DEPARTMENT OF COMMERCE AND LABOR
COAST AND GEODETIC SURVEY
O. H. TITTMANN
SUPERINTENDENT

UNITED STATES COAST PILOT

ATLANTIC COAST

PARTS I-II

FROM ST. CROIX RIVER TO CAPE ANN

THIRD EDITION

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DEPARTMENT OF COMMERCE AND LABOR,
COAST AND GEODETIC SURVEY,
WASHINGTON, D. C., *August 1, 1911.*

This volume covers the coast from the St. Croix River to Cape Ann, including the harbors and navigable inland passages.

This publication is based mainly upon the work of the Coast and Geodetic Survey, including the results of special examinations and investigations by a party on the Coast and Geodetic Survey steamer *Hydrographer* in 1910, in connection with its preparation.

The system adopted in this publication includes—

I. A tabular description of all lighthouses, light vessels, and fog signals; lists of life-saving stations, and Weather Bureau storm warning display stations; and information regarding tides, tidal currents, variation of the compass, etc.

II. General information concerning the several bodies of water and harbors, including notes relative to pilots and pilotage, towboats, depth of water, draft of vessels entering, harbor and quarantine regulations, supplies, facilities for making repairs, usual or best anchorages, and other matters of practical interest. In each case the information of this nature precedes the sailing directions and is printed in smaller type.

III. Sailing directions, with subordinate paragraphs treating of prominent objects, dangers, aids to navigation, etc. In the arrangement adopted the aim has been to conform, as far as practicable, to the order in which these matters would be considered in practice, and to render available such information as may be wanted promptly.

IV. Appendices.

The first edition of this volume was prepared by Lieut. Commander S. M. Ackley, United States Navy, assisted by Ensign E. A. Anderson, United States Navy, and Mr. John Ross. In the present (third) edition the text has been revised and brought up to date by Mr. Herbert C. Graves, assisted by Mr. C. L. Warwick and Mr. E. Vance Miller, under the direction of J. J. Gilbert, assistant, Coast and Geodetic Survey, inspector of hydrography and topography.

Great courtesy has been shown by local authorities in furnishing information desired for incorporation in this work.

The aids to navigation are corrected to August 1, 1911.

As absolute accuracy in a work of this class is scarcely possible, navigators will confer a favor by notifying the Superintendent of the Coast and Geodetic Survey of errors which they may discover, or of additional matter which they think should be inserted for the good of mariners.

O. H. TITTMANN,
Superintendent.

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NOTE.

The courses and bearings given in degrees are *true*, reading clockwise from 0° at north to 360°, and are followed by the equivalent *magnetic* value in points in parentheses. General directions, such as northeastward, west-southwestward, etc., are magnetic.

All distances and current velocities are in *nautical miles*, except where otherwise stated.

Except where otherwise stated, all depths are at *mean low water*.

In winter when whistling buoys, bell buoys, lighted buoys, can buoys, and nun buoys are in danger of being carried away by ice, they are taken up and replaced by spar or spar-shaped buoys.

It must be remembered that in the thoroughfares and inside passages the aids are colored and numbered for entering from eastward.

All charts referred to in this volume are published by the Coast and Geodetic Survey, and can be obtained at the agencies, a list of which is given on pages 7–8.

SYSTEM OF BUOYAGE ADOPTED IN UNITED STATES WATERS.

In conformity with section 4678 of the Revised Statutes of the United States, the following order is observed in coloring and numbering buoys in United States waters, viz:

1. In approaching the channel, etc., from seaward, RED BUOYS, with EVEN NUMBERS, will be found on the STARBOARD side.

2. In approaching the channel, etc., from seaward, BLACK BUOYS, with ODD NUMBERS, will be found on the PORT side.

3. BUOYS painted with RED and BLACK HORIZONTAL STRIPES will be found on OBSTRUCTIONS, with channel ways on either side of them, and may be left on either hand in passing in.

4. BUOYS painted with WHITE and BLACK PERPENDICULAR STRIPES will be found in MID-CHANNEL, and must be passed close-to to avoid danger.

All other distinguishing marks to buoys will be in addition to the foregoing, and may be employed to mark particular spots.

Perches, with balls, cages, etc., will, when placed on buoys, be at turning points, the color and number indicating on what side they shall be passed.

Nun buoys, properly colored and numbered, are usually placed on the starboard side, and can buoys on the port side of channels.

Day beacons (except such as are on the sides of channels, which will be colored like buoys) are constructed and distinguished with special reference to each locality, and particularly in regard to the background upon which they are projected.

The following symbols and abbreviations are used on the charts of the Coast and Geodetic Survey:

Lighthouse.

Light vessel.

Beacon, lighted.

