flat.

Terror Bay extends several miles south from the turn of Uganik Passage at the southeast end of Uganik Island. The main part of the bay is clear with the exception of three rocks which lie about 300 yards from the western shore, as iudicated on the chart. Secure anchorage for vessels of any size is 3 miles above the entrance and about 2.5 miles from the head of the bay, in 7 to 15 fathoms.

The part of Uganik Passage south of Uganik Island is 9 miles long from the southeastern end of Uganik Island to East Point, where it joins Uganik Bay.

A rock which uncovers, lies 0.3 mile from the south side of Uganik Island 0.7 mile from its southeastern end.

A peninsula, 600 feet high, extends southward from Uganik Island 2 miles from its southeastern end and narrows the passage to 0.2 mile. From the point on the

south shore southeastward of the peninsula, a ledge, which uncovers, makes out nearly halfway across the narrowest part of the passage. Vessels should favor the southeast end of the peninsula in this part of the passage.

An island lies in the middle of the passage westward of the peninsula. Several rocks, sunken and bare at various stages of the tide, are in the vicinity and westward of the island. The more prominent of these dangers are: a rock, which uncovers, about 100 yards northeastward; a bare rock 0.3 mile northwestward, and a rock, which uncovers, 250 yards northward of it.

Vessels from eastward may pass northward of the foul ground, and clear these dangers, by following the southwest shore of the peninsuln at a distance of 200 yards, taking care to avoid a rock awash which lies 350 yards offshore, until the island is abaft the port beam, and then steer **300°** for the southernmost point of Uganik Island which shows ahead with the summit of the peninsula a little on the port quarter.

Foul ground and rocks, which uncover, extend 0.3 mile from Uganik Island 0.4 to 0.9 mile northwestward of the peninsula.

The channel southward of the island is narrower than that northward. To go through this channel from eastward, bring the south end of the peninsula barely open from the point eastward, astern; and steer for the prominent point on the south shore 0.8 mile westward of the island, course **281°**. Keep close on this line, passing midway between the island and an islet near the south shore 0.3 mile southwestward of the island. When the islet is passed, haul northward and give the point a berth of over 200 yards. The principal dangers are: A rock which uncovers, 200 yards southwestward of the island; a rock with 8 feet over it 0.4 mile westward of the island and 0.3 mile northward of the islet. The islet should be given a berth of over 100 yards.

Westward of these dangers Uganik Passage is broad and free from outlying dangers. In the large bight of Uganik Island 5 miles eastward of East Point shoals extend 0.5 mile from the northwest shore for 1 mile from its head. From this bight a broad, low divide extends across the island.

Rocks which uncover, extend 0.5 mile from the south shore of the passage 1.8 miles eastward of East Point, and 0.5 mile farther eastward rocks make out 600 yards on the northwest side of a point on the south shore.

Chart 8542.—Uganik Bay is on the eastern side of Shelikof Strait between Cape Uganik and Miners Point. In general the bay and its arms with exception of East Arm have depths too great for anchoring. Several small shoal spots rise abruptly from the general level of the bottom. One of these lies in midchannel about 1 mile northwestward from Mink Point at the junction of East and South Arms, two others lie in the passage between Sally Island and the shore at Starr Point. The shores of Uganik Bay rise abruptly from cliffs in places and are generally covered with grass and alder bushes.

Cape Uganik, the northwest end of Uganik Island, is low and flat for about 0.3 mile back and then rises 1,200 to 1,500 feet. Foul ground extends 1.5 miles southward from the cape and 0.3 mile or more offshore. Vessels should give the cape a berth of 1 mile.

Noisy Islands, a group of two, lie 0.5 to 0.6 mile from Uganik Island and 2.5 miles southward from Cape Uganik. The northern island is rolling with round-topped, grass-covered hills, the highest of which is about 192 feet. **Noisy Islands Light (57°56.0′ N., 153°33.6′ W.),** 90 feet above water, is shown from a skeleton tower on the western bluff of the northern island. The southern island is also grass-covered, but is low and flat. Two fine sand beaches are near the northern end of this island and a house is nearby. When off Uganik Bay, these islands are sometimes hard to pick up as they merge into the brown hills of Uganik Island. Noisy Islands should be given a berth of 1 mile.

Noisy Passage, between Noisy Islands and Uganik Island, appears to be clear in midchannel with a least known depth of 7 fathoms. It is in constant use by small coasting vessels but is not recommended for deep-draft vessels. Vessels using this channel should avoid the rock awash, about 0.2 mile northward of the northerly Noisy Island.

Miners Point, 8 miles southwestward from Cape Uganik, is distinctive in appearance as it terminates in three moundlike hills, the inner one being 390 feet high, and the outer one about 188 feet high.

Broken Point, about 3.5 miles east-southeastward of Miners Point, is low and flat for 0.4 mile back and then rises to the highland back of it. The outer end of the point is detached and appears as if it had been broken off. A reef which uncovers on a 2-foot minus tide lies about 250 yards off the point. The point should be given a berth of 0.8 mile.

A stream enters the bay in the bight 1.6 miles southward from Broken Point. Good anchorage sheltered from southerly to westerly winds is off the mouth of the stream in 8 to 15 fathoms.

West Point is a comparatively low rocky cliff which rises rapidly to the highland behind it.

East Point, 5 miles southeastward from Broken Point, is the northwest extremity of the peninsula separating Uganik Bay and Uganik Passage. Two flat rocks with bluff sides lie close to the point and from the point is a long gentle slope to the high land.

Northeast Arm, the first and largest arm in Uganik Bay, is about 3.3 miles southward of East Point. **Northeast Arm Light (57°47.1′ N., 153°27.1′ W.),** 55 feet above the water, is shown from a small white house on a concrete foundation, and marks the northern entrance point to this arm.

Rock Point, the southern entrance point, has several bare rocks which extend 250 yards northward.

Starr Point is the low rounding point on the northeast side of Northeast Arm where the channel is split by Sally Island. **Starr Point Light (57°45.4′ N., 153°22.0′ W.),** 30 feet above the water, is shown from a small white house on a rock just off the point. The rock is awash at extreme high tide and attached to the shore at low tide.

Sally Island, about 2 miles long, occupies a central posi-

tion in the basin at the head of Northeast Arm. The 1,100-foot island is covered by grass and alder bushes.

Sheep Island is a small island just off the southeast point of Sally Island and is connected to it by a gravel spit which is covered at high water.

A cannery is about 1.3 miles east-southeastward of Starr Point. The wharf at the cannery has a face 110 feet long, with a least depth alongside of about 30 feet. In approaching this wharf care should be taken to avoid the spit which bares, 150 yards off a small stream 0.3 mile westward from the wharf. Deep water extends close up to the spit.

The cannery at **Port O'Brien,** 2.2 miles southeastward of Starr Point, has a wharf 162 feet long with a 105-foot face, and a depth of about 32 feet alongside. The oil wharf parallel to this main wharf is of equal length with a 80-foot face, and has a depth of about 20 feet alongside. Both canneries store fuel oil, diesel oil, and gasoline for their own use, and have an abundant supply of fresh water. They have some machine shop facilities and scow ways. Tides of 16.5 feet are necessary to use these ways. There are no marine railways. The cannery at Port O'Brien maintains radiotelephone and radiotelegraph communications with the Alaska Communication System.

Deep water surrounds Sally and Sheep Islands except for the narrow passage between Sheep Island and the mainland, where it is nearly bare.

A shoal with a least depth of 5¼ fathoms, sand and gravel bottom, lies about 300 yards north from the northern tip of Sally Island.

Anchorage may be had off either cannery in about 30 fathoms.

Village Islands are numerous islands and rocks 2 to 3.5 miles southward from West Point. A cannery back of the islands maintains radiotelephone and radiotelegraph communications with the Alaska Communication System. An abandoned native village is in the cove just south of the islands. Anchorage for small craft may be had in 6 to 12 fathoms, but the approach is over broken ground making it safe for launches only. There are apparently continuous channels between the various rocks and islands.

East Arm extends southeastward from Uganik Bay 7 miles southward from East Point. It is 1 mile wide at the entrance and over 3 miles long, but a flat extends 1.5 miles from its head or 0.3 mile below the unnamed island in the bight on the south side of the arm. Depths range from 15 fathoms at the entrance to 3 fathoms near the head. A rock 450 yards northwestward from the island off the south shore uncovers 2 feet. Between this rock and the shore is another rock which uncovers. A row of rocks, covered about 2 feet, is reported to lie near the south shore about 0.4 mile southeast of Mink Point and to extend southward about 0.2 mile to the beach. A saltery on the south shore west of the unnamed island. It has a small wharf that bares at low water. In approaching the saltery care should be taken to avoid the rocks mentioned above.

East Arm affords an excellent anchorage for vessels of any size in 10 to 15 fathoms, sticky mud bottom. It is subject to heavy williwaws during southerly gales.

South Arm extends 5.5 miles southward from **Mink Point,** the southern entrance point to East Arm. The arm near its head is only 0.2 mile wide. A rock covered one-half fathom lies 225 yards off the eastern shore 0.6 mile southward of Mink Point. Between the point and the sunken rock is a rock which uncovers 2 feet, lying 200 yards offshore. Anchorage may be had near the head in 16 fathoms, sticky mud bottom, where the arm is 0.7 mile wide.

Routes, Uganik Bay.—From northward, round Cape Uganik 1 mile and steer **222°** for 3.5 miles to a position 1 mile westward of Noisy Islands. Round the islands 1 mile and steer **158°** for 5 miles to a position midway between East and West Points.

From southward, give Cape Ugat and Miners Point a berth of 1.5 miles and Broken Point a berth of 0.8 mile. Then steer **143°** for 4 miles to a point midway between East and West Points.

To enter Northeast Arm.—From a position midway between East and West Points steer **163°** for 2.2 miles until the north tangent of the largest and most northerly of the Village Islands is on the starboard beam. Then change to **133°** for 1.8 miles until Northeast Arm Light is on the port beam, about 0.5 mile. Then change to **101°** for 1.5 miles; thence change to **132°**, heading about 0.2 mile off Starr Point. Round Starr Point 0.2 mile or less and continue in midchannel along the east side of Sally Island to anchorage or wharf.

To enter South Arm.—From a position midway between East and West Points, steer **163°** for 2.2 miles until the north tangent of the largest and most northerly of the Village Islands is on the starboard beam. Then change to **187°**, heading 0.4 mile off Mink Point which separates East and South Arms. From midchannel off Mink Point, steer midchannel courses taking care to avoid the rocks which lie as much as 225 yards offshore for 0.8 mile southward from Mink Point.

To enter East Arm.—Follow courses as above until off East Arm and then enter on a midchannel course taking up anchorage as desired.

Cape Ugat is on the eastern shore of Shelikof Strait 12 miles southwestward from Cape Uganik. It is a high ridge sloping to a low rocky cliff at the point of the Cape. A short distance off the cape is a small rocky grass-covered islet 104 feet high which can be seen for 15 miles up and down the coast on a clear day. A reef that uncovers about 5 feet, lies about 175 yards west of the islet. Between the islet and the cape is a channel used by the local cannery tenders. **Little River** is a meandering stream which enters the strait a short distance southward of Cape Ugat.

Cape Kuliuk, about 5 miles southward from Cape Ugat, is a cliff at the end of a ridge about 2,000 feet high. On the summit back of the cape is a peculiar and prominent clump of rocks.

Uyak Bay is on the eastern side of Shelikof Strait,

tion in the basin at the head of Northeast Arm. The 1,100-foot island is covered by grass and alder bushes.

Sheep Island is a small island just off the southeast point of Sally Island and is connected to it by a gravel spit which is covered at high water.

A cannery is about 1.3 miles east-southeastward of Starr Point. The wharf at the cannery has a face 110 feet long, with a least depth alongside of about 30 feet. In approaching this wharf care should be taken to avoid the spit which bares, 150 yards off a small stream 0.3 mile westward from the wharf. Deep water extends close up to the spit.

The cannery at **Port O'Brien,** 2.2 miles southeastward of Starr Point, has a wharf 162 feet long with a 105-foot face, and a depth of about 32 feet alongside. The oil wharf parallel to this main wharf is of equal length with a 80-foot face, and has a depth of about 20 feet alongside. Both canneries store fuel oil, diesel oil, and gasoline for their own use, and have an abundant supply of fresh water. They have some machine shop facilities and scow ways. Tides of 16.5 feet are necessary to use these ways. There are no marine railways. The cannery at Port O'Brien maintains radiotelephone and radiotelegraph communications with the Alaska Communication System.

Deep water surrounds Sally and Sheep Islands except for the narrow passage between Sheep Island and the mainland, where it is nearly bare.

A shoal with a least depth of 5¼ fathoms, sand and gravel bottom, lies about 300 yards north from the northern tip of Sally Island.

Anchorage may be had off either cannery in about 30 fathoms.

Village Islands are numerous islands and rocks 2 to 3.5 miles southward from West Point. A cannery back of the islands maintains radiotelephone and radiotelegraph communications with the Alaska Communication System. An abandoned native village is in the cove just south of the islands. Anchorage for small craft may be had in 6 to 12 fathoms, but the approach is over broken ground making it safe for launches only. There are apparently continuous channels between the various rocks and islands.

East Arm extends southeastward from Uganik Bay 7 miles southward from East Point. It is 1 mile wide at the entrance and over 3 miles long, but a flat extends 1.5 miles from its head or 0.3 mile below the unnamed island in the bight on the south side of the arm. Depths range from 15 fathoms at the entrance to 3 fathoms near the head. A rock 450 yards northwestward from the island off the south shore uncovers 2 feet. Between this rock and the shore is another rock which uncovers. A row of rocks, covered about 2 feet, is reported to lie near the south shore about 0.4 mile southeast of Mink Point and to extend southward about 0.2 mile to the beach. A saltery is on the south shore west of the unnamed island. It has a small wharf that bares at low water. In approaching the saltery care should be taken to avoid the rocks mentioned above.

East Arm affords an excellent anchorage for vessels of any size in 10 to 15 fathoms, sticky mud bottom. It is subject to heavy williwaws during southerly gales.

South Arm extends 5.5 miles southward from **Mink Point,** the southern entrance point to East Arm. The arm near its head is only 0.2 mile wide. A rock covered one-half fathom lies 225 yards off the eastern shore 0.6 mile southward of Mink Point. Between the point and the sunken rock is a rock which uncovers 2 feet, lying 200 yards offshore. Anchorage may be had near the head in 16 fathoms, sticky mud bottom, where the arm is 0.7 mile wide.

Routes, Uganik Bay.—From northward, round Cape Uganik 1 mile and steer **222°** for 3.5 miles to a position 1 mile westward of Noisy Islands. Round the islands 1 mile and steer **158°** for 5 miles to a position midway between East and West Points.

From southward, give Cape Ugat and Miners Point a berth of 1.5 miles and Broken Point a berth of 0.8 mile. Then steer **143°** for 4 miles to a point midway between East and West Points.

To enter Northeast Arm.—From a position midway between East and West Points steer **163°** for 2.2 miles until the north tangent of the largest and most northerly of the Village Islands is on the starboard beam. Then change to **133°** for 1.8 miles until Northeast Arm Light is on the port beam, about 0.5 mile. Then change to **101°** for 1.5 miles; thence change to **132°**, heading about 0.2 mile off Starr Point. Round Starr Point 0.2 mile or less and continue in midchannel along the east side of Sally Island to anchorage or wharf.

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To enter East Arm.—Follow courses as above until off East Arm and then enter on a midchannel course taking up anchorage as desired.

Cape Ugat is on the eastern shore of Shelikof Strait 12 miles southwestward from Cape Uganik. It is a high ridge sloping to a low rocky cliff at the point of the Cape. A short distance off the cape is a small rocky grass-covered islet 104 feet high which can be seen for 15 miles up and down the coast on a clear day. A reef that uncovers about 5 feet, lies about 175 yards west of the islet. Between the islet and the cape is a channel used by the local cannery tenders. **Little River** is a meandering stream which enters the strait a short distance southward of Cape Ugat.

Cape Kuliuk, about 5 miles southward from Cape Ugat, is a cliff at the end of a ridge about 2,000 feet high. On the summit back of the cape is a peculiar and prominent clump of rocks.

Uyak Bay is on the eastern side of Shelikof Strait,

southward of the mountainous peninsula terminating in Capes Ugat and Kuliuk.

The approach between Cape Kulluk and Rocky Point (see also chart 8541) is about 11 miles wide, eastward of which the bay converges rapidly to Harvester Island. It extends 25 miles in a southeasterly direction from Harvester Island. The shores of the bay rise in steep slopes of 2,000 to 4,000 feet, and have many mountain streams. The only timber is some alders in the gulches and some cottonwoods at the heads of the bays. Uyak Bay is an important salmon fishery. The best anchorage in Uyak Bay will be found southward of Harvester Island, and in Zachar Bay.

Chief Point, on the north shore of Uyak Bay opposite Harvester Island, is formed by a grass-covered island about 90 feet high, and has several ridges and small hills. About 0.3 mile west from the northwest point of this island are several rocks which uncover at low tide. The highest of a group of rocks 0.8 mile southeastward from Chief Point is 110 feet high.