Beacon, not lighted.

Beacon, not lighted.

or R., red buoys, with even numbers, to be left on starboard hand in entering.

or B., black buoys, with odd numbers, to be left on port hand in entering.

or HS., red and black horizontal stripes, without numbers, marking dangers or obstructions, to be left on either hand.

or PS., black and white perpendicular stripes, without numbers, mid-channel or fairway buoys.

Lighted buoys; with numbers and characteristic color.

WHISTLING buoys, with numbers and characteristic color.

BELL buoys, with numbers and characteristic color.

C., N., or S., signifies can, nun, or spar buoy.

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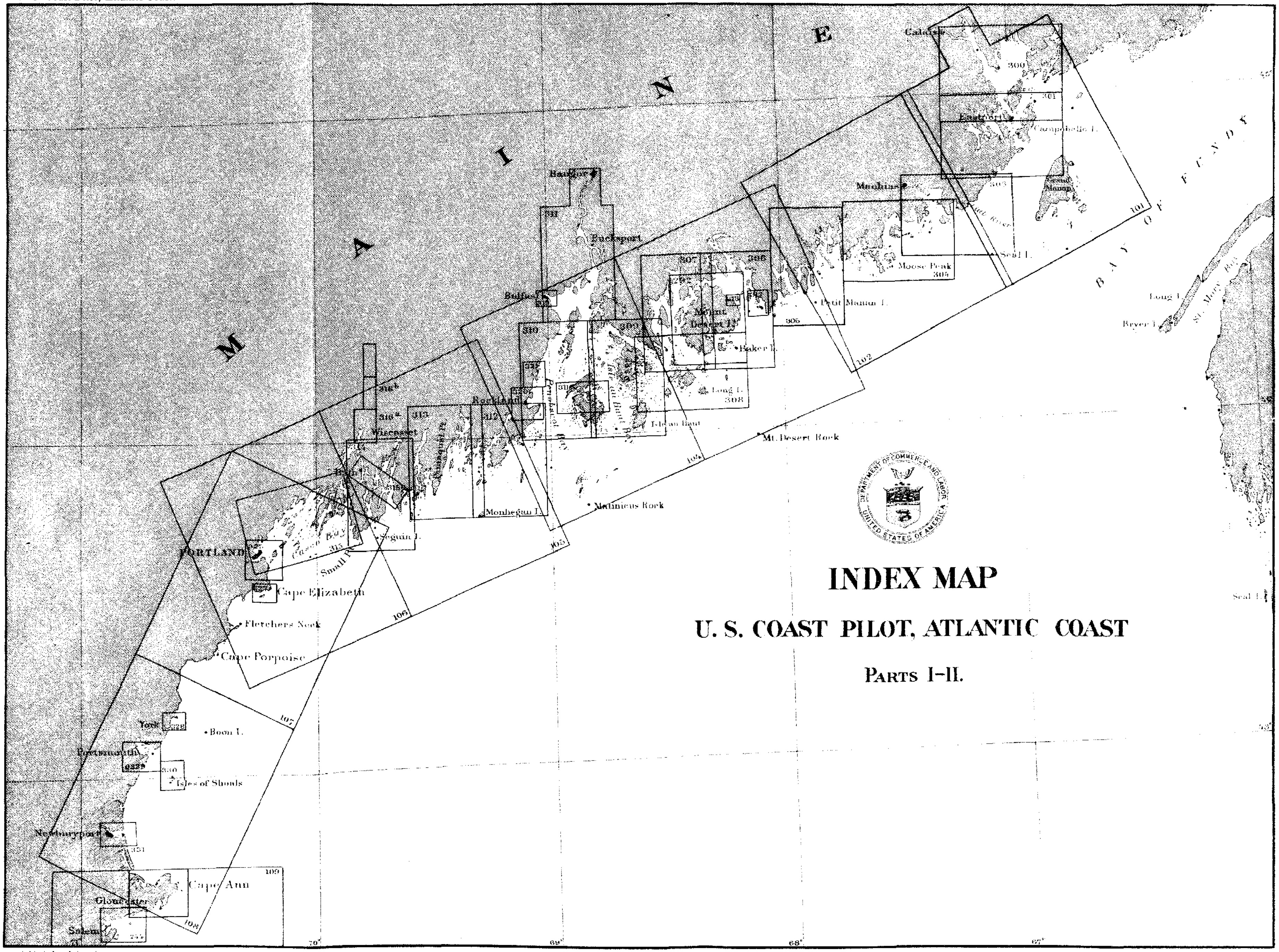
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AGENCIES FOR THE SALE OF CHARTS, COAST PILOTS, AND TIDE TABLES OF THE COAST AND GEODETIC SURVEY.

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UNITED STATES COAST PILOT.

ATLANTIC COAST—PARTS I–II.

FROM ST. CROIX RIVER TO CAPE ANN.

GULF OF MAINE.[1]

The great indentation of the coast between the British Province of Nova Scotia on the northeast and Massachusetts on the southwest, which includes the Bay of Fundy and Massachusetts Bay as subsidiary features, has received the general designation "Gulf of Maine."

On account of its changeable weather, frequent fogs, and strong tidal currents this locality has a bad reputation among mariners. (For offshore current observations see Appendix I.)

The bottom in the Gulf of Maine is irregular and the depths are so variable that it is quite impossible to determine a vessel's position by soundings alone, but the navigator will find a frequent use of the lead of the greatest assistance in approaching both Georges and Brown Banks from southward and eastward, the bottom slope on that side being well defined.

The principal offshore dangers are Nantucket Shoals; Georges and Cultivator Shoals, both a part of Georges Bank; Sigsbee Rock, a part of Cashe Ledge, and Ammen Rock.

Brown Bank, with 14 to 50 fathoms over it, is about 40 miles south of Cape Sable, between latitude 42° 17′ and 42° 54′ N. and longitude 65° 12′ and 66° 28′ W. The bank is about 50 miles long in a west-northwest direction, and its greatest width is nearly 30 miles. The least depth (14 fathoms) is near the westerly end of the bank.

Georges Bank is the extensive shoal (depth less than 50 fathoms) lying off the coast of Massachusetts eastward of Nantucket Shoals. The northeastern point of this bank is in latitude 42° 05′ N. and longitude 66° 05′ W.; from this the eastern edge trends in a general southwesterly direction to latitude 40° 48′ N. and longitude 67° 00′ W.; the edge of the bank then takes a general westerly direction and joins the 50-fathom curve southward of Nantucket Shoals. The greatest width north and south is about 80 miles.

That part of the bank where depths of less than 20 fathoms will be found, including Georges and Cultivator Shoals, is an area 30 to 40 miles wide and about 75 miles long in a west-southwesterly direction, lying approximately between latitude 41° 00′ and 41° 55′ N. and longitude 67° 15′ and 68° 35′ W., and has several spots with 5 to 10 fathoms over them. Depths of less than 20 fathoms, however, extend farther southwestward. A sounding of 8 fathoms, fine gray sand and black specks, is reported in (approximately) latitude 40° 44′ N., longitude 68° 45′ W.; deeper water was found immediately southward, and subsequent soundings proved that the vessel was, if anything, southward of the position given.

Georges Shoal is a dangerous shoal, with less than 10 fathoms over it, between latitude 41° 33′ and 41° 47′ N. and longitude 67° 38′ and 67° 53′ W. The least depth within these limits is 12 feet; in heavy weather the sea breaks here in 10 fathoms, and tide rips are found near the shoalest place, which extends about 9 miles in a north and south direction.

Cultivator Shoal is about 7 miles long in a north-northeast direction, with a depth of 3 to 8 fathoms. It lies between latitude 41° 32′ and 41° 39′ N. and longitude 68° 10′ and 68° 14′ W., and is about 19 miles westward of the shoalest part of Georges Shoal.

A detached shoal, with 5¼ fathoms over it, lies in latitude 41° 11′ N., longitude 68° 26′ W.; and another, with 5 fathoms over it, lies in latitude 41° 14′ N., longitude 68° 00′ W. Between these and Cultivator Shoal are several shoal spots with 8 and 10 fathoms over them.

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[1] These waters fall within the limits of the following charts: **1000** Sailing Chart, Mercator projection, Deg. Lat.—3.7 inches; **6** General chart of the coast, scale $\frac{1}{400,000}$; **101, 102, 103, 104, 105, 106, 107, 108,** scale $\frac{1}{80,000}$, price of each $0.50; and a number of harbor charts on a larger scale, as noted under the several headings; all charts referred to in footnotes are issued by the Coast and Geodetic Survey.

Coast and Geodetic Survey charts can be obtained from the agents named in the list given on pages 7 and 8. Facing page 8 is an index map showing the location and limits of charts covering that part of the coast included in this volume. The catalogue of charts and other publications of the Survey also contain similar index maps; copies of this catalogue can be obtained free of charge on personal application at any of the sale agencies or by letter addressed to the Coast and Geodetic Survey Office, Washington, D. C.