Chief Cove is the narrow strait behind the island forming Chief Point. A rock which uncovers 6 feet lies in the northern entrance. The southern entrance is very shoal. Depths of 8 to 12 feet are in the northern part of the cove. It is used as an anchorage by cannery tenders and pile drivers during the fishing season.

Spiridon Bay opens into Uyak Bay northeastward of Harvester Island. It extends 12 miles inland in an easterly direction. Broken ground extends about 1.2 miles northwestward from the point on the southern side of the entrance. The only good anchorages for large vessels in Spiridon Bay are at the head in 13 to 16 fathoms, sand and mud bottom. Care should be taken to avoid the 2¾-fathom shoal lying 0.3 mile off the eastern shore and 1.2 miles southeastward from Telrod Cove. A temporary anchorage can be had in 16 to 18 fathoms about 0.5 mile northward from Clover Rock. The bottom is volcanic ash, which has the appearance of yellow sand and has fair holding qualities.

In entering Spiridon Bay from the northward, Chief Point should be given a berth of 1 mile. In approaching from the southward, the point separating Spiridon and Zachar Bays should not be approached closer than 1 mile to avoid the rock which lies nearly 0.5 mile off the point. From a position 1.5 miles south from Chief Point steer **097°** for about 8 miles until Ditto Islets are abeam to starboard, about 0.3 mile. Then change to **138°** and anchor as desired.

Clover Rock, 34 feet high, is a rocky islet 0.2 mile off the south shore and 1.5 miles from the southern entrance point to Spiridon Bay. It is connected to the mainland by a gravel shoal which bares at minus tides. A large stream enters the bay just east of Clover Rock.

Thistle Rock is a small islet consisting of black jagged rocks about 10 feet high lying a short distance eastward of Clover Rock. It is always bare and affords a good mark in clear weather. A rock which uncovers about 7 feet lies about 300 yards northwestward from Thistle Rock.

Ditto Islets, a pair 30 feet high, lie in the middle of Spiridon Bay about 7 miles inside the entrance. The bottom between the pair and the south shore is broken and contains several rocks which uncover and a rock 25 feet high. A group of islands in a foul area adjacent to the south shore lies southwestward of the Ditto Islets; of these **Anguk Island** is the largest.

Telrod Cove is a small cove on the north side of the bay about 10 miles from Chief Point. It affords good shelter in westerly weather for small craft. The cove shoals rapidly with mudflats at its head. Anchorage may be had in 7 to 15 fathoms, sand and shell bottom. A large stream enters the bay here.

Weasel Cove forms the western arm at the head of Spiridon Bay. It is 0.3 mile in width with depths of 6 fathoms, sand and mud bottom. The cove forms excellent anchorage for small craft. To enter Weasel Cove keep from 250 to 300 yards off the western shore and enter the cove in midchannel, taking up anchorage as desired.

Chart 8822.—Harvester Island, about 9 miles south of Cape Kulink and 0.3 mile off the southwestern entrance point to Uyak Bay, is over 1 mile long, 860 feet high, steep sided, and grass covered. The 20-fathom curve is about 0.3 mile off the northern and eastern sides of the island. Foul ground extends off the northern and eastern sides of the island for 350 yards in places. A spit, which uncovers and is steep-to, extends 425 yards southwestward from the south end of the island. **Harvester Island Spit Light** (57°38.3′ N., 153°59.5′ W.), 22 feet above the water, is shown from a daymark, consisting of orange panels, on a red square frame on a dolphin on the end of the spit.

Bear Island, 249 feet high and grass covered, is about 1 mile westward of Harvester Island. It lies 0.3 mile offshore, with which it is connected by a boulder spit that uncovers about 7 feet.

Uyak Anchorage, between Harvester Island and the coast southwestward, is one of the best barbors on the eastern side of Sbelikof Strait southward of Uganik Bay. It has two entrances of which the southern is preferred. The depths range from about 6 fatboms between Harvester Island and Bear Island to 20 fathoms 0.4 mile north-northwestward of Harvester Island Spit Light. The best anchorage is about 0.6 mile north-northwestward of the light, in 12 to 14 fathoms. Good anchorage, except with heavy northeasterly or easterly winds, can be had about 500 yards southward of the light 0.3 mile offshore, in 12 to 14 fathoms.

The northwest entrance is 0.4 mile wide between two reefs, partly bare at half tide and marked by kelp, one extending 400 yards westward from the northwest end of Harvester Island, and the other lying 250 to 550 yards eastward from Bear Island. With care this entrance is not difficult in the daytime, especially at low water when the principal dangers show above water.

The better and safer entrance to the anchorage is around the south end of Harvester Island. **Cormorant Rock,** which uncovers about 7 feet, lies about 0.6 mile south-southeastward of Harvester Island and 300 yards offshore.

Uyak is a native village. The cannery on the south-

west side of Uyak Anchorage has been abandoned and is in ruins.

Tides.—At Uyak Anchorage high and low water occur about 10 minntes earlier than at Seldovia. The diurnal range of the tide is about 13.8 feet.

Routes, Uyak Anchorage.—From northward, round Cape Ugat about 1.5 miles and steer **220°** for 6 miles to a position 2.5 miles off Cape Kuliuk, bearing 102°. Then steer **172°** for 10 miles, giving the eastern shore a berth of about 2 miles, to a position 0.5 mile eastward of Harvester Island.

Then steer **237°**, passing about 0.3 mile southeastward of Harvester Island. Anchor 500 yards northeastward or northward of the slipways, in 10 to 14 fathoms.

To go to the inner harbor, follow the preceding directions, and then haul northwestward, round the light at 100 yards, and steer **341°** for the northwest end of Harvester Island, pass 150 to 200 yards off the ruins of the cannery wharf at Uyak, and continue the course to midchannel.

From southward.—Give Cape Uyak, Rocky Point, and Bear Island herths of 1 mile or over, and follow the eastern shore of Harvester Island at a distance of 0.5 mile or more. Then follow directions as given above.

In passing Rocky Point care shonld he taken to avoid Wolcott Reef which lies 0.3 mile off the point and bares only at extreme low water.

Chart 8542.—A rock covered 2¾ fathoms lies inside the entrance of Uyak Bay about 1.9 miles southeastward of Harvester Island Spit Light, 0.9 mile off the western shore.

Zachar Bay, about 7 miles southeast of Harvester Island, is 0.8 mile wide at the entrance and extends to the southeastward for 5.5 miles where the bay terminates in an extensive mudflat that uncovers. This mudflat affords an excellent place for beaching a vessel in an emergency.

Carlsen Point, the southern entrance point, is low and shows as a hluff when off the entrance.

A dangerous rock, covered 2¾ fathoms, is 1.6 miles northward from Carlsen Point and 0.6 mile offshore.

Carlsen Reef, which uncovers 10 feet, is a danger about 0.5 mile northwest from the northeast tip of Carlsen Point.

A reduction plant is on the north shore of Zachar Bay miles above the entrance. The plant has a wharf with 100-foot face and a least depth alongside of 18 feet. rge vessels dock port-side-to. Radiotelephone and diotelegraph communications are maintained with the aska Communication System.

A large stream enters the head of the bay. A number large cottonwood trees are along the stream. Kodiak rs are numerous in the locality.

Excellent anchorage sheltered from all winds may be d in 12 to 15 fathoms, mud bottom, off the mudflats at head of Zachar Bay. The anchorage is subjected to derate williwaws. In anchoring, care should be taken avoid the mudflats which extend 1.5 miles from the d of the bay.

In entering Zachar Bay, the shore on the port hand should not be approached closer than 1 mile and a course should be laid to pass 300 yards off the 2¾-fathom rock. From this point steer **127°** until Carlsen Point is abeam on the starboard hand, then change to **145°** and continue, keeping in midchannel.

Amook Island, formed by a mountainous ridge, divides an 8-mile stretch of Uyak Bay into two passages. The eastern passage is narrow and obstructed in places, and as a through route shonld be used only by small vessels with local knowledge. Reefs extend 0.3 mile northward from the north end of Amook Island.

The ship passage is westward of Amook Island. **Aleutian Rock,** marked by a buoy on its southwest side, lies 0.3 mile off the southwest shore of Amook Island, in the southern end of this passage. This dangerons rock uncovers 1 foot and is not marked hy kelp. Vessels should pass between Aleutian Rock and Alf Island. The steamship ALEUTIAN was lost here in 1929.

A cannery is on the west shore of Uyak Bay opposite the south end of Amook Island.

In the bight on the western side of Amook Island, 2.5 miles from its north end, is an anchorage for a small vessel, in about 10 fathoms, with shelter from easterly and southerly winds. The bottom is uneven with a possibility of dangers. The entrance is between the south point of the bight and a bare rock 0.6 mile northward from the point and 0.5 mile from Amook Island. Between this rock and the island is a reef, partly bare at low water, which extends 0.5 mile southeastward from an islet.

The passage eastward of Amook Island for about 2.5 miles from its north end has suitable depths and sufficient width for anchoring vessels of moderate size. The passage then narrows to 300 yards, and from the point on the eastern side a kelp-marked reef extends westward and northwestward more than halfway across, leaving a narrow channel between the reef and the western shore. Near the northwest end of the reef is a bare rock. An anchorage for small vessels may be found on the west side at the sonth end of the narrows, aronnd the point, in 5 to 8 fathoms. A small vessel can also anchor 300 yards off the narrow entrance of the shallow lagoon 0.4 mile northeastward of the point of the narrows, in 5 to 6 fathoms. A 2¼-fathom spot is about 500 yards off the lagoon entrance.

Thence for 2 miles the passage is clear to the second narrows where a spit, partly bare at low water, extends halfway across from a low grassy point on the west side and leaves a channel 125 yards wide between the southeast end of the spit and an island. Tbe channel is westward of this island and the next island 0.4 mile southward; the western shore should be favored nntil over 0.2 mile sonthward of the southern island. Southward of this point the passage is clear. Some prospecting has been done on the east side of the passage 2 miles from its south end.

During the fishing season a floating cannery is usually moored near the old mining camp on the east side of the strait.

Lying 0.8 to 2.5 miles southward of Amook Island is a chain of islands with foul ground between them and about 300 yards off the northwest end of **Alf Island.**

The safer and recommended passage is eastward of the chain composing Alf Island. Broken bottom extends about 300 yards into the passage from the central islets of the chain, and directly opposite a reef extends 200 yards from the eastern side of the passage. The reef is marked at its outer end by a bare rock visible at all times.

At the south end of the chain of islands is a small inlet in the west shore about 0.8 mile long and 300 yards wide, affording anchorage in about 12 fathoms.

From 3 to 6 miles southward of Alf Island, Uyak Bay shoals gradually from 20 to 7 fathoms and anchorage may be selected in any depth desired. The swinging room is about 1,400 yards in diameter.

The upper end of Uyak Bay is bordered by high snow-covered mountains and is a well-known hunting ground for the large Kodiak brown bear.

Chart 8822.—Larsen Bay is on the western side of Uyak Bay, 6 miles southward from Harvester Island. Depths are 30 to 40 fathoms near its northern side and less on the opposite side. From its head, a trail leads over a low divide to the Karluk River. A large cannery is in the bight just southward of the inner south entrance point at the village of **Larsen Bay** (1960 population 72; P.O.). Gasoline, fuel, and diesel oil are stored, and a machine shop is maintained for cannery use. The cannery maintains radiotelephone and radiotelegraph communications with the Alaska Communication System during the fishing season. The marine railway can haul vessels of 100 gross tons with maximum draft of 20 feet.

The entrance is between a spit extending 150 yards southward of the northern entrance point and a 20-foot rock near the outer end of the spit extending 150 yards from the outer southern entrance point. A buoyed reef, which uncovers, is in the middle of the entrance. Two narrow crooked channels lead on either side of the reef. The preferred southern channel, between the midentrance reef and the 20-foot rock, 200 yards southeastward from it, is marked by a range. The front mark is a dolphin on the flats bearing a yellow wheel-type device, and the rear mark is a yellow circular disk painted under the gable of a building. This channel has a least depth of 24 feet on the range.

The channel north of the midentrance reef is deeper but necessitates a more difficult turn and for that reason is not recommended; a range of the yellow dolphin and the twin cannery stacks marks this channel.

A good **anchorage** for larger vessels will be found about 400 yards northwestward from the small island on the south side of the bay, and about 700 yards off the cannery wharf in 20 fathoms, mud bottom. In westerly weather winds blow down the bay with great force, but the holding ground is good. In former years the cannery company moored its sailing vessels here during the summer months.

Routes.—Small vessels can enter Larsen Bay at any stage of the tide, but large vessels should choose a high-water slack with calm weather for entering or leaving.

Enter on the range and pass midway between the reef marked by the buoy and the 20-foot rock, 200 yards southward from it. Hold this range, **248°**, until within about 300 yards of the yellow dolphin and then make good a **292°** course, passing 100 yards off the end of the spit off the northern entrance point and 150 yards off the inner entrance point on the port hand. When the inner south entrance point is a little abaft the beam change to **263°** for 0.3 mile, then haul southward and anchor as desired.

A strong tidal **current** sweeps through the entrance with an estimated maximum velocity of 4 to 5 knots.

The wharf built out over the shoal water is 1,035 feet long and has a depth of 8 feet at its outer end. A 5-ton crane is on the wharf. Fresh water is available through a pipeline.

Chart 8541.—Sevenmile Beach is the long boulder-strewn beach from Bear Island to Rocky Point. It is backed by low cliffs from which a broad grassy valley extends back several miles toward Karluk Lake.

Rocky Point is a double point on the south side of the approach to Uyak Bay. It consists of bold cliffs which rise rapidly to the ridges of which the point is a termination.

Wolcott Reef is a dangerous group of rocks that bare at extreme low water. It lies 0.3 mile off the easterly spur of Rocky Point. A channel is between the reef and the point with a least known depth of 4 fathoms. This channel is used by local cannery tenders in fine weather. A buoy is 0.2 mile west of the reef.

Cape Uyak, on the east side of Shelikof Strait about 4 miles southwestward from Rocky Point, is a precipitous high headland at the end of a ridge. From the water the slope rises abruptly to 647 feet. There is then a slight fall to a deep notch in the narrow neck back of the cape, from which there is a rise in steep, grassy slopes to higher land. **Cape Uyak Light (57°38.3′ N., 154°21.3′ W.),** 93 feet above the water, is shown from a small white house on the end of the cape.

Northeast Harbor is the bight on the south side of Cape Uyak. In northeast weather it affords excellent shelter for small craft that can anchor close under the shore in 3 to 5 fathoms, sandy bottom. Larger vessels anchor further out in 9 fathoms with some protection but subject to an uncomfortable swell.

Between Cape Uyak and Karluk are two long cliffs about 1,300 feet high, the southern one having a marked slide extending from its highest point almost to the water. In the valley between the cliffs are two waterfalls. Beach seining is carried on here during the season, and a number of shacks used by fishermen are on the beach at the foot of the cliffs.

Chart 8822.—Karluk (1960 population 129; P.O.), 5.5 miles southward from Cape Uyak and 1.5 miles eastward from Cape Karluk, is a native village with a school and a

church. Fishing is the principal industry. The old cannery buildings are still standing but they are no longer used, as the fish are now taken to Uyak Bay for canning. A strong set southward toward the shoals inshore has been experienced.

Radiotelephone and radiotelegraph communications are maintained with the Alaska Communication System.

The entrance to **Karluk River** is through a narrow channel at the south end of a spit and is only passable by launches at high water. Some wharves are just inside the mouth. About 1.5 miles up the river is a weir where the salmon are counted as they ascend the river. The weir is removed during the winter season.

Karluk Anchorage off Karluk is sheltered from offshore winds but is exposed to winds from the southwest around through west to northeast. Vessels should be prepared to move on short notice. Anchorage may be had off the town in 12 to 14 fathoms, sandy bottom. During the fishing season a number of scows and launches will usually be found moored in the roadstead.

The abandoned cannery buildings and the church spire are the principal objects to be seen in approaching Karluk.

Tanglefoot Bay is the bight adjacent to Cape Karluk on its eastern side. It is separated from Karluk by a high cliff, the base of which is not passable by pedestrians at high water. **Tanglefoot Beach** is very steep and has a bad undertow. Landing here is dangerous if there is any surf.

Chart 8541.—Cape Karluk is the most conspicuous landmark along the west coast of Kodiak Island. The cape is a prominent, projecting head, 1,398 feet high, with bare rock cliffs on its seaward face and grassy slopes on its eastern side to lowland. It is readily identified by its cone-shaped appearance, a notch in the summit, and the lowland behind it.

Sturgeon River has its mouth about 2 miles southward from Cape Karluk. The entrance is between 2 shingle spits covered with driftwood. It can be entered by small boats at half tide or better. For about a mile back of the beach the river flows through a mudflat, which is covered at high water.

Sturgeon Head is a high whitish eroded headland 5 miles southward from Cape Karluk. Several rocks and reefs lie as much as 200 yards offshore at the foot of Sturgeon Head.

Cape Grant, about 10 miles southward of Cape Karluk, is a rugged headland at the end of a high ridge, the summit of which is marked by a small cluster of peculiar pinnacle rocks.

A rock nearly awash at low water lies 0.3 mile off the southwest tip of Cape Grant. Shoal water extends some distance beyond this rock and vessels rounding the cape into Halibut Bay should give it a berth of 0.8 mile.

Halibut Bay is the large bight lying just southward from Cape Grant. The bight is bordered by eroded bluffs and a broad sand beach. A stream enters the sea at the southern part of Halibut Bay. Vessels anchor in 7 fathoms, hard sand bottom, 0.8 mile off the beach. Small craft may find more protection closer in near the mouth of the lagoon.

Anchorage is also available in the northern corner of the bay, but care should be taken to avoid the reef which makes out from the southwest tip of Cape Grant.

A cannery is at the south end of Halibut Bay at the entrance to the lagoon; the cannery wharf dries at low water.

Middle Cape, the westernmost promontory on Kodiak Island, consists of two headlands having precipitous, rocky cliffs facing the sea, and smooth grassy slopes facing inland. The northern headland is the higher, being a little over 1,000 feet. Its summit consists of three rocky clumps, the middle one of which is the highest. These rocky clumps are prominent and easily distinguished from the northward.

A prominent high pinnacle rock lies at the foot of the northern slope of Middle Cape.

Tombstone Rocks consist of two detached rocks about 100 yards apart lying 0.8 mile off Middle Cape. The southerly rock is 99 feet high while the northerly rock is only a few feet high. From some directions these rocks appear as the headstone and footstone of a grave. Deep water is close to the rocks.

Mushroom Reef, which uncovers 13 feet, lies about 0.3 mile offshore and 1 mile southeastward from Middle Cape. This rock when exposed by the tide is round and has the appearance of a huge mushroom. Deep water is close up to it.

A prominent pillarlike shaft of rock 170 feet high with overhanging sides, lies about 100 yards offshore and east from Mushroom Reef.

Middle Bay is a small bight lying about midway between Middle Cape and Cape Ikolik. The 5-fathom curve is about 0.3 mile off the beach.

Gurney Bay is the bay immediately northeastward from Cape Ikolik. The head of the bay is shoal with a sand beach strewn with boulders. Anchorage may be had in 10 fathoms, sandy bottom, midway between the two entrance points. This is a comfortable and secure anchorage in easterly weather.

Chart 8540.—Cape Ikolik, 4 miles southward of Middle Cape, is a rugged headland 980 feet high, with its summit forming a ridge lying in a northeast and southwest direction.

Outer Seal Rock, 1.8 miles westward from Cape Ikolik, resembles a sail and is 89 feet high. The rock has deep water close-to except about 200 yards to the southwest where there are sunken rocks. Outer Seal Rock is a sea lion rookery.

Inner Seal Rock, 0.3 mile west from Cape Ikolik, is a steep-sided bare rock 125 feet high, surmounted by a rocky nub which gives it the appearance of a lighthouse. From some directions it appears as a huge bell.

Bumble Bay lies 2.5 miles east of Cape Ikolik. The western point of the bay is marked by three pinnacle rocks, while the eastern point is marked by a single

pinnacle rock 127 feet high. Small craft will find shelter from easterly winds in the eastern part of the bay, while large vessels will find anchorage in the center of the bay in 12 fathoms, sand bottom.

Ayakulik Island, 5 miles southeasterly of Bumble Bay, is small and 220 feet high. A reef extends eastward from the east point of the island to a sandspit on the mainland of Kodiak Island. At a distance of 300 yards west and north of the island are bare rocks and rocks awash.

Small launches will find shelter in southeasterly or eastery weather in 5 fathoms, 300 yards northeast of the island. Larger vessels will find shelter from easterly weather in 7 fathoms, 0.5 mile north of the island.

Ayakulik River, known locally as **Red River,** discharges at a point 1.8 miles southeast of Ayakulik Island. With local knowledge, the river can be entered at high tide in smooth weather by small launches. The Fish and Wildlife Service maintains a station here during the salmon season.

From a point 3 miles north of Ayakulik Island to Low Cape, the shoreline runs in a nearly north and south direction and is marked by earth bluffs varying from a few feet to 267 feet high.

Ikpik Hill, a prominent high dark-colored earth bluff is 3.2 miles north of Low Cape, and in approaching from Cape Ikolik, this bluff may be mistaken by a stranger for Low Cape.

Low Cape, 11.5 miles northwestward from Cape Alitak, is the western extremity of the lowland in this vicinity. The extremity of the cape is marked by a peak-shaped, light-colored earth bluff about 90 feet high. A spit, bare at low water, extends nearly 0.3 mile off the cape. The water deepens gradually, the 10-fathom curve lying 2.3 miles off the cape.

From a position 2 miles westward of Low Cape, heavy kelp extends in an east-southeasterly direction. Soundings in this kelp showed depths of from 3 to 7 fathoms, but much shoaler water probably exists. Low Cape should be given a berth of about 3 miles.

Sukhoi Bay has its entrance about 6 miles south of Low Cape. The entrance is narrow and lies between two sand bars. It has a depth of about 6 feet, but should not be attempted except with local knowledge.

The coast from Low Cape to Cape Alitak apparently has no off-lying dangers.

Cape Alitak has been described earlier in this chapter.

Routes, Cape Karluk to Cape Alitak.—From a point 2 miles off Cape Karluk, steer **222°** for 5.5 miles to a position with Sturgeon Head (a high white eroded cliff) abeam. Then change to **213°** for 11.5 miles until Tombstone Rock is on the port beam, 2 miles.

Then change to **196°** for 4 miles or until Outer Seal Rock (a sail-shaped pinnacle) is a little abaft the beam, 2 miles.

Then change to **154°** for 23.3 miles to pass 2.8 miles off Low Cape. On this course Low Cape should be passed in a depth of 14 fathoms.

When Low Cape bears 083°, 3 miles, haul to **132°** for 12.5 miles, passing about 1.3 miles off Cape Alitak, to a position with the cape bearing 010°, 1.5 miles.

If bound to Alitak Bay, follow Routes given in the description of that place.

6. ALASKA PENINSULA

Charts 8502, 8802.—Alaska Peninsula, extending southwestward over 400 miles from Alaska mainland (59°80′ N., 155° W.) to Isanotski Strait (54°52′ N., 163° 23′ W.), is mountainous with many irregular and bold peaks reaching 2,000 to 9,000 feet. **Pavlof Volcano (55° 25′ N., 161°54′ W.),** the most prominent of several active volcanos on the peninsula, has three symmetrical peaks in a general north-south line; the middle and highest peak rises to almost 8,300 feet. **Frosty Peak (55°04′ N., 162°50′ W.),** a conspicuous snowcapped mountain with several irregular peaks near the southwest end of the peninsula, reaches nearly 5,800 feet. There are many lakes and sizable streams on the peninsula; several portages cross between the adjacent bays.

The south coast of the Alaska Peninsula is described in this chapter; the north coast is described in chapter 8.

The south coast of the Alaska Peninsula from Cape Douglas to Cape Pankof is irregular and broken by numerous indentations affording anchorage. Some settlements, canneries, and fishing stations are scattered along the coast and among the off-lying islands.

Many of the points are high rugged cliffs with offshore reefs, while other points are low with shoal water extending from the shore. Kelp does not always mark rocks and shoals, especially in early or late summer. Sometimes only thin ribbon kelp grows on the dangers which is either drawn under by currents and seas, or cannot be seen until the kelp is entered.

Many vessels from southeast Alaska use the Shelikof Strait route south of the Alaska Peninsula to the Bering Sea. The route is described in chapter 3. The run between Shelikof Strait and Shumagin Islands is one of the most difficult in Alaska because of the prevalent thick weather and unknown currents. The current effect near Foggy Cape is particularly confusing.

Local magnetic disturbance.—Differences from the normal variation of as much as 14° have been observed along the Alaska Peninsula.

Currents.—A continual current of considerable strength flows the coast all the way from Shelikof Strait to the Aleutian Islands. This westward current is considered the eddy which accompanies the general eastward drift across the Pacific southward of latitude 50° N., and forms part of the general circulation of the North Pacific Ocean.

The current along the Alaska Peninsula has been called a warm current originating in the Gulf of Alaska and doubtless assists in causing the southern side of the peninsula to be warmer than the Bering Sea side. It is also well known that the islands off this coast have a milder climate than the mainland; almost the entire population of the area is found on them as a result.

The coastal current searches out all the passages, large and small, between and around the many islands, and in some of them it becomes strong enough to be important. An approaching northeast storm gives warning by strengthening this current; in many places the current will indicate northeast weather a day before the barometer falls. Westerly winds weaken the current.

On three runs between Chirikof Island and Castle Rock, a survey ship experienced a southerly set indicating an average strength of current of 1.5 knots.

The tidal currents in the vicinity of the south coast of the Alaska Peninsula are strong in many of the constricted passages. In the open waters offshore they are generally weak.

Weather.—At Chignik, on the Alaska Peninsula just north of the Shumagin Islands, the winds are extremely variable. In early winter they are from the northwest and west, and in January and February they are from the southeast. The winds are most frequently from directions between southeast to southwest from March until September, when they shift through west and west-northwest to northwest by November. Gales are frequent in winter, with strong winds blowing from the Bering Sea through the mountain pass over Chignik Lake. The winds recorded at Unga and Pavlof Islands in the Shumagins are most frequently from southwesterly directions in summer and from southerly directions in winter. Southwesterly gales occur at times during the fall, winter, and spring.

Along the lower coast of the peninsula the winds are most frequently from directions between west-northwest and north-northwest in the fall and early winter, and are generally from the southeast during the remainder of the year. The average velocity at Cold Bay is 15 knots, with stronger winds frequently occurring.

The strong northwest winds are usually accompanied by clear weather. The southeast and southwest gales of summer are usually accompanied by rain and thick weather. Strong winds draw in and out of the various bays and inlets and a ship coasting will often experience a variety of weather in a short distance.

The annual amount of rainfall along this coast is extremely variable, ranging from 48 inches at Coal Harbor to 151 inches at Chignik. The annual total snowfall is 57 inches at Coal Harbor and 60 inches at Chignik. Snow may fall at the water level until June and on the peaks until late in the summer. It extends far down the slopes at the close of September and may be expected at the water level early in October.

All harbors on the south side of the peninsula are free from ice and open to navigation throughout the year. Pack ice has been known to drift through Isanotski Strait and interfere with navigation in Ikatan Bay.

The mean annual temperature on the east side of the peninsula ranges from 37° F. at Chignik to 42° F. at Coal Harbor. At Coal Harbor an extreme high of 80° occurred in July and a low of —19° occurred in February. Ocean water temperatures are 1° to 2° above air temperatures in winter and slightly lower than the air in midsummer.

Though fog may be encountered along this coast at any time during the summer months, it is more prevalent during the months of June, July, and August. The southeast winds bring in the fog from the great fog banks that lie in the North Pacific. Fog often hangs about the headlands and entrances to bays when the upper parts of the bays are clear. Fogs are reported at Chignik on about 7 days each year. At Cold Bay, fog is least frequent during the autumn and most frequent during July and August.

There is usually a considerable amount of cloudiness over the area. Thunderstorms have been reported at Cold Bay but they are apparently rare as no reports of thunder are noted at other stations in the area.

With the exception of an occasional fine summer, the weather of the Alaska Peninsula can be classified as bad, and the difficulties of navigation are many.

Prominent points and most off-lying islands on the south side of the Alaska Peninsula are correctly charted. However, much of the coast between Cape Douglas and Chignik Bay has not been surveyed. Notes on the unsurveyed portions are from the most reliable sources available; these waters should be used with caution.

Chart 8556.—Cape Douglas, the mainland promontory on the western side of the northern end of Shelikof Strait, is a grassy peninsula about 3 miles long and 190 feet high. At its western end it breaks off in a bluff to a low, narrow neck which connects it to the mainland. Rocks that uncover, extend about 0.5 mile eastward from the cape.

The bight west of Cape Douglas affords anchorage, sheltered from northerly and westerly winds, in 6 fathoms, sand bottom. There is some shelter from northeasterly winds, but if heavy, some swell rolls arouud the point. A stream enters the northeast end of the bight at the foot of the bluff, and this part of the hight uncovers nearly out to the southwest end of Cape Douglas.

Mount Douglas, 7,004 feet, and **Fourpeaked Mountain,** 6,903 feet high, are snow-covered mountains west and southwest, respectively, of Cape Douglas.

Douglas Reef, 5.5 miles south of Cape Douglas, is about 2 miles in diameter. Part of the reef uncovers; near its middle is a rock 28 feet high. A sounding of 6 fathoms with 40 to 60 fathoms close-to was obtained 1 mile 081° from the rock. Two rocks, close together and awash at high water, are 2.8 miles southwestward from Douglas Reef and 1.5 miles offshore. A reef bare at low water extends about 0.8 mile southeastward from them. About 10 miles southward of Cape Douglas is a point marked by a hill 673 feet high. In the valley south of the point is a small glacier. Lying 1.2 miles from the point and 168° from the hill is a rock awash at about half tide. There is no kelp on the rock, and the sea seldom breaks on it when it is covered.

Two kelp patches are about 1.5 miles southwestward of the preceding rock and the same distance from shore. The kelp shows well only at low water, and the sea seldom breaks on the rocks.

Kiukpalik Island is 17.5 miles south-southwestward of Cape Douglas and 2 miles offshore. It is 1.3 miles long, 155 feet high, nearly level, and grass-covered. A shoal scantily marked by kelp is about 0.5 mile northwest of the island, and the channel betweeen them is not safe. Temporary anchorage, with shelter from easterly winds, can be had in the bight on the west side of the island, in 8 or 9 fathoms, muddy bottom. The mainland opposite the island should be avoided, as there is a possibility of shoals on that side.

Shakun Rock, a prominent dark pinnacle 50 feet high, is 5 miles 232° from Kiukpalik Island. From the rock, a semicircular reef partly bare at low water extends southward and westward to the south end of the chain of grass-covered **Shakun Islets.** Between the rock and the islets is foul ground, and apparently they are joined to the mainland by a reef.

Swikshak Bay is a lagoon which is practically closed at all stages of the tide. The entrance is about 200 feet wide.

Kaguyak is a village behind a large bare rock which is joined to the beach at low water. Approaching from southeastward, a Coast Guard vessel anchored in about 7 fathoms, hard sand bottom, with Cape Chiniak bearing 205°, Shakun Rock 090°, and the settlement rock 346°. Between Cape Chiniak and Shakun Rock the bottom was found to be uneven, depths 10 to 20 fathoms, mud and hard sand alternating.

Cape Chiniak, the north point of Hallo Bay, is 7.5 miles northwurd of Cape Nukshak. It has a high hill near its end.

Hallo Bay has not been examined except near Cape Nukshak.

Ninagiak Island, in Hallo Bay, has a knob 305 feet high. A rock bare at low water is about 0.8 mile eastward of the island.

A reef, about 1.2 miles long east and west, is in Hallo Bay ahout midway between Ninagiak Island and Cape Nukshak. The reef is bare in places at low water and has no kelp.

Cape Nukshak, 36 miles southwestward from Cape Douglas, is flat and grass-covered to the foot of a prominent sharp peak. Just off the cape is narrow **Nukshak Island,** which is 0.5 mile long, 133 feet high, and has two knolls. Between the island and the cape is a narrow passage about 75 yards wide that has a depth of 5 fathoms in midchannel. A prominent pinnacle is close to the west end of the island. Anchorage and shelter from westerly winds can be had 0.2 mile south of the island in 10 fathoms, sandy bottom.

A large reef, covered at high water, lies 0.5 mile off the mainland and 1.8 miles southwest of the outer end of

Nukshak Island. A rock, covered 3 feet, is 0.6 mile east-southeastward of the reef and is not marked by kelp. From Cape Nukshak to Kukak Bay the cliffs along the shore are irregular and numerous high-water and submerged rocks extend a mile offshore.

Yugnat Rocks, about 3 miles southwest of Cape Nukshak, are several prominent rocks about 20 feet high. The area around the rocks is foul and ships are warned to keep outside the 20-fathom curve.

Chart 8667.—Kukak Bay, between Cape Nukshak and Cape Ugyak, has depths as great as 67 fathoms and extends inland about 6 miles. The entrance is 0.6 mile wide and is easy of access. The shores are steep in most places and anchorage area is limited.

Kukak Point, 4.5 miles southwestward of Cape Nukshak, is low and grassy; a reef extends 0.5 mile southeastward from the point. **Devils Cove,** between Kukak Point and **Tiny Island,** has a flat muddy bottom and depths of 4 to 7 fathoms. There is a waterfall at the western end of the cove. Entrance to the cove is obstructed by three reefs which are covered at high water. The best passage into the cove is between the westerly reef and Tiny Island. Strangers are cautioned not to enter unless the reefs are visible.

On the south side of Kukak Bay are two islands; **Aguligik Island** is just inside the entrance and **Aguchik Island** is near the head of the bay. A salmon and clam cannery is located in the small cove opposite the eastern side of Aguligik Island. The face of the cannery dock dries at extreme low water.

Cannery tenders anchor in a small bight south of Aguligik Island in 28 fathoms, mud bottom. A large anchorage is available south of Aguchik Island in 10 to 20 fathoms, mud bottom. Both anchorages afford good protection against wind and swell. The holding bottom is good. The diurnal range of tide is about 13 feet. Currents negligible.