Nantucket Shoals is the general name of the numerous different broken shoals which lie southeastward of Nantucket Island and make this one of the most dangerous parts of the coast of the United States for the navigator. These shoals extend 23 miles eastward and 39 miles southeastward from Nantucket Island, are shifting in their nature, and the depths vary from 3 and 4 feet on some to 4 and 5 fathoms on others, while slues with depths of 10 fathoms or more lead between those farthest offshore. The easterly edge of the shoals has depths of 4 and 4½ fathoms in places, and trends 166° true (S mag.) from latitude 41° 18′ N., longitude 69° 29′ W., to latitude 40° 57′ N., longitude 69° 22′ W. Asia Rip, the southeasternmost danger, has a least depth of 6 fathoms in latitude 40° 48′ N., longitude 69° 22′ W. Deep draft vessels should pass southward and eastward of Asia Rip, and eastward of the easterly edge of the shoals as defined above. For a distance of 15 miles eastward and southeastward and 17 miles southward from Nantucket Island the shoals have depths less than 16 feet, and this area should be avoided by all vessels. The tidal currents are strong, and variable in direction, forming extensive rips and broken water over the shoals.

Nantucket Shoals light vessel, the leading mark for vessels passing southward of Nantucket Shoals, is moored in 30 fathoms off the southern end of the shoals.

Cashe Ledge, with depths less than 30 fathoms, is about 6 miles long in a north-northeast direction. *Sigsbee Rock*, with 5 fathoms over it, is near the middle of the ledge in latitude 42° 53′ N., longitude 68° 55′ W. *Ammen Rock*, with 4¼ fathoms over it, lies 4 miles northeastward from Sigsbee Rock. The sea breaks over these rocks in heavy weather.

Jeffrey Bank has a least depth of 46 fathoms, and lies about 26 miles southward of Matinicus Rock lighthouses.

Platt Bank has a least depth of 29 fathoms.

Jeffrey Ledge makes northeastward from Cape Ann, and has a least depth of 18 fathoms over it. The northeastern point of the ledge is 22 miles eastward from Boon Island lighthouse.

Stellwagen Bank lies northward of Cape Cod and off the entrance to Massachusetts Bay; the depth over it is from 9½ to 20 fathoms.

GRAND MANAN CHANNEL.

This channel leads along the coast of Maine between it and Grand Manan Island, and is an approach from westward to Quoddy Roads and Passamaquoddy Bay, and the most direct passage for vessels bound up the Bay of Fundy from along the coast of Maine. The channel varies in width from 5½ miles abreast Campobello Island to 10 miles abreast Southwest Head, the southwestern point of Grand Manan Island. Its western approach is marked by Machias Seal Island lighthouses, which also mark the westernmost of the rocks and ledges which lie southwestward of Grand Manan Island. With the exception of the dangers between Machias Seal Islands and Grand Manan Island the channel is free and has a good depth of water. The tidal currents have a velocity of 2½ to 3 miles and follow the general direction of the channel. Off West Quoddy Head the currents set in and out of the roads, forming strong rips. Vessels should not approach West Quoddy Head too closely with a light wind.

COAST FROM ST. CROIX RIVER TO CAPE ANN.

The coast from West Quoddy Head to Whitehead is generally rocky and indented by numerous large bays and many excellent harbors. Numerous islands lie along the shore, among which are passages that are much used by vessels, usually of less than 12 feet draft, as they afford anchorage in a head wind, or in thick weather. The many rocks and ledges which lie along and off this coast require the closest attention of the navigator, as in many cases they rise abruptly from deep water and the lead does not always give indications of their proximity until too late to avoid them. The navigator should also remember that the average rise of spring tide at Rockland is 11 feet, at Millbridge, 13 feet, and at Eastport 21 feet, and that a vessel may sometimes pass over places at high water on which she would bring up at low water.

Between Whitehead and Cape Elizabeth the coast is rocky and very much broken by numerous bays and rivers, many of which are excellent harbors. In Muscongus and Casco Bays good channels lead between the islands, affording inside passages that are much used by the smaller class of vessels passing along the coast. Great caution is necessary when standing along this stretch of the coast in thick weather on account of the numerous dangers which in some cases lie nearly 10 miles offshore. Between Cape Elizabeth and Great Boar Head there are fewer harbors and marked indentations. The shore is more thickly settled than farther eastward, several of the beaches being popular summer resorts. The outlying dangers are well marked and fewer in number. Southward of Great Boar Head the coast is low and generally a sandy beach, with a few outcropping ledges and outlying dangers, but the northern shore of Cape Ann is high and rocky.

The most important **harbors and anchorages** are: Eastport; Little River; Machias Bay; Narraguagas Bay; Winter Harbor, Bar Harbor, and Stave Island Harbor in Frenchman Bay; Southwest Harbor; Bass Harbor; Castine, Belfast, Camden, Rockport, and Rockland in Penobscot Bay; Bangor and Bucksport in Penobscot River; Tennant Harbor; Port Clyde; Boothbay; Ebenecook Harbor in Sheepscot River; Harpswell Sound; Portland Harbor, and Portsmouth Harbor. There are many other harbors and anchorages which are treated under the different headings.