A rock, covered about 8 feet, lies near the center of the outer part of Kukak Bay. The rock is 0.5 mile from the north shore, 0.8 mile from the south shore, and about midway between Aguligik and Aguchik Islands.

Chart 8556.—Cape Ugyak, 8 miles southwestward of Cape Nukshak, is the east end of the mountainous peninsula between Kukak and Kaflia Bays. **Kulichkof Island** is a small grass-topped rock 0.2 mile north of the cape. The area north of Cape Ugyak is foul for a radius of about 2 miles. Bare and covered rocks, and reefs are numerous. A rock awash, not marked by kelp, is 1.3 miles northwestward from Kulichkof Island and 0.8 mile off the mainland. A rock, covered 11 feet, is 0.8 mile northeastward from Kulichkof Island; a small patch of thin kelp is visible only at extreme low tides. A rock, covered 1 foot, is 0.3 mile northeast of Kulichkof Island; a small patch of kelp is visible on the lower

Kaflia Bay, between Capes Ugyak and Gull, has at its head two small basins with depths of 20 to 35 fathoms in the middle and joined by a vary narrow channel. The first basin has a narrow entrance, reported to bare at low water. The channel is south of an islet in the entrance and apparently on either side of a rock which bares at low water.

Cape Gull is a bold headland, terminating in a cliff 503 feet high. Temporary anchorage can be had in the cove on the south side in 9 fathoms, sandy bottom. The south point of the cove is a rocky islet about 15 feet high.

Cape Kuliak is the outermost headland on the midsection of Shelikof Strait's western shore. The cape rises gradually from a crumbling bluff at the end to high mountains inland. Between Capes Kuliak and Atushagvik is **Missak Bay,** nearly 4 miles long, which has not been sounded. A bare rock is 300 yards off a prominent point on the north shore. Rocks bare at low water are 600 yards southeastward and 0.5 mile westward from the point.

Cape Atushagvik is 4.2 miles 225° from Cape Kuliak. It has a low bluff at the water, and rises in a gentle slope to a prominent knoll, 904 feet high, with a decided saddle between it and the higher land farther back. A kelp patch is nearly 0.4 mile southeastward of the cape.

Between Capes Atushagvik and Ilktugitak are Kinak and Amalik Bays. **Kinak Bay** is 8 miles or more long and nearly 3 miles wide at the entrance. It is clear of islands, except off Amalik Bay on the southwest. On the northeast side of the bay, 1.5 miles inside Cape Atushagvik, is a low peninsula 0.6 mile long, with a bluff 150 feet high near its end. **Russian Anchorage,** on the northwest side of the peninsula, has good holding ground, 300 to 500 yards from shore, in 10 to 18 fathoms, muddy bottom. Fresh water can be obtained by boat. The bay has been sounded to the anchorage, and the only directions necessary are to give Cape Atushagvik and the islands on the southwest a berth of about 1 mile.

Amalik Bay, on the north side of Cape Ilktugitak, is separated from Kinak Bay by a high peninsula. It is unsurveyed but is known to have secure anchorage at its head. Takli Island is in the entrance. About 0.6 mile northeastward of Takli Island is an inner chain of islands which extends 1.5 miles southwestward from the high peninsula. On the north and west sides of this chain is a basin about 0.4 mile wide with the anchorage at its north end. On the west side of the basin is the inlet to a landlocked inner basin known as **Geographic Harbor.**

The entrance to Amalik Bay from southwest of Takli Island is 0.6 mile wide and apparently clear. The channel follows the western shore through the basin and along the western side of the inner chain of islands. From Kinak Bay a channel along the shore of the high peninsula passes north of the outlying islands and between Takli Island and the inner islands.

Takli Island is nearly 2 miles long, its eastern part being low, broken, and rocky. At its western end, a hill 455 feet high has a sheer drop to the water. A chain of reefs and rocky islands extends 1.5 miles eastward from Takli Island. The passage between them and the islands 1 mile northward is dangerous and should be avoided.

The coast from Amalik Bay to Chignik Bay is covered

with the yellow volcanic ash from the Katmai eruption of 1912, and is almost devoid of vegetation. It has the appearance of a desert.

Cape Ilktugitak, just southward of Takli Island, is fairly low, but rises rapidly to the high land back of it. Between the cape and Takli Island is a small islet. The chart shows a group of rocks 2.5 miles southeastward from the cape, but a survey steamer saw no indication of the rocks when in the vicinity in 1929.

The steamer GOLDEN FOREST was lost on the south side of Cape Ilktugitak in 1929.

Dakavak Bay is a large open bay between Cape Ilktugitak and Katmai Bay.

Katmai Bay is an exposed and rocky roadstead which can only be used in northerly and northwesterly weather. The north part is foul, as represented on the chart. A shoal, showing kelp, on which a depth of 6 fathoms was obtained, is reported to lie about 2 miles off the coast and 8 miles eastward of Katmai River entrance.

Katmai River, previous to the eruption of Katmai Volcano in 1912, could be navigated by launches at high tide as far as the now abandoned village. From last reports, the river was choked with pumice, which washes down from the higher slopes faster than the stream can dispose of it. Steam and smoke from volcanic activity of the region generally hang over the vicinity, obscuring the higher ground in a murky haze.

The area in the vicinity of Katmai Volcano from Cape Douglas to Cape Kubugakli is the **Katmai National Monument.** The most spectacular feature of the monument is the mountain-encircled **Valley of Ten Thousand Smokes** in the northwestern portion of the reservation. Here the ground is broken open, giving vent to several million fumaroles or little volcanoes, from which rise jets of steam. Some of the jets throw their steam a thousand feet into the air, and hundreds of others go up to a distance of 500 feet, all merging above the valley into one colossal cloud.

The inner part of **Kashvik Bay** is foul, and the outer part affords no shelter.

Katmai Volcano, 7,500 feet high, is part of a high ridge and is not easily distinguishable from Shelikof Strait. In 1912 this volcano gave vent to a violent eruption, the initial stages lasting three days, during which several cubic miles of material were emitted. This eruption was of such violence as to rank in the first order of volcanic explosions. The volcano is now quiet and in its crater is a lake over a mile long and nearly a mile wide.

Mageik Volcano, 7,250 feet high, is about 10 miles southwestward from Katmai Volcano. It has a more definite summit and can be easily identified from the strait.

Cape Kubugakli is bold and rises rapidly to **Mount Kubugakli,** a prominent mountain with two summits. The 2,920-foot southerly peak is the higher.

The southern and open part of **Alinchak Bay** is foul to the head. Although there are probably many reefs and pinnacles around the entrance to the north arm, it is reported to afford good anchorage, but should not be attempted without local knowledge.

Cape Kekurnoi, between Alinchak and Puale Bays, is fairly low, but rises gradually to over 1,500 feet. Reefs and rocky islets extend 3.5 miles southward from the southwest tip of the cape. There are bad tide rips off these reefs, which is frequently the case along the west side of Shelikof Strait.

Puale Bay is open to the south and is only partly protected on the east by the reefs and islets extending south from the Cape Kekurnoi. The northern shore has low rocky bluffs and small rocky beaches. The western shore has two long sandy beaches separated by a rocky bluff 400 feet high. The southwestern shore is formed by the bold rocky bluffs of Cape Aklek.

The eastern and northeastern sections of the bay have numerous dangerous rocks and reefs. The western portion has fairly regular sand bottom. Reefs and kelp-covered rocks extend 0.2 to 0.4 mile off the eastern side of Cape Aklek.

Routes, Puale Bay.—From sea steer for the highest point on Cape Aklek until it bears **325°.** On this heading the bottom is irregular, with depths varying from 20 to 55 fathoms. Continue on this heading until the northeast tangent of the cape bears 347°. Then steer **015°** for 4.5 miles in depths of 40 to 60 fathoms to 57°42′ N., 155°31′ W. From this point the vessel can proceed to a variety of anchorages in the inner bay. By steering **338°** for 4.5 miles the vessel will find anchorage near the head of the bay in 10 fathoms on even sand bottom; on this heading the depth decreases quickly to 20 fathoms and then slowly to 10 fathoms. If seeking shelter from southerly winds and seas the vessel may run 2.5 miles on course **276°** in depths shoaling quickly to 15 fathoms to anchorage in 10 fathoms. Protection from easterly to northerly winds may be found by steering **075°** for 3.5 miles over irregular bottom to anchorage in 10 fathoms, taking care to avoid the 3½-fathom rock in 57°43′ N., 155°27′ W.

There are no satisfactory ranges for entering the bay but they are unnecessary. Cape Aklek can be approached with safety on any heading between **305°** and **020°.** The channel between the 10-fathom curves at the entrance to the bay is over 2 miles wide.

Fishing craft sometimes enter the bay from the east, using a narrow channel between the mainland and the southern rocky islets. This channel has a least depth of 6 fathoms but is only about 350 yards in width, is bordered by kelp-covered rocks, and has a 4-fathom rock near its outer end.

Anchorages in Puale Bay are indifferent to poor. There is no protection from southeasterly weather. Southerly swells enter the bay a large part of the time and increase in size in the shoal water. Williwaws are frequent. Even in westerly weather the winds funnel through the low passes to the west of the bay with greater velocity than that encountered in Shelikof Strait.

Cape Aklek, the most prominent headland in the vicinity, rises to 1,800 feet within 0.6 mile of the shoreline in a series of bare slides, bluffs, and cliffs. Two large rocks about 75 feet high are off its southern and southeastern shores, but they are inconspicuous from seaward against the rocky background of the cape.

Dry Bay lies between Cape Aklek and Cape Unalishagvak. As the name implies, the entire inner bay bares at low water. The outer bay has a rocky irregular bottom. Here again williwaws are frequent and westerly winds are increased in violence in the low passes to westward.

Chart 8666.—Jute Bay is between **Cape Unalishagvak** and **Cape Kanatak.** The part inside **Jute Islands** is called **Island Bay.** Reefs marked by kelp and breakers extend southeast from Jute Islands and tend to break the swells during easterly winds. A reef also extends from the east side of Island Bay about halfway to Jute Islands. The channel between the reef and the islands has depths ranging from 11 to 5 fathoms. The channel west of Jute Islands has depths of from 3½ to 5 fathoms, but its south end is obstructed by rocks and reefs extending southwestward from the islands, and its use is not recommended except by boats with local knowledge. Indifferent anchorage, sheltered except from southeast winds, can be obtained northward of Jute Islands in Island Bay.

As in all of the bays in this vicinity, the williwaws are violent with westerly winds and are very disagreeable, if not dangerous, to small craft.

Portage Bay, between Cape Kanatak and Cape Igvak, is clear except for reefs and rocks about 1 mile from its head. The bay is open to southeasterly winds and is subject to northwest winds, which draw down from the mountains with great force.

Kanatak is a town at the head of Portage Bay. Since the discontinuance of oil drilling in this area, Kanatak has been practically abandoned. It is a port of call for the local mail steamer.

A kelp-covered reef extends 0.5 mile southwestward from **Kelp Point.** Just off the reef and separated from it by a narrow channel is a rock, covered 1½ fathoms, leaving a clear channel 0.2 mile wide west of it for entering the inner part of the bay.

The best anchorage is in 10 to 12 fathoms southeastward of the 1½-fathom rock; coasting vessels sometimes use the inner anchorage northwestward of the rock. The anchorages are subjected to violent williwaws with westerly weather, and at such times the inner anchorage should not be used. The wind is apt to shift from northwest to southeast with but little warning. In such cases, launches run to Kanatak Lagoon for shelter.

Vessels with passengers or freight usually anchor as far in as their draft permits. With northwesterly winds there is but little swell.

Kanatak Lagoon, on the west side of the bay about 5 miles from Kanatak, has a narrow entrance with less than 6 feet at low water, but has depths of 6 to 12 fathoms, mud bottom, inside. It affords excellent anchorage in easterly weather, but is a maelstrom with northwest winds. Under such conditions the williwaws blow with almost hurricane force, and the water level at the eastern end is higher than that at the western end.

In approaching Portage Bay from Sbelikof Strait, careful track of the reckoning should be kept, as the various headlands are similar and the bay is difficult to recognize from a distance. Enter on a midchannel course and, if bound to the inner anchorage, pass 200 yards southwestward of the 1½-fathom rock, then head for the town and anchor as desired.

Cape Igvak, a conspicuous headland separating Portage and Wide Bays, is the southern extremity of a ridge of mountains rising 2,000 to 2,600 feet, and covered with clouds most of the time. **Cape Igvak Light (57°26.0′ N., 156°01.8′ W.),** 80 feet above the water, is shown from a small white house.

Wide Bay, between Cape Igvak and Cape Kayakliut, is obstructed clear across the entrance by many islands which are surrounded by foul ground. Entrance to the inner bay should be made through a 350-yard wide channel between **East Channel Island** and **Channel Rock;** depths are 10 fathoms or more. Passage should not be attempted elsewhere without local knowledge. Rocks and reefs, marked by kelp and usually breakers, extend almost 1.5 miles southeastward and 0.3 mile northward of Channel Rock. Foul ground extends nearly 2 miles northeastward and 0.2 mile southward of East Channel Island. Once inside the inner bay, secure anchorage in any weather is available in 5 fathoms to more than 20 fathoms, excellent holding ground. The williwaws are disagreeable with westerly winds but are not dangerous to moderate-sized vessels. Small craft can anchor in the lee of the islands.

A 765-yard long pier with oil-drilling platform and connecting causeway is about midway on the west side of Wide Bay; depths to the pier are about 10 feet.

Local magnetic disturbance.—Differences of as much as 14° from the normal variation have been observed on **Terrace Island** and as much as 3° on East Channel Island.

Chart 8502.—Small-craft inshore route between Wide Bay and Sutwik Island.—From Shelikof Strait, Cape Igvak, or the entrance to Wide Bay, head directly for Kilokak Rocks; when within 1 mile of these rocks alter course to pass 600 yards west of the highest rock. Then steer the following courses: **221°** for 6.3 miles until Ashiiak Island bears 131°, 500 yards; **232°** for 3.9 miles until David Island bears 142°, 400 yards; **206°** for 0.9 mile until David Island bears 116°, 600 yards; **181°** for 3.4 miles until Cape Providence (outer rock) bears 271°, 0.5 mile; **218°** for 4.7 miles until southernmost of two islands bears 308°, 0.5 mile (highest Aiugnak Column, 2 miles); **248°** for 5.8 miles until west tangent of Cape Kuyuyukak bears 315°, 2 miles; **257°** for 7 miles, clearing Beehive Island by 0.4 mile until Small Island bears 122°, 0.7 mile; **226°** for 8.3 miles until southwest tip of Cape Kunmik bears 316°, 1.1 miles (west tangent of Cape Kunmik opening on point); continue **226°** course for 10 miles until Kumlik Island bears 136°, 0.5 mile, or head on a **198°** course for 10 miles until northwest point of Sutwik Island bears 225°, 1 mile.

Cape Kayakliut, on the south side of Wide Bay, has a generally flat appearance, sloping smoothly back to the mountains. The shoreline is formed by low, steep cliffs and close to the point is a prominent grass-topped island.

A foul area extends eastward from this island for 0.8 mile; the inshore portion is marked by reefs with two prominent rocks about 10 feet high near the center. The easternmost part of the area is marked by an extensive kelp bed with depths of 6 fathoms or less on the outer edge deepening to 13 to 15 fathoms 0.5 mile east. Ships should pass at least 1.5 miles off the cape.

Imuya Bay, 4 miles south of Cape Kayaklint, is wide and open to the east, and clear except for a group of islands in the northwest corner. Depths shoal gradually from 17 fathoms inshore from a line between the north and south points to 5 fathoms at a point 0.4 mile from the center of the sand and gravel beach which heads the bay. The area close-to and between the islands is shoal and foul, and the area between the largest island and the mainland to the north and west is mostly bare at lower low water. A large stream enters the bay at the west end of the sand and boulder beach at the head. The south shore of the bay has not been investigated and should be approached with caution.

The wreck of a large vessel lies against the shore west of the islands at the south point of the bay.

To enter Imuya Bay from the north, follow the trend of the shoreline from the north point around the islands, keeping the islands at least 0.4 mile on the starboard hand, and thence midway between the islands and the south shore to the head of the bay. Indifferent anchorage can be had for small craft in 5 fathoms, hard, fine sand bottom, 0.4 mile from the beach at the head of the bay.

In entering the bay from the south, care should be taken to avoid a shoal area of 5 fathoms or less 1.2 miles east of the outermost island at the south point of the bay. There is a passage between this shoal area and the island but it is not recommended even for small craft without further investigation or local knowledge.

Kilokak Rocks, two rocky islets, are about 2 miles offshore and just south of Imuya Bay; the 30-foot northwest rock is the higher. The area east of these rocks has not been investigated but the area west is known to be clear for 0.8 mile toward the shore. Depths of 15 fathoms or more can be carried to within 100 yards of the north, west, and south sides of the higher rock.

A rock which uncovers about 6 feet is 1.3 miles northwest of Kilokak Rocks. This rock marks the southeastern end of a foul area which extends inshore to a group of reefs and islets near the shoreline.

Agripina Bay, 5 miles southwest of Kilokak Rocks, is a deep indentation with a generally low but bold rocky shoreline indented with numerous small hights and clefts. The northern and southern points forming the entrance are marked by groups of small steep rocky islands; a larger group of very prominent islands, near the south central part of the bay, roughly divides the outer and inner portions of the bay.

Anchorage for large vessels can be had in 15 to 20 fathoms in the western end of the outer bay about 0.3 mile north of the islands and 0.3 mile from the western shore. This area is protected from all but northeast to southeast weather. One of the best smallboat anchorages along this section of the coast is in the bight at the head of the inner bay, midway between the east and west shores, in 6 to 8 fathoms, sticky mud bottom. No swell makes into the bight even in heavy weather, and there are no williwaws even in strong winds. Northwest of the bold rocky hill which forms the west side of the bight, is an extensive gravel flat bare at low water except for the shallow delta channels of a large stream which enters the bay at this point.

The only danger in the inner bay is a group of rocks near the west side. The outermost of these rocks is 300 yards off the west shore and 400 yards south of the anchorage.

The coastline from Agripina Bay to Port Wrangell is very broken, with many indentations and small inshore islands. The area is rocky and foul within 400 yards of the beach but is clear outside the small islands except for the shoal area, marked by kelp, which extends 500 yards southeastward from the point 0.5 mile southwest of Agripina Bay.

Offshore from the sailing track are numerous rocks and islands.

Ashiiak Island is high and rocky with a rounded central dome. The west side has sheer cliffs to the waterline and the water is deep close inshore. The east side of the island appears foul, with small islets extending 0.3 mile offshore and with one sunken rock, which breaks in heavy weather, 0.8 mile offshore. A small rocky islet about 10 feet high is 400 yards west of the island. A rock which uncovers about 8 feet, is 0.9 mile southwest of Ashiiak Island. Another rock, which uncovers, is about 150 yards to the east. In a moderate swell these rocks break at high water.

Chart 8851.—Port Wrangell, 7 miles south of Agripina Bay, is a deep, narrow indentation in the coastline. The outer bay, open to the southeast and east, has depths in midchannel ranging from 60 fathoms at the entrance to 14 fathoms at the inner end. The shoreline is steep and rocky.

The inner bay, one of the best anchorages along this coast, is 0.9 mile long, and varies in width from 300 yards near the entrance to over 600 yards at the widest part near the head. The depth varies from 10 fathoms near the entrance to 6 fathoms at the head, with excellent holding ground in sticky, blue mud bottom. The shoreline rises steeply all around the bay and there are probably williwaws on strong northwest winds although none have been noted. The ground swell does not make into the inner bay, which is recommended as anchorage for ships up to 2,000 tons. The greatest swinging room can be had near the head of the bay in 7 to 8 fathoms.

About 500 yards inside the inner bay on the east shore is a small stream, dry during extremely dry weather, where small craft can come close alongshore and take water aboard with 200 feet of hose at about 30-foot head.

East of Port Wrangell is a group of three large islands. **David Island,** the most northerly and largest of the group, is high and bold with steep rocky sides marked by numerous caves and clefts. Two small, rocky islets are close inshore on the north side. Northwest of David Island a

reef, marked by thick kelp and bare at low water, extends 400 yards south from the mainland.

Lone Rock, 1 mile northeast of David Island, is about 100 feet high, of a distinct brick red color, and with vertical or slightly overhanging cliffs on the west end which rise to a flat grassy top.

Poltava Island is 0.8 mile southeast of David Island. It has the same general appearance as David Island but is smaller and lower. The passage between David and Poltava Islands is not recommended as the soundings show very irregular bottom.

Navy Island, the most southerly and smallest of the group, is 0.4 mile southeast of Poltava Island. Several detached rocks or islets extend for 600 yards in a westerly direction from the main island. The passage between Poltava and Navy Islands is not recommended. Thick kelp and foul ground lie between Navy Island and a low rock 400 yards to the northeast. The chart shows a sunken rock about 0.5 mile southeast of Navy Island. This area is unsurveyed and should be given a wide berth.

Cape Providence, three miles south of Port Wrangell, is fairly low with steep rocky shoreline and many small indentations. At the tip of the cape is a group of three rocky islets extending offshore for 0.5 mile in a southeasterly direction.

Chiginagak Bay, between Cape Providence and Cape Kuyuyukak, is 6 miles long, 10 miles wide between the capes, and 2 miles wide at the inner end. The outer bay has scattered groups of rocks and small islands, and a group of three larger islands is along the western shore.

Offshore from the bay and 5 miles south from Cape Providence is a prominent group of islets known as the **Amak Columns.** The highest rises to about 102 feet. The areas immediately surrounding the columns and the islands and reefs in the outer part of the bay have been surveyed, and vessels should give them a wide berth.

The inner part of Chiginagak Bay, roughly 2 miles wide, is separated from the outer part by **Derickson Island,** 1.2 miles long and 0.3 mile wide, between a bold head on the east and a low rocky point on the west. Smaller island is 1 mile due north of the larger.

The head of the bay is a flat sand and gravel beach that bares 200 to 400 yards offshore at low water. A stream enters the head of the bay on the west over a broad sand delta bare at low water. Two small streams enter the northeast corner west of a short rocky headland distinguished by several small rocks above the high waterline. A ledge showing considerable at low water is just east of the delta. Several rocks on this ledge bare at high water.

Anchorage for vessels of any size can be had in the bay. In moderate weather from any direction, or in bad weather from the west, north, or east, the best anchorage is 0.2 to 0.5 mile southwest of the rocky point at the beach at the head of the bay. Depths are 8 to 10 fathoms, sand or mud bottom, good holding ground. In heavy weather, better shelter can be found 500 yards south of Derickson Island in 13 fathoms. In moderate southerly weather very little swell makes into the anchorages.

Chart 8502.—Cape Kuyuyukak, between Chiginagak Bay and Nakalilok Bay, is bold and prominent with high grassy hills sloping steeply to sheer cliffs at the beach. Numerous rocks and islets are close inshore south of the cape, and a chain of reefs extends 2 miles eastward from the cape. South of the reef, a shoal area extends for 1.3 miles with numerous kelp patches.

Ugaiushak Island, 6 miles south of Cape Kuyuyukak, is really a double island with a narrow, low boulder ridge connecting the two parts. The western part of the island is high, with a broken skyline and very tall, steep cliffs on the west and north sides. The eastern half is much lower, flat on top, with sheer cliffs to the shoreline on the north and west, and a gradual slope to a low and rugged shoreline on the east. A group of buildings are at the west end of the ridge.

A narrow chain of reefs about 0.5 mile long is 1.4 miles south of Ugaiushak Island. The southeast reef is marked by two pointed rocks about 60 feet high and the northwest reef by a single point about 25 feet high.

Midway between Ugaiushak Island and Nakalilok Bay is a small but very prominent island with a single high peak shaped like a conical beehive. A small rocky islet is 200 yards south of the larger island.

The southernmost of a second group of islands is 4 miles due west from Ugaiushak Island. On the north are 3 small rocky islets; in the center is an island 1.1 miles long and 0.2 mile wide, with grassy top and steep rocky shoreline; on the south is a large, high island, 0.6 mile long and 0.1 mile wide, with very high vertical cliffs to the water line. Depths obtained around these islands were 15 to 18 fathoms, very smooth sand bottom, but the formation of the islands suggests hidden dangers.

Five miles eastward of Cape Kunmik is **Hydra Island,** large and flat topped, 0.5 mile long and 0.2 mile wide, and with a small, rocky islet 300 yards to the north. There are indications of shoal areas 2 to 3 miles to the southward of Hydra Island.

Nakalilok Bay is divided into an eastern and western part by a low double-headed cape. The eastern part is 4 miles long, 3 miles wide at the entrance, and 1.5 miles wide at the head which terminates in a low sandy beach. The bay is generally deep except for a small shoal area marked by kelp, 1.3 miles east of the double-headed cape, and for a shoal area which extends 0.4 mile eastward from the same cape. The western shore is boulder and ledge beach backed by steep cliffs. The eastern shore is boulder strewn near the entrance, with gravel toward the head, and is backed by very steep hills. A very prominent waterfall is 1.5 miles from the head of the bay on the eastern side. This section of the bay affords good shelter for small craft except in heavy southerly weather. The anchorage is in 7 to 9 fathoms, sand bottom, 600 yards offshore from the east end of the sand beach at the head of the bay. Large craft can anchor in 10 to 15 fathoms about 0.5 mile offshore.

The western part of Nakalilok Bay has a long stretch

of sand beach, shaped like a flat crescent, which lies between the donble-headed cape and the north point of Yantarni Bay. Very smooth and flat, the beach is backed by low grassy dunes on the western half. The bottom off this beach is of fine sand and is unusually smooth and flat, with no indications of sunken reefs. Depths vary from 5 fathoms 0.4 mile offshore, to 18 fathoms 1.6 miles offshore.

Yantarni Bay, on the east side of Cape Kunmik, is abont 2 miles wide at the entrance and 2 miles long. The east side of the bay is a low cape with a very flat top and vertical cliffs of an unusual red-yellow color dropping sheer to the high waterline. A narrow reef extends 600 yards south. The head of the bay has depths of less than 5 fathoms, and is not recommended for anchorage.

Cape Kunmik, high and bold, is one of the most prominent capes along this section of the coast. The highlands are rounding in contour, covered with grass and alder patches on the lower slopes and prominently marked by deep gullies. The shoreline is formed by vertical cliffs 20 to 400 feet high and deeply indented with small bights and clefts. The beach is generally foul and boulder strewn, with sunken rocks, reefs and small rock islets extending 200 to 500 yards offshore. There are no known dangers farther offshore other than the visible islets.

The southernmost tip of the cape is a small semi-detached rocky island with very steep sides terminating in a wedge-shaped rock about 70 feet high. About 600 yards northeast of this point and close inshore is a detached islet of very striking appearance. As viewed from the south and east, it resembles a cathedral, with a single central spire about 200 feet high on the south face, and a lower rounding dome on the north. In sunlight this formation stands out prominently against the black cliffs behind.

Six hundred yards off the southeast side of the cape is a small islet 70 feet bigh with vertical black rock sides and a smooth turtleback top of grass. A low reef is 200 yards southeast, and a sunken rock is 500 yards east of the islet. The area between the islet and the cape is foul and thick with kelp.

Amber Bay, large and open, is just westward of Cape Kunmik. The outer part of the bay has moderate depths and regular bottom except for ledges and reefs alongshore, and the inner half is shallow, with numerous reefs and kelp patcbes. Being exposed, the bay is not recommended for anchorage, but emergency anchorage for small craft can be obtained in 5 to 6 fathoms, sandy bottom, under the northeast shore just northwest of a long reef awash at high water. The reef is 3.4 miles northwest of the prominent beak-shaped cliff which marks the south tip of Cape Kunmik. The bight inshore from the reef is foul with rocks, bare at various stages of the tide.

Eagle and **Garden Islands,** separating the entrances to Amber and Aniakchak Bays, are grass-covered, table-topped formations, with sheer cliffs on all sides. Eagle Island is nearly round and Garden Island is crescent-shaped. A large breaker is just south of the line between Eagle and Garden Islands. From the north point of Garden Island is a sand and gravel spit extending toward **Cape Ayutka,** which divides Amber and Aniakchak Bays. South and west of the cape is an extensive foul area marked by kelp. The passage between Garden Island and Cape Ayutka should be avoided until it has been surveyed. At the south end of Garden Island are two prominent pinnacles, the outermost is needle shaped. Good anchorage for small craft can be obtained close under the shore on the west side of Garden Island in 7 to 10 fathoms, sandy bottom.

Aniakchak Bay, wide and open, is entered between Garden Island on the north and Kumlik Island on the south. Reconnaissance examination indicated moderate and regular depths to the steep sand and gravel beach at its head. Along its northern shore, for about 1.5 miles west of Cape Ayutka, foul area marked by kelp, extends 200 to 800 yards offshore. In the northwest corner of the bay is a small island 82 feet high, with vertical cliffs along its eastern side. Immediately northwest of this island, in the restricted area between the island and the mouth of a river, cannery tenders and barges moor to piling in favorable weatber, but a southeast swell piles up in this anchorage.

Along the south side of the entrance to the bay (see chart 8710) and about 1.2 miles north-northwest of Kumlik Island is a prominent flat-topped pinnacle rock 85 feet bigh. Southeast of this rock 0.4 mile is a breaker marked by kelp, and abont 400 yards off the north point of Kumlik Island is a small rock 3 feet high. Between the breaker and the small rock is a deep channel. Southwest of the pinnacle rock about 0.4 mile, is another breaker, marked by kelp; and west of the pinnacle about 0.4 mile is a 3-fathom spot marked by kelp. A prominent headland, locally known as **Elephant Head Point,** is 1.3 miles northwest of the pinnacle. Rock ledges extend north and east about 400 yards from Elephant Head Point. Leading to Aniakchak Bay from the southward is a channel between Kumlik Island on the east and Cape Kumlik on the west, thence between the prominent pinnacle rock on the east and Elephant Head Point on the west. This channel is used by cannery tenders operating out of Chignik, but is not recommended for general use without local knowledge.

About 1.2 miles northwest of Elephant Head Point is a low, rock-cliff point with a rock awash at high water about 300 yards to northeastward. In the slight hight just westward of Elephant Head Point temporary anchorage can be obtained in 8 fathoms.

Vessels can select anchorage in 12 to 20 fathoms in the southwest, west or northwest portions of the bay at distances of 0.6 to 1.5 miles from the sand and gravel beach. The bay is protected from the southwest through west to north. Easterly and southeasterly swells pile up heavily in this bay.

Sutwik Island, about 7 miles off the Alaska Peninsula and about 90 miles southwestward from Kodiak Island, is 13 miles long and 4 miles wide. The southern side of the island, low and marshy in places, is very foul for 1 mile from the beach. The north side has steep shores and is foul along an 8-mile stretch of shore west from Foggy Cape. This stretch should be given a berth of not less than 2 miles in passiug.

Northwest of Sutwik Island is a deep channel which leads between visible rocks, one near shore and the other about 2 miles off. Small-vessel anchorage, protected from south to southwest winds, can be had in the small bay on the north side of Sutwik Island about 9 miles from Foggy Cape.

An anchorage, 3.5 miles from the northwest tip of the island is in a cove just east of a very prominent rock about 75 feet high and 600 yards off the shoreline. This rock has a square blocklike appearance, and is the largest rock off the north coast. Anchor in 5 fathoms, smooth sand bottom, with a kelp patch around rocks bare at low water bearing 225°, distant 300 yards, and a similar patch bearing 135°, distant 300 yards. This anchorage furnishes good shelter in southeast to west weather, but is poor in easterly weather.

An excellent anchorage for small craft in easterly or northeasterly weather can be found in a small bight 1 mile off the northwest tip of the island. The north side of this bight is a narrow point with steep rocky sides and a flat grassy top. Two hundred yards southwest of this point is an islet of very striking appearance, because of its flat base and cylindrical rock, about 70 feet high and 150 feet broad. Reefs and kelp extend from the rock to the shoreline.

To enter the anchorage from the west, keep the rock 200 yards on the port hand, proceed until 300 yards from the beach, and anchor in 5 fathoms, hard sand bottom. Current and rips encountered 0.3 to 0.5 mile offshore do not make into the anchorage. A vessel of 140 tons rode out a 30- to 40-knot easterly wind in this anchorage without dragging and with no swell although seas were running high 0.5 mile offshore.

Foggy Cape, the eastern end of Sutwik Island, is a prominent landmark for vessels passing along the coast. It rises to 418 feet, and is first raised as a detached island close to a low neck of land which separates it from the rest of Sutwik Island. No sounding has been done around the cape, but tide rips have been observed, and mariners are advised to give it a wide berth. Foggy Cape and the south side of Sutwik Island are often covered with fog when the north side is clear. Blankets of fog have been observed when the entire outline of the island was indistinct without any part of it being actually visible.

Foggy Cape Light (56°32.5′ N., 156°59.0′ W.), 195 feet above the water, is shown from a small house on the east end of the island.

The current velocity is about 1.5 knots off Foggy Cape. A vessel drawing 10 feet reported striking a rock about 2 miles south of Foggy Cape. In 1943 and 1952 soundings were taken in the area, but the reported rock was not found. Vessels should stay clear of the area until the obstruction is definitely disproved.

Chart 8851.—**The Semidi Islands** are about 90 miles southwest of Kodiak Island, and about 20 miles southeast of Foggy Cape.

Nyuk Island, the northerly of the group, is long and narrow and rises vertically from the shoreline in high cliffs, which are practically unscalable, especially along the west side of the island. In the south center of the island is a grassy plateau, with a prominent rockpile, the highest point on the island, rising to over 1,000 feet.

On the east side of the island is a fair-sized bight, with a sandy beach that is clear except near its north end, where kelp-marked rocks extend offshore. East of the bight, about 1 mile offshore, is small sheer-sided **Aghik Islet,** which is 528 feet high. Scattered ledges and rocks extend about 500 yards off the southeast point of Aghik Islet.