Prominent features.—The coast between West Quoddy Head and Little River presents no special features; westward of Little River the shore is broken by bays and islands, and continues to be so to Whitehead. *Grand Manan Island* has nearly perpendicular, dark, rocky faces about 200 feet high on its western side. *Pigeon Hill*, on the western side of Pigeon Hill Bay, near the head, is 307 feet high. *Schoodic Mountain*, near the south end of Schoodic Peninsula, the eastern point at entrance to Frenchman Bay, is 437 feet high. *Green Mountain*, the highest on Mount Desert Island, is 1,532 feet high and the most prominent landmark on this part of the coast. *Isle au Haut* is 556 feet high near its northern end and is on the eastern side of the entrance to East Penobscot Bay. The *Camden Hills* (Mount Megunticook, 1,320 feet) are on the western side of Penobscot Bay, above the town of Camden. *Monhegan Island*, lying 9¼ miles from the mainland, is 160 feet high and a mark for all vessels bound into Penobscot Bay from westward. *Seguin Island* lies about 2¼ miles from the mainland off the mouth of the Kennebec River; the island is about 145 feet high and a mark for vessels bound into the river or standing along the coast. *Cape Elizabeth*, the southern point at the entrance to Portland Harbor, is about 90 feet high. *Agamenticus Mountain* is 728 feet high and the most prominent landmark between Portland and Cape Ann. It is about 4½ miles inland and 9 miles northeastward of Portsmouth. The *Isles of Shoals*, lying about 5½ miles from the coast and southeastward of Portsmouth Harbor entrance, can be seen a long distance, the large hotels being conspicuous marks. *Boon Island lighthouse* is about 9 miles northeastward from the Isles of Shoals and about 6½ miles offshore. *Cape Ann*, at its northern end, is high, but its eastern end is comparatively low. The two light towers on Thatcher Island are the most conspicuous marks seen when approaching the cape.

Aids to navigation.—At night in clear weather, no difficulty should be experienced in approaching or standing along the coast, as the lighthouses are numerous and readily distinguished. Many of the most important outlying dangers are marked by buoys or spindles. The buoyage accords with the system adopted for United States waters. (See p. 5.) In the thoroughfares the aids are numbered and colored for entering from eastward.

Pilots.—Pilotage is not compulsory for ports in the State of Maine. Fishermen and others competent to take vessels into the ports of the State can usually be found along the coast. There are licensed pilots for the port of Portland. (See "Pilots" under heading Portland Harbor, and Appendix II.)

Pilotage is not compulsory for enrolled or registered vessels of the United States in the ports of New Hampshire, and only for other vessels when a pilot offers his services. (See Appendix II.)

Pilotage is compulsory for ports in Massachusetts, except for steam vessels regulated by the laws of the United States and carrying a pilot commissioned by United States Commissioners, vessels regularly employed in the coasting trade, fishing vessels other than whalers, and vessels of less than 7 feet draft. All other vessels are obliged to pay pilotage. (See also "Pilots," under different headings.)

Towboats are to be had in the St. Croix River, Machias River, Frenchman Bay, Stonington, Penobscot River, Rockland Harbor, Kennebec and Merrimac Rivers, Portland, Portsmouth, and Newburyport.

Quarantine.—The quarantine laws for Maine govern the ports in that State, and local boards of health have the power to make quarantine regulations for the ports under their control. Health officers in the State of New Hampshire have authority to make regulations respecting quarantine for ports in the State. The board of health in each seaport town of Massachusetts has authority to regulate quarantine for the port. (For quarantine laws, see Appendix II.)

Harbor control.—For ports in the State of Maine, local municipal officers have the power to appoint harbor masters; port wardens are elected by the city or town. The city of Portsmouth provides a harbor master for Piscataqua River and Portsmouth Harbor. Harbor masters are appointed for ports in Massachusetts. They have charge of the anchorage and berthing of vessels. (For harbor control and regulations, see Appendix II.)

Marine hospital.—Relief stations of Class III of the United States Public Health and Marine-Hospital Service are at Bangor, Bath, Boothbay Harbor, Eastport, Ellsworth, Machias, and Rockland, Me., and Portsmouth, N. H. At each of these places an acting assistant surgeon of the service is stationed. At Belfast, Castine, Waldoboro, and Wiscasset are emergency relief stations of Class IV. Patients requiring extended treatment are sent to the marine hospital at Portland. (See Appendix IV.)

Rules of the road are given in Appendix V.