Anchorage can be obtained 400 to 600 yards off the bight in 10 to 15 fathoms, sand bottom. It can be safely approached from the northeast, passing Aghik Islet about 600 yards off; or from the southeast on a midchannel course between Aghik Islet and Aghiyuk Island.

A small group of rocks is 500 yards west of the southwest point of Aghiyuk Island. The highest has an elevation of 20 feet.

Chowiet Island, the southerly large island, is triangular in shape, and has sheer cliffs alongshore, especially on its west side. It reaches a height of 824 feet near its west side, slightly north of its center. The island has alder- and grass-covered ridges with many bedrock outcrops and cairn-shaped rock piles. Some of the latter are very large, and are in various odd forms.

A double bay is on the northwest side of Chowiet Island. Anchorage can be obtained in the center of the east arm of this bay in 16 fathoms, sand bottom. This anchorage is most favorable for winds from the northeast and around through east to southeast, but a southwest swell creates considerable surge. Anchorage can be obtained in the center of the west arm in 22 fathoms, sand bottom. This anchorage provides about 250 yards swinging radius and is favorable for winds out of the east and around through south to southwest. It is less subject to surge with a southwest swell than is the east arm.

At the south end of Chowiet Island is a small bay formed by a chain of low rocks and two steep-sided islets extending southeastward; **Aliksemit Islet** is the largest. Anchorage with about 200 yards swinging radius can be obtained in the north center of the bay in 20 fathoms, sand bottom. This bay is protected from southwest through west to northwest.

An arm on the east-central side of Chowiet Island is too small for suitable anchorage, except for small craft in fair weather. Swells pile up in this arm.

Kateekuk Island, 0.8 mile long by 0.4 mile wide, is 0.6 mile northwest of Chowiet Island, and is 500 feet high. Between this island and Chowiet Island to the southward, and Aghiyuk Island to the northward, are strong tidal currents, which cause very bad tide rips.

Anowik Island, 591 feet high, and **Kiliktagit Island,** 404 feet high, are about 1.2 miles northeast of the north end of Chowiet Island. Between these islands and Chowiet Island are strong currents which cause moderate tide rips; a heavy southeast swell piles up excessively.

Suklik Island, 345 feet high, is about 0.9 mile south of Kiliktagik Island and about 1.2 miles east of Chowiet Island. A low flat rock is about 150 yards off the north end of the island, and numerous sheer pinnacles extend about 0.5 mile south.

South Islet, 2 miles southwest of Chowiet Island, is a huge bare rock, 260 feet high, with vertical sides. Several high, sheer, rock pinnacles are just west of it. The breaker charted about 5.5 miles west-southwestward of Chowiet Island is reported to be much nearer the island.

A few reconnaissance sounding lines indicate deep water adjacent to the islands and clear channels between them. Strong tidal currents and bad tide rips are found among the Semidi Islands, especially in the channels, between Aghiyuk and Kateekuk; and between the latter island and Chowiet.

Charts 8502, 8851.—Lighthouse Rocks (55°47′ N., 157°25′ W.) are spread over an area 0.2 mile in diameter which is 27 miles southwestward of Chowiet Island and 50 miles westward of Chirikof Island; the largest rock is 500 feet long and 90 feet high. Deep water surrounds these barren rocks and they can be safely approached to within 0.5 mile; there are large sea lion rookeries on the rocks. A southerly set is generally experienced between Lighthouse Rocks and Chirikof Island. A rock awash (reported) is charted 11 miles southeastward from Lighthouse Rocks.

Chart 8710.—Cape Kumlik, the promontory on the Alaska Peninsula nearest to Sutwik Island, is foul with ledges and reefs along its south shore. Near the eastern end of the south shore and extending 0.5 to 1 mile southward is a group of rocks and islets. The southerly islet, narrow and about 400 yards long, has an elevation of 81 feet; it is a valuable landmark for the approach to the channel between Cape Kumlik and Kumlik Island. From the southwest point of Cape Kumlik, ledges and reefs, which break in a heavy swell, extend 2.8 miles southwestward and obstruct the north side of the entrance to Kujulik Bay.

Kumlik Island, 0.8 mile off the eastern end of Cape Kumlik, is 1,053 feet high. The shores are steep and rocky; reefs border its north, east, and south sides. About 3 miles southeastward of the island is a lone high water rock. Midway between Kumlik and Sutwik Islands are two rocks about 1 mile apart in an east-west direction. The easterly rock is 3 feet high, and the westerly one is awash at half tide. From the southeast end of Kumlik Island on a bearing of 204°, and at distances of 2 and 3 miles, respectively, are a rock awash at low water and a rock 55 feet high. The latter is particularly valuable as a landmark for the passage eastward of Kumlik Island.

Kujulik Bay has its entrance about 14 miles westward of Sutwik Island. It is a large open bay which affords good shelter in northwest winds. Reefs and rocks fringe the shores of the bay and the entrance is flanked by reefs on each side. The western arm of the bay is shoal for 7 miles from the head. The best protection is in the northern part of the bay.

Unavikshak Island, off the entrance to Kujulik Bay, rises to 465 feet near its northern side, and is used as a fox ranch. Numerous rocks and reefs fringe the shores. Two rocks, 25 feet high, are 1.5 miles southward of the island. The western rock is conspicuously flat-topped. The passage between the rocks and the island is deep and free of obstructions. Off the northeast point of Unavikshak Island is a smaller island 153 feet high. Anchorage can be had on the northwest side of Unavikshak Island, in 15 fathoms, hard, rocky bottom.

Cape Kumliun, southward of Kujulik Bay, is a broad bold headland rising to a 1,071-foot peak near the southeastern part of the cape. This peak is the most conspicuous object in the vicinity, but is often covered by clouds. The cape is foul with reefs and rocks extending a mile offshore at its eastern point. Some of these dangers do not break even at low water and may not be marked by kelp.

Chignik Bay is about 50 miles westward of the Semidi Islands. Entrance can be made either to the northward or southward of Nakchamik Island. The southern part of the bay is irregular but deep. Important salmon fisheries are in Chignik Bay.

Nakchamik Island is an irregular-shaped island in midentrance to Chignik Bay. The conical peak 1,450 feet high in the south central part of the island is a distinctive landmark and is prominent from all directions except through an arc of about 90° around due south, where other mountains obscure it.

The bight on the east side can be used as an anchorage. Enter the middle of the bight and anchor in 12 fathoms, sand bottom. The north end of the island is steep-to, and no anchorage is afforded. The western point is fringed with reefs extending about 300 yards offshore. There are no off-lying dangers.

Kak Island, 1.3 miles southward of Nakchamik Island, is 400 feet high, bold, and generally reddish or grayish in color, with grassy patches on the gentler slopes. The southern bluffs are of marked columnar structure. The island has deep water on all sides and can be approached close-to.

Atkulik Island, 3 miles southeast of Nakchamik Island, is about 1 mile long and 0.8 mile wide, and 725 feet high with precipitous shores on its south side. It has no anchorages. There are two detached rocks, one about 25 feet high, at the northeast end, the other about 35 feet high at the southeast end. A small rock awash is a short distance off the west side.

Castle Cape is on the south side of the entrance to Chignik Bay. The cape is narrow and precipitous; stratification is a conspicuous feature of many shades of light-colored rocks varied by bands of black. The cape has been worn into many curious castellated pinnacles and buttresses, hence its name.

A pair of towering eminences near the end of Castle Cape reach 1,220 feet and form a most distinctive feature. Between the towers are needle peaks of lesser elevation.

Castle Bay is deep, with mud or clay bottom, and presents no known outlying dangers. Small boats can anchor along the south shore of Castle Bay about 4 miles westward from Castle Cape, where the bottom and shore slope gradually to sand and gravel beach. The remaining shore rises almost vertically from the water. The only vegetation is grass and some scattering alders.

Anchorage Bay is west of the fourth ridge from Castle

Bay, the ridges forming a succession of headlands on the south shore of Chignik Bay. This ridge terminates in vertical bluffs about 200 feet high, and rises to a rounded hill, 1,050 feet high, which is covered with grass and alders. The ridge west of Anchorage Bay is irregular in form, with bluffs at the water. Off the western point are **Eagle Rock,** a large grass-covered rock 100 feet high, connected with the shore at low water, and a lower rock, 80 feet high, 100 yards farther out. A shingle spit projects from the eastern shore in a southwesterly direction.

Chignik Spit Light (56°18.6′ N., 158°22.9′ W.), 35 feet above the water, is shown from a small white house on skeleton tower on the end of the spit.

Anchorage Bay is easily recognized, and when nearly abreast of it the smokestacks of the cannery show over the shingle spit. In entering, give the spit a fair berth. In thick weather care should be taken to avoid entering Mud Bay by mistake. By following the south shore of Chignik Bay little difficulty should be experienced.

Anchorage is good throughout most of Anchorage Bay, but dragging can be expected during the heavy winds and williwaws prevalent here. If the anchor is on the bottom long some difficulty may he experienced in weighing. Care should be used in anchoring at high tide, for the [illegible] make out for a distance and drop off sharply. An [illegible]horage for small craft is on the east side of the bay [illegible] the sandspit, with soft mud bottom; however, this [illegible]horage should now be avoided because of an old wreck [illegible]h is likely to foul an anchor.

[illegible]ignik (1960 population 99; P.O.) is a fishing settle- [illegible] at the head of Anchorage Bay. The cannery at the [illegible]e has been abandoned and the wharf is in bad condi- [illegible] The mail steamer from Seward makes regular calls. [illegible] cannery of the Alaska Packers Association is 0.7 [illegible]west of the village and has two wharves. The west [illegible]s a face of 62 feet with a depth of 18 feet alongside, [illegible] the east dock, about 90 feet distant, has a face of [illegible] and a depth of 21 feet alongside. Vessels of over [illegible] draft should approach the wharf bow-on and [illegible]ver alongside. On both sides of the wharves is a [illegible] dolphins. There are depths of 8 fathoms 50 feet [illegible] dolphins.

[illegible]telephone and radiotelegraph communications are [illegible]ned with Alaska Communication System.

[illegible] Bay, shallow and of no commercial importance, is [illegible]th eel grass which interferes with the operation [illegible]hes. The only anchorage is in the entrance.

[illegible] Head, between Mud Bay and Chiguik Lagoon, is [illegible]ound-topped vertical bluff.

[illegible] Lagoon, at the southwestern end of Chignik [illegible]allow but a channel with depths of 15 to 21 feet [illegible] the east shore to an idle cannery at Chignik (1960 population 108: P.O.), 2 miles above the [illegible] sandspit.

[illegible]y on the west shore of Chignik Lagoon, 4 miles [illegible] entrance sandspit, maintains radiotelephone [illegible]telegraph communications with the Alaska [illegible]tion System.

[illegible] anchorage is off the east shore cannery wharf, [illegible]all boat mooring dolphins. Beyond the wharf, which is dry at low water, the lagoon shoals, and only launches use the channels to the head. Chignik Lagoon has an important run of red salmon. Vessels of 14-foot draft enter the lagoon at all stages of the tide. A frequently used portage connects Chignik Lagoon to the head of Kulukta Bay.

A reef, covered 4½ fathoms, lies 3 miles 040° from Negro Head. This is the only outlying danger in Chignik Bay found during the survey of 1924. The reef breaks in heavy weather.

Anguvik Island, about 8 miles northward of Anchorage Bay is bordered by a reef extending about 1 mile to the eastward and 0.3 mile to the west, which breaks at all stages of the tide. The island is flat topped, 50 feet high, and covered with grass. The sides are precipitous. Northeast of this island the coast is foul for a distance of 0.8 mile offshore, and should be avoided.

Hook Bay, westward of Cape Kumliun, is deep, except near the head where the slope of the beach is very gradual, with the 10-fathom curve 0.3 mile off the high-water mark. The area behind the spit is shoal. Fair anchorage may be obtained for small craft just westward of the outer end of the spit in 3 fathoms. Large vessels can find no protection from southeasterly weather. If anchoring near the head of the bay, avoid dragging onto the shoals, which rise abruptly.

Weasel Mountain, 2,410 feet high, is 1 mile south of Hook Bay and is the most prominent mountain in this vicinity.

A group of bare rocks is about 1 mile south of the southern coast of Cape Kumliun; the highest is 30 feet. They are connected by reefs, but otherwise are apparently steep-to. The rocks are grass covered and there is but little kelp bordering them. Between the rocks and the cape to the north is a clear passage but it is of no importance and is rarely used.

Katmai Reef, lying 3.3 miles 009° from the north point of Nakehamik Island, is narrow and about 400 yards long in a northeast and southwest direction. A small rock on the reef bares at extreme low tide. There are usually breakers, even with a smooth sea, but the breaks may occur at long intervals. A light growth of kelp is on the reef. There is deep water between this reef and the detached rocks about 3 miles to the northeast, in the direction of Unavikshak Island, but the passage is not recommended.

To enter Chignik Bay from northward, stay at least 8 miles southeast of Foggy Cape to avoid the position of the reported rock southward of the cape, then change course to pass 1 mile north of Nakehamik Island and enter Anchorage Bay in midchannel. From southward, stay 1 mile outside Castle Cape and the shore to Anchorage Bay.

Chart 8502.—The Alaska Peninsula coast from Castle Cape to Mitrofania Bay is characterized by steep rock-cliff shoreline, high jagged ridges, sharp peaks, steep slopes of bare rock, alder brush or grass, and numerous rockslides. It has many waterfalls, striking cliffs of contrasting colors, and intermittent stretches of boulder and shale beach, the latter resulting from broken cliffs and

large rockslides. Close alongshore are numerous pinnacle rocks, most frequently off capes and points.

The water is generally very deep in all of the bays and arms throughout this area. No known dangers are more than 500 yards offshore.

Not all of this area has been surveyed, particularly in the bays and coves. Most of the Coast Pilot notes are from preliminary information obtained by a survey party working on control in 1945.

Chart 8710.—Chankliut Island, as it opens out from Castle Cape, appears as three separate islands tangent to each other. The parts are connected by low necks of land; the eastern and central ones appear generally flat while the western part is conical. The slopes are grassy. Six pinnacle rocks are off the west point of the island and a small rock 10 feet high lies 250 yards off this point.

In the eastern cove on the north side of the island, small craft can find anchorage by steering **180°** toward the lowest part of the neck of land and anchoring in 7 to 10 fathoms, sandy bottom. Surge from current and swell is felt in this anchorage.

The channel between Chankliut Island and the mainland has been surveyed and found free from dangers. It is subject to moderate tidal current rips, especially in northeast weather.

Nikolai Cove and a small unnamed cove, on the mainland 1.5 and 6 miles, respectively, southwestward of Castle Cape, afford temporary restricted anchorages for small craft with winds from southwest through west to north, but are subject to strong williwaws and are exposed to any swell. Necessity Cove, farther westward, is considered a better anchorage.

Necessity Cove, 9 miles southwestward of Castle Cape, is reported to be a safer anchorage in northwest weather than Warner Bay or Ross Cove, but is exposed to swell. The conspicuous cape on the south side of Necessity Cove has a rock-cliff shoreline and high rugged peaks. Approaching from eastward a prominent light-colored rock cliff is visible along the eastern shore of the cape. A rock awash is 600 yards off the eastern shore of the cape and about 1 mile south of the entrance to the cove. Small vessels anchor in Necessity Cove close to shore in 7 fathoms; although subject to strong williwaws the cove affords good anchorage with winds from southwest through west to north.

Charts 8710, 8502.—Warner Bay, 11 miles southwestward of Castle Cape, extends in a northerly direction for 4 miles; it is too deep for anchorage except behind the narrow shingle spit on its western shore, 2.5 miles above the entrance. The entrance to the bay is between a small, grass-topped, pinnacle-tipped islet, just off the western side of the cape separating it from Necessity Cove, and a broken rocky point on the west side, which separate the entrances to Warner Bay and Ross Cove. Anchorage in the small cove behind the sandspit is close under the shore in 20 to 22 fathoms. It is protected from sea and swell, but the space is too restricted and the water too deep for safe anchorage during violent williwaws which occur with a strong northwest wind. The anchorage in Warner Bay can be reached by steering midchannel courses.

Ross Cove is a small, deep, triangular-shaped bay on the west side and at the head of the short arm just west of the entrance to Warner Bay. Entrance to the cove, which lies between the north end of a narrow shingle spit and the north shore of the short arm, is only 150 yards wide and can not be identified until nearly at the head of the short arm. A bar at the entrance has a least known depth of 11 fathoms. The cove, which can only be used by small craft, is 23 fathoms deep at its center, but anchorage in 16 to 20 fathoms can be obtained close under the shore. From the head of the cove a long deep valley extends toward 3,700-foot high **Virgin Peak.** The depth of water, restricted area, and violent williwaws make it a dangerous place during northwest weather, but during southeast or southwest winds it is very quiet. The short arm leading to the cove and entrance into the cove may be traversed by steering midchannel courses.

Chart 8502.—Devils Bay has a wide deep entrance about midway between Warner Bay and Seal Cape. The north side of the entrance is marked by a high, detached pinnacle rock, close to the point of a narrow peninsula which has precipitous rocky cliffs and high rugged peaks. About 1.5 miles inside the entrance, the bay divides into two main parts, one extending northwest 2 miles, with three small arms at its head, the other, in the form of a hook, extending southwest 1.5 miles, then southeast for about 2 miles.