Lines within which the inland rules of the road apply.—A line drawn from Long Point SW. by W. ¾ W. to Little River Head.

A line drawn from Little River Head WSW. ¼ W. to the outer side of Old Man; thence WSW. ⅜ W. to the outer side of Double Shot Islands; thence W. ⅝ S. to Libby Islands lighthouse; thence WSW. ⅛ W. to Moose Peak lighthouse; thence WSW. ¼ W. to Little Pond Head; from Pond Point, Great Wass Island, WSW. ¾ W. to outer side of Crumple Island; thence W. ⅜ S. to Petit Manan lighthouse.

A line drawn from Petit Manan lighthouse SW. ⅛ S., 26½ miles, to Mount Desert (Rock) lighthouse; thence W. ⅛ S., 33 miles, to Mantinicus Rock lighthouses; thence WNW. ⅞ W., 23½ miles, to Monhegan Island lighthouse; thence W. ½ N., 19½ miles, to Seguin lighthouse: thence WSW., 18¼ miles, to Cape Elizabeth light vessel, No. 74,

thence SW. ⅜ W., 29½ miles, to Boon Island lighthouse; thence SW. 11 miles, to Anderson Ledge spindle, off Isles of Shoals lighthouse; thence S. ⅞ W., 19½ miles, to Cape Ann lighthouses, Mass.

Supplies.—Coal can be obtained at Eastport, Rockland, Bangor, Bath, Portland, Portsmouth, and Newburyport; a limited supply can be obtained at Belfast, Bar Harbor, and other places. Water, provisions, and ship chandler's stores can be obtained at the above places and at many other towns. (See "Supplies," under the different headings.)

Repairs.—Bath and Portland are the principal places at which extensive repairs to the hulls of vessels and machinery of steamers can be made. There are facilities for repairs at Bangor, Camden, and Rockland. Minor repairs can be made at several other places. (See "Repairs," under the different headings.)

Winds.—The prevailing winds during the summer are southwesterly, and during the winter northerly. At all seasons the heaviest gales are generally northeasterly or easterly.

Freshets.—In all the rivers freshets sometimes occur in the spring, or in the fall after very heavy rains. In the larger rivers they are sometimes dangerous to navigation when accompanied with running ice.

Ice.—The extent to which the harbors of Maine are closed to navigation by ice varies greatly in different years. During some winters most of the harbors are open, while in others the only harbors available for anchorages are Quoddy Roads, Eastport, Little River, Machias Bay (above Avery Rock lighthouse), Mistake Harbor (not much used), Winter Harbor, and Boothbay Harbor. Portland Harbor generally has an open channel in winter, kept so by steamers and tugs. The mouths of the rivers are generally avoided for anchorage in winter and early spring, on account of running ice. In the bays and harbors the ice formation is mostly local; beginning at the head, in sheltered places along the shore, it extends outward. During a calm or light winds from northward, the local formations rapidly increase, while strong winds break them up and force them as drift ice onto the lee shore. The tidal currents do not prevent the formation of ice, or influence its movement in strong winds, except in the larger rivers. (See also "Ice," under the different headings.)

(For **tidal currents** and **fogs** see page 25.)

STORM WARNING DISPLAY STATIONS.

Storm warning displays of the United States Weather Bureau are made for the benefit of mariners at the following points. The signals are described and their meaning is explained in Appendix III.

Eastport, Me.
West Quoddy Head, Me.
Cutler, Me.
Machiasport, Me.
Bangor, Me.
Vinal Haven, Me.
Whitehead, Me.
Marshall Point Light, Me.
Boothbay Harbor, Me.
Portland, Me.
Wood Island, Portsmouth Harbor, N. H.
Navy Yard, Portsmouth, N. H.
Portsmouth, N. H.
Wallis Sands Life Saving Station, N. H.
Rye Beach Life Saving Station, N. H.
Newburyport, Mass.
Straitsmouth, Mass.

UNITED STATES LIFE-SAVING STATIONS.

The following list of life-saving stations is corrected to July 1, 1910. The geographical positions given are approximate and are taken from the Official Register of the service. These stations are furnished with lifeboats, mortars, and all appliances for affording assistance in cases of shipwreck.[1]