The main portion and center arm of the northern part of the bay are too deep for anchoring. The northeast and west arms of the northern part of the bay were not investigated. In the hook-shaped southern part of the bay is a small bight at the head of the first arm, which trends southwest. Anchorage with restricted swinging room can be obtained 400 to 600 yards from the head of the small bight in 16 to 20 fathoms, mud bottom.

During periods of southwest and northwest weather, no williwaws were experienced in this anchorage, and during fresh northeast weather only moderate williwaws were encountered. No sea or swell entered the anchorage during this storm, although the seas and swell were heavy outside. The anchorage was not tried during southeast weather.

The southeast arm of the hook-shaped southern part of the bay was found too deep for anchorage. At the head of this arm are large sections of flat shale spits, formed by rockslides from sheer cliffs which rise from the shoreline to a high rock-faced ridge with many towering pinnacle tips. The pinnacle tips and the sheer wall of this ridge present a very striking formation upon entering this arm of the bay.

Seal Cape and Cape Ikti are twin headlands on the Alaska Peninsula, 2.5 miles apart, each having high rugged peaks, jagged ridges, and sheer rock cliff shorelines. Seal Cape, 13 miles southwest of Chankliut Island, is the most off-lying tangent as seen from the channel between

Chankluit Island and Castle Cape. From the same direction the summit of a 2,074-foot high narrow ridge, about 0.6 mile inside the tangent of the cape, appears as a very sharp peak. A breaker is 0.2 mile off the south end of Seal Cape.

Cape Ikti, west of Seal Cape, marks the eastern side of the entrance to Kuiukta Bay. There are numerous knife-edged pinnacles very close alongshore near the end of Cape Ikti. A prominent high peak, 2,281 feet, lies about 2 miles from the point of the cape.

The open bay between Seal Cape and Cape Itki is generally deep and is marked by extensive kelp in its northeast portion. While anchoring depths for small craft can be found close under the shore in the northwest portion of the bay, it is wide open to all swell and sea, and is not recommended.

Kuiukta Bay extends 14 miles inland and has 11 arms or bays of various sizes and shapes, 6 on the east side and 5 on the west side. Its shores, especially for the first 9 miles, are extremely precipitous, and have striking bare cliffs of great height, in contrasting shades of gray, red, brown, and black. The rocks appear to be well metamorphosed. A prominent band of black rock, resembling a lava flow, is on the eastern shore 4.8 miles northwestward from Cape Ikti, or just northward from the prominent point marking the north side of the entrance to the first arm on the east side of the bay. A very prominent triangular-shaped high vertical cliff, dark brown in color, with irregular streaks of light colored rock across its face, is directly ahead about 6.5 miles upon entering the bay from the southeastward.

Kuiukta Bay entrance, 5 miles wide, lies between Cape Ikti on the east and the sharp eastern point of an unnamed double headland on the west. This double headland marks the north side of the entrance to Mitrofania Bay. From midchannel at the entrance, Kniukta Bay trends north-northwest for 4.5 miles where it narrows to a width of 2 miles, thence northwest for another 4.5 miles at an average width of 2 miles; and thence northeast at an average width of 1 mile, interspersed by a few small islets, for about 5 miles to the head of the bay, where arms spread out to the eastward and westward. The bay is a natural funnel for winds and has a reputation of being one of the windiest bays in Alaska. The water off the entrance and in the lower part of the bay is subject to tide rips, especially during northwest weather.

The water is generally deep close to shore throughout Kuiukta Bay and with few known exceptions in the arms leading from it.

The entrance to the first arm on the east side of Kuiukta Bay, 4 miles northwest from Cape Ikti, is 1 mile wide between a rounding, undercut, dark rock cliff point on the southeast and a prominent gray cliff point with two large off-lying gray pinnacles on the northwest. About 1 mile inside the entrance, the deep channel is constricted to a width of 500 to 600 yards between the north shore and the end of a steep-to boulder-gravel spit extending from the south shore. The average width of the bay inside the spit is 0.5 mile; and the general depths are 40 to 50 fathoms, with deep water close alongshore, which is fringed by a very narrow strip of boulder gravel or shale. The bay is landlocked and no sea or swell enters it. Anchorage for a small vessel with restricted swinging room may be obtained within 0.5 mile of the head of the bay in 16 to 20 fathoms, muddy bottom. This anchorage was found to be very quiet when fresh northwest winds prevailed outside in Kuiukta Bay. During the storm with fresh northeast winds, moderate williwaws were experienced, but the survey vessel did not drag anchor. An all-season stream from a low waterfall is on the south shore inside the boulder-gravel spit.

The second arm on the east side of Kuiukta Bay, about 7 miles from Cape Ikti, is a small narrow finger extending 1.5 miles in an easterly direction between extremely high steep slopes. It is too narrow and the water too deep, 30 to 40 fathoms, for any suitable anchorage. A number of waterfalls enter this bay.

The third arm on the east side of Kuiukta Bay, about 11.5 miles from Cape Ikti, has not been investigated. It is very narrow and extends about 1.3 miles in a southeasterly direction. On the north side of the entrance to this arm is a small bight just southeast of a small grass-topped islet. A restricted anchorage in 15 fathoms, sticky bottom, may be obtained for small craft at the entrance to this bight, about abeam of the southwest end of the small islet.

The fourth arm (chart 8710) on the east side of Kuiukta Bay, about 1.5 miles from the head of the bay, extends about 1.2 miles in a southeasterly direction. It has not been examined. The north side of the entrance to this arm is marked by a grass-topped U-shaped islet, with steep, rock-cliff shoreline.

The fifth arm (chart 8710) on the east side of Kuiukta Bay, about 0.5 mile from the head of the bay, extends about 0.5 mile in an easterly direction between sheer rock cliffs. It has not been examined.

The sixth arm (chart 8710) on the east side and at the head of Kuiukta Bay, extends easterly for about 2.3 miles. A small islet lies about 1.4 miles easterly from the southern entrance point.

The first arm on the west side of Kuiukta Bay indents the cape opposite the abandoned Indian village of **Mitrofania**; and is separated from the small lagoon on which the village was located by a narrow boulder-gravel spit. The arm is 1.8 miles long, extending in a westerly direction between sheer rock cliffs to its head at the steep-to boulder-gravel beach. Anchorage on the centerline of the arm about 0.6 mile from its head may be obtained in 18 fathoms, sandy bottom, but any swell piles up in this bay, as evidenced by large amounts of driftwood high up the boulder-gravel beach, and in northwest weather williwaws are very strong. Anchorage here is not recommended except in favorable weather.

The second arm on the west side of Kuiukta Bay, about 4.5 miles north of the point marking the west entrance to Kuiukta Bay, extends about 1.5 miles in a southwesterly direction, and is restricted at its deep entrance to a width of 400 yards by a hook-shaped boulder-gravel spit extending from the southeastern shore of the arm. Within the hook itself the water is very shallow;

and southwest of the hook for a short distance along the southeastern shore the water is shallow. Otherwise the arm, including the narrow entrance, is very deep. There is no anchorage in the bay, except for very small craft on the shoal bank close to the southeast shore, just southwest but not within the boulder-gravel hook.

Foot Bay is the third arm on the west side and about 5 miles north of the west entrance to Kuiukta Bay. Foot Bay is almost 1 mile wide and extends about 2 miles in a westerly direction. It is deep throughout, except close up in the northeast corner where the bottom rises abruptly from 25 to 2 fathoms or less in the vicinity of the mouth of a fair-sized river entering the bay. The only available anchorage is in the southwest corner of the bay, about 300 yards from shore, in 20 fathoms, muddy bottom. This anchorage is off a small sand beach and a low valley which extends to the northeast arm of Mitrofania Bay. The anchorage is swept by strong squalls in bad weather.

Windy Bay is the fourth arm on the west side and is about 8 miles north of the west entrance to Kuiukta Bay. The south side of the entrance to Windy Bay is marked by a sharp, dark-colored pinnacle lying close to a dark-colored, high rock cliff point. From the entrance, about 1.3 miles wide, the bay trends northwestward for 1.5 miles, narrowing to 0.6 mile in width, where there is a small shallow bight extending 0.5 mile southwestward; and where the bay changes direction at a right angle to the northeastward to enter the northern part of the bay, through a deep passage about 600 yards wide between low steep-to gravel spits on either shore. After entering the northern part of the bay it widens to about 0.8 mile and trends in a northerly direction for about 1 mile, thence west-northwestward, in a narrowing arm for about 2 miles. Anchorage, about 0.8 mile north of the gravel spit marking the west side of the entrance to the north arm, can be obtained about on the centerline of the bay in 15 to 20 fathoms, sticky bottom. Almost continuous fresh winds and frequent williwaws, accompanied by fog and mist, were experienced here during a 36-hour period of west and northwest winds.

The small bight on the south side of Windy Bay shoals rapidly a short distance inside its entrance. A temporary anchorage with restricted swinging room can be obtained at the entrance in 15 fathoms, muddy bottom.

The fifth and last arm (chart 8710) on the west side and at the head of Kuiukta Bay extends west by north 2.5 miles from a small but high grass-covered islet to a low valley at the bay's head, where an easy portage leads to Chignik Lagoon. Good anchorage, 0.5 to 1 mile west of the small but high grass-topped islet marking the south side of the entrance to the arm, can be obtained in 19 to 15 fathoms, muddy bottom. This anchorage is exposed in northwest weather to winds funneling through the low valley from Chignik Lagoon.

Routes.—Passage into Kulukta Bay from its entrance to Windy Bay may be made with safety by clearing either shore 0.5 mile, and the arms leading off this part of the bay may be entered safely on midchannel courses. The narrower northern part of the bay should be entered on about midchannel courses between various islands and the opposite shore as follows:

From a point in approximate midchannel about 1 mile 040° from the pinnacle point marking the southern entrance to Windy Bay, steer **040°** with the pinnacle point astern. On this course pass westward of the low grass-covered island lying just off the eastern shore about opposite the north side of the entrance to Windy Bay; thence about 3 miles farther pass eastward of the next island, which has a sugarloaf top. From abeam of the sugarloaf-topped island steer **020°** for about 1.8 miles passing westward of a U-shaped island.

About 0.8 mile above the sugarloaf-topped island the water shoals abruptly from 45 fatboms to 7½ fathoms, then deepens to 30 fathoms or more. Pending a detailed survey, caution should be used when navigating this area. Directly after passing the U-shaped island, round on the port band and on midchannel courses two closely spaced islands, the northerly one of which is the higher and is the last island at the head of Kuiukta Bay. Anchor in the west arm about 0.5 mile to 1 mile west by south of the last island in 19 to 15 fathoms, mud bottom.

Mitrofania Bay, large and open, is bordered on the south by Mitrofania Island, on the west by Long Beach, and on the north by high, rugged capes of the mainland. The bay is deep and free of dangers, except for the area southwest of the Brother Islands.

The north side of the entrance to Mitrofania Bay is marked by an unnamed double headland, which is connected to the mainland by a low narrow strip of gravel beach just east of the abandoned Indian village of Mitrofania. Close insbore off the south tangent of the eastern headland is a towering brown pinnacle rock. Between the donble headlands is a small arm with a short section of steep-to gravel beach at its head, and many huge pinnacle rocks in its northwest portion. This arm is exposed and not recommended for anchorage. At the eastern entrance to this arm is a prominent gray pinnacle rock lying about 200 yards off the shore.

About 200 yards off the western point of the western headland is a rock which uncovers about 3 feet. Between this point, and the south end of a high rugged cape 1.5 miles uorthwestward, is the entrance to a large unnamed bay with three small arms. The eastern arm affords an anchorage with restricted swinging room in its western portion in 18 to 20 fathoms, muddy bottom; but the inner portion, which is entered through a very narrow passage, is a shallow lagoon. The site of Mitrofania is at the northwest corner of the lagoon. This site is not visible from the anchorage in the outer portion of the arm.

The northeast arm of the unnamed bay affords an anchorage with restricted swinging room in its southeastern portion, just inside of a low gravel point, in 15 to 20 fathoms, muddy bottom.

Iu the entrance to the northwest arm, about 0.8 to 1.2 miles from the head of the arm, good anchorge, with 300 to 600 yards swinging radius in 15 to 20 fathoms, can be obtained. This anchorage was used by the survey vessel

during a period of stormy weather, when a heavy swell was breaking high on the gravel beach at the head of the small first arm leading off Kulukta Bay, opposite Mitrofania village, but effects of the swell were barely noticeable in the anchorage.

Ivan Bay, an arm leading off the northwest corner of Mitrofania Bay, lies between rock-cliff shoreline and high rugged peaks on either side, and has a steep-to sand beach at its head, with a low, narrow river valley extending northward. There are two small lakes, one on the east side and the other on the west side of the valley, just inshore of the low gravel beach. The water in Ivan Bay is deep and there is no anchorage.

Long Beach, about 3 miles of steep-to black sand, forms the head or western shore of Mitrofania Bay. The sand beach is flanked on the northern end by a vertical cliff 600 to 800 feet high, made conspicuous by many strata of different colored rocks, and on its southern end by a precipitous double headland, covered with a dense growth of alder bushes, and terminating at the south end in a long narrow point. An isolated rock lies on Long Beach, about 300 yards back from the shoreline and near the base of the higher and northerly mountain of the double headland. This isolated rock, nearly rectangular in shape with vertical sides, is 60 feet high, and its slightly rounded top is covered with grass, ferns and small bushes. Seen from a distance it has the appearance of a huge native house. Extending back from Long Beach to the foothills of **Veniaminof Crater** is a broad river valley, in which are many ponds of fresh or brackish water. A large river empties into Mitrofania Bay about through the center of Long Beach. From a distance the double headland at the south end of Long Beach appears as an island located well offshore from the mainland.

Mitrofania Island, about 5 miles wide between its north and south tangents, and about 0.5 miles between its east and west tangents, is somewhat crescent shaped, has a narrow one ridge of steep jagged peaks of nearly the same height and a rock cliff shoreline. The highest peak, a little west of the center of the island, appears fan shaped from the northeast and is 2,011 feet high.

Mitrofania Island Light (55°50.0′ N., 158°42.0′ W.), 50 feet above the water, is shown from a small white tower on the easternmost point of the island.

Within the crescent on the south side of the island is a large open bay, which has a considerable area of anchoring room in 15 to 20 fathoms along its northwest shore, where cliffs of white and reddish hues rise vertically to a height of numerous pinnacle tops. In the southwest part of the bight, formed by a sharp hook of the island to the southward, with anchoring depths of 10 to 20 fathoms, sandy bottom. This bight is well protected from wind and sea from the southwest through northwest to north or northeast, but is affected by any heavy swell. Extending northward about 0.4 mile from the northeastern part of the large open bay is a small arm with a very restricted anchorage in 15 to 18 fathoms, sandy bottom.

On the north side of Mitrofania Island, a very small bay to the westward has anchorage for small craft in 15 to 20 fathoms, sandy bottom. A sandy beach is at its head. The bay is well protected from weather out of the north around through east to south. Sea and swell from the southwest are reduced by the low sand and gravel spit extending off the point about three miles westward of the bay.

Spitz Island, 1,073 feet high, is 1.2 miles southward of the southwest tangent of Mitrofania Island. It has sheer rock-cliff sides and is conspicuous from the eastward and westward. A line of rocks extends southward for 0.7 mile from the island. The most southerly rock is long, narrow, irregular, and about 40 feet high.

Brother Islands, two in number and about 1 mile apart, are on a north-northwest line in the west central part of Mitrofania Bay and across the northern part of the opening between Mitrofania Island and the double headland at the south end of Long Beach.

The easterly Brother Island, 1.5 miles north of the north point of Mitrofania Island, is wedge-shaped with point to southward, 0.3 mile on its longer eastern side and 0.2 mile on its north side. The island presents a flat profile, is 395 feet high, and from its summit drops sheer to the water's edge along the eastern side, where the high rock cliffs are undercut with caves inhabited by thousands of birds. From the southern point of the island a large rock, which uncovers 1 foot, lies south-southwest 0.6 mile; and about on the same line 0.8 mile beyond the rock is the north end of a kelp-marked shoal area, which is 0.3 mile long and has a least known depth of 4 fathoms. This shoal has not been thoroughly surveyed and there may be less water over it. Between this shoal and the nearest point of Mitrofania Island, 0.7 mile to eastward, is a deep-water channel, passing the shore of Mitrofania Island 300 to 500 yards off on a course of **234°** with the end of the low, grass-covered gravel spit forming the northwest point of Mitrofania Island about dead ahead; and holding this course until about 0.5 mile from the gravel spit, thence changing course to the westward and rounding the steep-to spit, then about 300 to 500 yards off.

The westerly Brother Island, lying 1.5 miles east of the southern shore of Long Beach, is nearly round, 3.5 miles in diameter, with flat top and sheer cliff sides. From the center of the island a large rock, 22 feet high, lies south-southwest, 0.4 mile; and a rock which uncovers 1 foot, south 0.6 mile. Between the westerly Brother Island and the mainland the water is deep and clear of any known dangers. Both Brother Islands have about the same elevation.

Chart 8859.—The character of the shoreline between Mitrofania Bay and Ivanof Bay differs from that to the eastward in that it has several stretches of steep-to sand beach, interrupted by low rocky headlands or high rocky capes. Long Beach, described above, is the first of several beaches. The second stretch of sand beach, about 2.5 miles long, marks the head of a large open bay between the sharp pointed headland at the south end of Long Beach on the east and Coal Cape on the west. The low valley north of this beach joins that extending inland

from Long Beach. Just inshore from about the center of this sand beach are two detached mountains on the valley plain. These two mountains appear as islands from a distance offshore. The southerly one, known locally as **Red Bluff Mountain,** 1,041 feet high, has reddish jagged pinnacle tips and is very prominent.

Small craft can find temporary anchorage in 3 to 10 fathoms, sand bottom, about 1.1 miles southwest of Red Bluff Mountain. Fresh water may be obtained from a stream that empties into the northwestern part of the open bay.

Coal Cape and Coal Point are two separate and distinct features of the Alaska Peninsula lying about 10 miles apart. The end of Coal Cape is about 4.5 miles northwest of the shore of Mitrofania Island, and the end of Coal Point is about 2.5 miles north of the shore of Paul Island.

Coal Cape is a prominent rock-cliff headland which rises to 1,815 feet and whose skyline is extremely broken and serrated. About 2 miles from its southern tip the cape is about 2 miles wide and from its rock-cliff shoreline long low sand beaches extend to the eastward and westward. Fair-sized rivers break through the beaches on either side and close to the base of **Coal Cape Mountain Range.** The ridge continuing inland from the cape is a spur from Veniaminof Volcano. This spur is flanked both east and west by extensive river valleys extending inland from the long sand beaches.

Perryville (1960 population 93; P.O.), an Indian village, was established to provide for people who were driven away from the vicinity of Katmai Volcano by the eruption of 1912. It consists of a number of wooden houses, including a small store and school, standing on the flat beach about 2.5 miles westward of the foot of Coal Cape Range. There is no wharf and the water is too deep for anchoring off the steep-to beach in front of the village. Temporary anchorage for small craft can be found in 6 to 10 fathoms 0.3 mile southeast of the westerly of two conspicuous rock ledges just eastward of the village; a small 6½-fathom shoal 0.6 mile southeast of the same ledge is the controlling depth for the area, but there are depths of 12 to 15 fathoms between this shoal and the beach. Radiotelegraph service is maintained with the Alaska Communication System.

Three Star Point, a low alder- and grass-topped rocky headland about 1.5 miles southwest of Perryville, separates two long curving stretches of sand beach at a point about midway between Coal Cape and Coal Point Ranges. A prominent line of pinnacle rocks extends eastward about 400 yards from Three Star Point and a prominent pinnacle rock is about 200 yards south of the point. A series of low hills extending inland from Three Star Point divides the broad valley lying between the spurs leading to Coal Cape and Coal Point.

Chiachi Island lies with its most northerly point about 1 mile southeast of Three Star Point and its southern tangent about on line with the southern tangents of Coal Cape, 5 miles to the northeastward, and Paul Island 7 miles to the southwestward. The island is about 3 miles in extent from its sharp north point to its rounding south side and about the same distance from its most easterly point to its sharp west point. It has several rugged peaks of about the same elevation. A somewhat prominent one in the southwest portion of the island is 1,447 feet high.

Chart 8851.—Chiachi Bay, in the east end of Chiachi Island, is about 0.6 mile in both width and depth. Anchorage is available for small vessel in 13 to 19 fathoms, mud bottom, protected from winds out of the southwest through west to north, but any moderate swell, even from the southwest, surges into the bay.

Pinusuk Island, 0.9 mile long east to west, is 600 yards off the point on the north side of the entrance to Chiachi Bay; a high wedge-shaped ridge, rising to about 800 feet, has its point to the eastward and makes the island easy to identify from that direction. A towering pinnacle rock, 79 feet high, is 400 yards off the eastern end of Pinusuk Island. A rock island, 0.6 mile long and about 800 feet high, lies with its western end 350 yards off the point on the south side of the entrance to Chiachi Bay.

Chart 8859.—Two more islands lie off the northeast shore of Chiachi Island. The northerly one, **Shapka Island,** is a sugarloaf 622 feet high, about 0.8 mile northeast of the north point of Chiachi Island; the other, **Petrel Island,** is a small flat rock mass, lying about 400 yards off the midpoint of the northeast shore of Chiachi Island.

Coal Point, 5 miles southwestward of Three Star Point, is broad and irregular, has rock cliffs along the shores and a high sharp ridge that extends inland; two needle-shaped rocks are on the cliff slope on the southwest point. A reef, marked by kelp at its outer end, extends 0.4 mile from the southeast point. A rock covered 1¾ fathoms is 0.25 mile south-southeastward of the southernmost tip of the point, and a rock covered ½ fathom is 1.1 miles east by north of the same tip.

Humpback Bay lies west of Coal Point between Egg Island and the mainland. The bottom in this bay is relatively flat and about 22 fathoms deep in its central part. In the northeast part of the bay, about 0.5 mile northwest of a lone grass-topped pinnacle rock 22 feet high, and about 0.5 mile offshore from the sand beach marking this part of the bay, anchorage can be obtained in 7 to 10 fathoms, sand bottom, but swells pile up in the bay through the entrance between Egg Island and Coal Point. For about 1 mile along the northwest side of the bay the shore is rocky, with several detached rocks close alongshore. In the western part of the bay about 1.5 miles northwest of Egg Island, is a short stretch of sand beach, from which a portage leads to Ivanof Bay.

Egg Island is about 1 mile long by 0.5 mile wide, has vertical cliffs on its eastern side and steep grass-covered slopes on its western side. It has several round-top summits of about equal height, reaching 500 feet in the east central part of the island.

A low sandspit extends well offshore from about midway along the western shore of Egg Island, and a rock 5 feet high is about 125 yards off the northern end. From the reef at the south end of the island a narrow underwater ridge of sand and gravel extends to the north shore of Paul Island; on a course of **233°**, with the tangent of

Alexander Point ahead, the least depth is 5¾ fathoms over the ridge, which drops off abruptly both to the northeastward and southwestward. A buoy marks the north side of the passage between Egg and Paul Islands. **Paul Island Light (55°48.6′ N., 159°21.2′ W.),** 20 feet above the water, is shown from a small white house on a skeleton tower near the outer edge of a rounding, grass-covered sandspit, which forms a small section of the north shore of Paul Island.

A deep-water passage can be made through Humpback Bay by steering midchannel courses around Egg Island, taking care to avoid the 3¾-fathom shoal northwestward of the island, thence midchannel between Paul Island and the pinnacle off the jutting point on the east side of Alexander Point.

Alexander Point, opposite the western point of Paul Island, is sheer and rocky and marks the end of the high cape bordering the east side of Ivanof Bay. The first definite peak on the cape, about 1 mile north of Alexander Point, is 1,569 feet high. On the east side of the cape about 1 mile north of Alexander Point is a jutting rocky point, heavily covered with grass and alder; and lying just off the end of this jutting point is a large pinnacle.

Paul Island is somewhat hook shaped and for its entire length has high sharp ridges and peaks, which reach an elevation of 1,560 feet in the northern portion of the island. For a short distance along the northwest side of the island is a low grass-covered sandspit, and inside of the hook of the island, which forms the north shore of Kupreanof Harbor, the beach is low sand and gravel. In this region is a small salt-water pond at the foot of the steep grass- and alder-covered slopes.

In 55°46.9′ N., along the east side of Paul Island is a semicircular, 0.3-mile-wide cove that is danger free except for the rocky point and reef that form the southeast side. Small boats can anchor in 3 to 5 fathoms, sand bottom, 200 to 400 yards off the sand beach. Fresh water can be obtained from any of the several streams in the vicinity. Along practically all the rest of the Paul Island shores are sheer rock cliffs.

Jacob Island, shaped like a leg of mutton with its point southward, is about 4 miles long. The highest point, about 1 mile from its north end, is 1,647 feet high. From the highest point a sharp ridge, which drops almost vertically to the eastern shore, extends southward to **Noon Point,** meeting the sea in a narrow overhanging precipice. Northward of the highest point alder-covered slopes widen out to form the south side of Kupreanof Harbor.

Kupreanof Harbor, enclosed by Paul and Jacob Islands, is circular in shape, 1.1 miles across, and free from dangers. It is sheltered from all directions and is the most accessible safe harbor in a wide region. Williwaws have been experienced here with northeast and easterly winds, but the muddy bottom provides good holding ground. The western entrance to Kupreanof Harbor is 0.7 mile wide and danger free. To enter, steer **090°** through the middle and change course to **058°** when the point on the Paul side is abeam; when the southern entrance is about open, anchor in the north central part of the harbor in 10 to 11 fathoms, mud bottom, with the tangents of the points at the southern entrance in range and bearing 151°.

The curving southern entrance is 0.4 mile wide and has a channel controlling depth of 4 fathoms northeast of the middle. Vessels should approach from the southwest on a course of **020°**, passing 0.75 mile northwest of the southern tip of Paul Island and 0.25 mile southeast of the easternmost point of Jacob Island; when abeam of the latter, steer **000°** for 0.25 mile, thence **317°** for 1.2 miles to anchorage. The 317° course will carry a vessel in the best water northeast of midpassage and about 0.15 mile off the shore of Paul Island.

The current movement within the harbor is irregular in direction and velocity. Current velocities of one knot have been observed.

Fox farms and attendant buildings are on shore in Kupreanof Harbor on Paul Island and Jacob Island.

Ivanof Bay, between Alexander Point and Kupreanof Peninsula, is from 1 to 3 miles wide and about 7 miles long in a north and south direction. Bluffs and high ridges parallel both shores from the entrance to the northern part of the bay where low valleys lead off from both the east and west shores. When east of Alexander Point and proceeding up the bay, **Road Island,** a round-topped, steep-sided island 420 feet high, is seen in the channel 4 miles ahead. Two miles above Alexander Point a grassy headland and a grass-topped, taper-pointed islet 110 feet high are located on the east shore. The west shoreline here is precipitous and rugged, the bluffs rising from 1,000 to 2,000 feet above the shoreline. West and north of Road Island is an area of sandspits, tideflats, and lowland. Several steep-sided, grass-topped islets are connected to the sandspits at low water. Westward of northern Ivanof Bay is a large lagoon and beyond are marshy flats across which **Granville Portage** leads to Stepovak Bay. The north shore of Ivanof Bay is hilly. To the northeast of the bay a low valley and flats extend into the interior.

A cannery wharf, with a least depth of 22 feet alongside, and marine ways are midway along the north shore of Ivanof Bay. The buildings of a fox farm are along the cove in the northwest shore of Road Island; a dilapidated wharf in the cove is usable only by small boats on the higher half of the tide. Radiotelegraph service is maintained with the Alaska Communication System.

Vessels can anchor in 15 fathoms, sticky mud bottom, 0.3 mile south-southeast of the cannery wharf. To be avoided are the mudflats that rise abruptly from depths of 10 fathoms on the eastern side, and the ledge that makes out from the northernmost point on the same side.

A ledge with places that uncover 1 to 3 feet is 0.4 mile southeast of the northeast point of Road Island; a rock that uncovers 2 feet is 0.9 mile east by north of the same island point and 0.3 mile from the eastern shore of the bay. A pinnacle rock covered 1 fathom is about 150 yards southwestward of the cannery wharf.

When southeasterly weather prevails along the coast, the wind often blows in the northern part of Ivanof

Bay from the northeast, coming down through the valley on that side of the bay. The northern part of Ivanof Bay is well protected from southerly swells.

A pilot for Ivanof Bay occasionally may be secured from Kupreanof Harbor or from Squaw Harbor, Unga Island.

Depths of 12 to 15 fathoms can be carried through the channel west of Road Island. From a position 1.4 miles west of Alexander Point, steer **337°** until the south end of the Road Island is 450 yards on the starboard beam; thence **353°** for 0.9 mile to a position where the north end of the island is 600 yards on the starboard beam; and then **014°** for the cannery wharf, taking care to avoid the covered rock 150 yards off the southwestern corner.

The channel east of Road Island has a controlling depth of 18 fathoms but rocks off both shores make navigation dangerous for strangers; passage should be made at low tide when the rocks are bare and can be seen. From a position 1.4 miles west of Alexander Point, steer **336°** until the small grass-topped islet 2 miles north of Alexander Point is 0.6 mile on the starboard beam; thence **000°** until the north end of Road Island is 0.5 mile on the port beam; thence **334°** until the highest islet on the west side of the upper bay is 1.0 mile on the port beam; and thence **014°** for the cannery wharf.

Routes, Castle Cape to Kupreanof Point (Alongshore).—From a point 1.5 miles southeast of Castle Cape steer **220°** for 5.4 miles. When abeam of the west end of Chanklut Island, 1 mile, steer **216°** for 12.8 miles to clear Seal Cape by 1 mile. A breaker lies 0.2 mile off the south end of Seal Cape. In thick weather it is recommended that the course be shaped to pass Seal Cape 1.5 miles off.

When the east tangent of Seal Cape and the point at the south entrance to Devils Bay are on range, bearing 000°, steer **249°** for 9.1 miles with the north tangent of Mitrofania Island ahead. This course passes Cape Ikti about 1 mile off.

When the prominent rocky points marking the entrance to the first arm on the west side of Kuiukta Bay close, bearing 013°, steer **282°** for 6.9 miles with north slope of mountain on flats west of Long Beach ahead. This course passes north of the west Brother Island at a distance of 1 mile.

When 0.5 mile beyond the range of the west tangents of the west Brother Island and Mitrofania Island, bearing 194°, steer **201°** for 3 miles. This course passes about 0.6 mile off the west Brother Island and about 0.6 mile off the long pointed headlaud at the south end of Long Beach.

When Red Bluff Mountain opens on the Long Beach headland, bearing 305°, steer **246°** to a position 0.8 mile south of Coal Cape; thence **270°** to a position 0.3 mile south of Shapka Island; thence **292°** to a position 0.3 mile north of the northern tip of Chiachi Island; and thence **240°** for 6.2 miles to a position 0.8 mile north of the most northerly tip of Paul Island. Then steer **233°**, with Point Alexander ahead and the prominent, low headland of Three Star Point astern, for 2.8 miles, using the marked passage, described earlier, between Egg Island and Paul Island.

When the west tangent of Paul Island comes on range, bearing 165°, with the highest point of Jacob Island, steer **201°** for 16 miles with the center of Egg Island astern. This course passes about midway between Paul Island and the jutting point on the east side of Alexander Point; about 0.8 mile off the west coast of Jacob Island; midway between Noon Point and Leader Island; 1.8 miles east of Fox Cape; and 2 miles east of Kupreanof Point.

The eastern shore of **Kupreanof Peninsula** from Ivanof Bay to Kupreanof Point is bold and precipitous, broken only by a broad sand beach 1.5 miles long 9 miles north of Kupreanof Point, and by a small sandy cove 4.5 miles north of Kupreanof Point.

Leader Island, lying between Kupreanof Peninsula and Jacob Island is a turtleback-shaped, rocky, islet 131 feet high. It may be passed in depths of 23 to 37 fathoms on the west side and 32 to more than 50 fathoms on the east side. A 17-fathom bank is 1 mile north by east of the island.

Hag Peak, a black dome-shaped mountain, the seaward face of which consists of rows of tilted basalt columns, is at the south side of the entrance to the long sandy beach cove and 3 miles west-southwest of Leader Island. The peak is a distinctive landmark.

Fox Cape, 4 miles south-southwest of Leader Island, appears as a pyramidal-shaped headland with several off-lying islets. The largest of these islets has a sloping flat top and sides with a number of deeply carved caves.

South of Fox Cape the shoreline is bold and reef fringed. A group of three pinnacles, 25 feet high, is 1.5 miles south of the cape.

Kupreanof Point, the southeastern end of Kupreanof Peninsula, appears as a row of rugged monoliths, graduated downward from the high point of the 862-foot cape. Several reefs fringe the base of the cliffs at the southeast end of the point. A reef, which breaks in a moderate-to-heavy swell, is 700 yards northeast by north of the outer end of Kupreanof Point.

The south shore of Kupreanof Peninsula between Kupreanof Point and Bluff Point is bold and rugged, broken only by a sand beach-bordered cove about midway between the points.

Stepovak Bay, lying northeast of the Shumagin Islands, is large and open with numerous small bays and coves indenting the east and west shores. They lie between steep ridges on both sides. At the heads of each of these smaller bays are stretches of sand beach behind which are lagoons and grassy flatlands.

Kupreanof Peninsula on the east side of the bay is mountainous. The higher peaks are rocky, barren, and scarred from erosion. The lower slopes are grass covered with patches of alder. The draws and lines of drainage on the lower slopes have dense growths of alder.

The north shore of Stepovak Bay is a long stretch of wide sandy beach, behind which are grass-covered sand dunes. Beyond the dunes a belt of flat tundra extends into Ivanof Bay.

The western shore of Stepovak Bay is mountainous,