Name of Station.	State.	Locality.	Approximate Position. Latitude, north.			Longitude, west.		
			°	′	″	°	′	″
Quoddy Head	Me	Carrying Place Cove	44	48	40	66	58	50
Cross Island	Me	Off Machiasport	44	36	45	67	16	30
Great Wass Island	Me	Off Jonesport	44	28	00	67	35	30
Cranberry Islands	Me	Little Cranberry Island, off Mount Desert	44	15	30	68	12	40
Whitehead	Me	On southwest end of Whitehead Island	43	58	40	69	08	00
Burnt Island	Me	Off mouth of St. George River	43	52	20	69	17	40
Damiscove Island	Me	On the west shore of Damicsove Harbor	43	45	20	69	37	00
Hunniwell Beach	Me	On west side mouth Kennebec River	43	45	00	69	46	55
Cape Elizabeth	Me	Near the lights	43	33	58	70	12	00
Fletcher Neck	Me	Biddeford Pool, Fletcher Neck	43	26	30	70	20	30
Portsmouth Harbor	Me	Wood Island, Portsmouth Harbor	43	03	50	70	41	55
Wallis Sands	N. H.	1¾ miles south of Odiornes Point	43	01	15	70	44	00
Rye Beach	N. H.	North end of Rye Beach	42	59	30	70	45	20
Hampton Beach	N. H.	1½ miles north of Great Boar Head	42	56	20	70	47	40
Salisbury Beach	Mass.	⅔ mile south of State line	42	51	40	70	49	00
Newburyport	Mass.	North end of Plum Island, mouth of Merrimac River	42	48	30	70	49	00
Plum Island	Mass.	On Plum Island, 2¼ miles from south end	42	44	00	70	47	15
Straitsmouth	Mass.	½ mile west from Straitsmouth lighthouse	42	39	30	70	36	00

[1] Instructions to enable mariners to avail themselves fully of the assistance thus afforded will be sent free of charge upon application to the General Superintendent of the Life-Saving Service, Washington, D. C.

MASSACHUSETTS HUMANE SOCIETY LIFE-SAVING STATIONS.

Stations.	Life-saving apparatus.
Annisquam	Lifeboat.
Rockport	Lifeboat and dory. Hunt gun and apparatus.
Emerson Point, Cape Ann	Lifeboat.

BEARINGS AND DISTANCES.

The following bearings and distances serve to indicate relative positions of certain aids to navigation. An inspection of the charts will enable the mariner to select from the bearings given the ones which may be used as courses.

Matinicus Rock lighthouses.—The following are bearings and distances from Matinicus Rock lighthouses:

	Miles.
Great Duck Island lighthouse, 51° true (**ENE easterly** mag.)	34
Petit Manan lighthouse, 51° true (**ENE** mag.)	55
Moose Peak lighthouse, 54° true (**ENE ⅜ E** mag.)	70½
Little River lighthouse, 54° true (**ENE ⅜ E** mag.)	88¼
West Quoddy Head lighthouse, 53° true (**ENE ⅜ E** mag.)	102¾
Machias Seal Island lighthouses, N. B., 60° true (**E by N** mag.)	87
Seal Island lighthouse, N. S., 101° true (**SE by E ⅜ E** mag.)	126
Pollock Rip Shoals light vessel, 199° true (**SW by S** mag.)	138
Nauset Beach lighthouse, 203° true (**SW ⅝ S** mag.)	125
Cape Cod lighthouse, 207° true (**SW ¼ S** mag.)	117¼
Race Point lighthouse, 211° true (**SW ⅛ W** mag.)	120
Boston light vessel, 224° true (**SW by W ¼ W** mag.)	120¼
Cape Ann lighthouses, 228° true (**SW by W ⅝ W** mag.)	102
Isles of Shoals lighthouse, 238° true (**WSW ½ W** mag.)	91½
Boon Island lighthouse, 241° true (**WSW ⅞ W** mag.)	81¼
Cape Elizabeth light vessel, 254° true (**W** mag.)	56
Halfway Rock lighthouse, 261° true (**W ⅝ N** mag.)	52
Seguin lighthouse, 263° true (**W ⅞ N** mag.)	39½
Monhegan Island lighthouse, 267° true (**WNW ¾ W** mag.)	20

Cape Elizabeth light vessel.—The following are bearings and distances from Cape Elizabeth light vessel:

Seguin lighthouse, 53° true (**ENE ⅛ E** mag.)	18
Monhegan Island lighthouse, 67° true (**E ⅝ N** mag.)	37
Seal Island lighthouse, N. S., 93° true (**ESE ¼ E** mag.)	178
Pollock Rip Shoals light vessel, 176° true (**S by W** mag.)	115
Cape Cod lighthouse, 179° true (**S by W ¼ W** mag.)	89
Race Point lighthouse, 184° true (**S by W ¾ W** mag.)	88
Cape Ann lighthouses, 202° true (**SW ¾ S** mag.)	57¼
Isles of Shoals lighthouse, 215° true (**SW ½ W** mag.)	40¾
Boon Island lighthouse, 215° true (**SW ½ W** mag.)	29¼

Cape Ann lighthouses.—The following are bearings and distances from Cape Ann lighthouses:

Isles of Shoals lighthouse, 354° true (**N ¾ E** mag.)	20
Boon Island lighthouse, 8° true (**NNE** mag.)	29¼
Cape Elizabeth light vessel, 22° true (**NE ¾ N** mag.)	57¼
Seguin lighthouse, 29° true (**NE** mag.)	73½
Monhegan Island lighthouse, 39° true (**NE ⅞ E** mag.)	87½
Mt. Desert Rock lighthouse, 53° true (**ENE ⅛ E** mag.)	133¾
Seal Island lighthouse, N. S., 77° true (**E ⅜ S** mag.)	205¾
Cape Cod lighthouse, 148° true (**S by E ⅝ E** mag.)	42½
Race Point lighthouse, 157° true (**S ¾ E** mag.)	37½
Plymouth (Gurnet) lighthouse, 182° true (**S by W ⅜ W** mag.)	38
Boston light vessel, 205° true (**SW ½ S** mag.)	19½
The Graves lighthouse, 219° true (**SW ¾ W** mag.)	21

Lighthouse Districts, Etc.—The coast and the waters covered by this volume lie within the **First and Second Lighthouse Districts** of the United States. These districts extend from St. Croix River, Maine, to Warren Point, Rhode Island. The Light list for the Atlantic and Gulf coasts of the United States and the Buoy list for the First and Second Districts give full descriptions of the aids to navigation.

Number.	Name.	Latitude, north. Longitude, west.	Characteristic of light.	Order of light.	Height of light above mean high water.	Distance visible, in nautical miles.
		° ′ ″			*Feet.*	
1	WHITLOCKS MILL	45 09 (47) 67 13 (41)	Fixed red	4	32	11
2	ST. CROIX RIVER	45 07 44 67 08 03	Fixed white varied by white flash every 30 sec.	5	77	12
3	LUBEC CHANNEL	44 50 32 66 58 38	Flashing white every 15 sec	5	53	15
4	**West Quoddy Head**	44 48 55 66 57 04	Fixed white (i. o. v.)	3	83	15
5	LITTLE RIVER	44 39 03 67 11 34	Fixed white varied by white flash every 90 sec.	5	57	13
6	**Avery Rock**	44 39 16 67 20 41	Fixed red (i. o. v.)	4	54	11
7	**Libby Islands**	44 34 06 67 22 04	Fixed white; *obscured when bearing about ENE'ly.* (i. o. v.)	4	91	15
8	**Moose Peak**	44 28 28 67 31 57	Flashing white every 30 sec	2	72	14
9	MOOSABEC REACH	44 31 (46) 67 33 (56)	Fixed red (U.)	Post lantern.	20	.....
10	**Nash Island**	44 27 52 67 44 52	Fixed red	4	51	11
11	NARRAGUAGUS	44 27 22 67 49 55	Fixed white	5	54	13
12	**PETIT MANAN**	44 22 04 67 51 53	Fixed white varied by white flash every 2 minutes.	2	123	16
13	PROSPECT HARBOR	44 24 12 68 00 48	Fixed red with fixed white sector between 317° and 323°, and another between 348° and 356°.	4	42	11
14	WINTER HARBOR	44 21 41 68 05 18	Fixed white	5	37	11
15	**MOUNT DESERT**	43 58 08 68 07 44	Flashing white every 15 sec	4	75	14
16	**Egg Rock**	44 21 15 68 08 19	Flashing red every 5 sec	4	64	14
17	*Halibut Hole Gas Buoy, No. 9*	.....	White light 10 sec., eclipse 10 sec	Lens lantern.	10	.....
18	CRABTREE LEDGE	44 28 19 68 13 17	Fixed white varied by white flash every 2 minutes.	5	49	12
19	**Baker Island**	44 14 29 68 11 59	Fixed white varied by white flash every 90 sec.	4	105	16
20	*Seal Harbor Gas Buoy, No. 2*	.....	White light 5 sec., eclipse 5 sec	Lens lantern.	10	.....
21	**Great Duck Island**	44 08 32 68 14 47	Flashing red every 10 sec	4	67	14

These pamphlets, which are corrected and reprinted annually, are sent free of charge to any shipmaster on application to the Division of Publications, Department of Commerce and Labor, Washington, D. C., or to the inspector of the first lighthouse district, Portland, Me., and inspector of the second lighthouse district, Boston, Mass.

Number.	Description of station.	Height from base of structure to center of lantern.	Fog signal.	Remarks.
		Feet.		
1	Red-brick conical tower; gray dwelling E'ly.	29	.....	*Light maintained only during the season of navigation.*
2	Lantern on white dwelling.....	33	Bell struck by machinery.....	Bell strikes thus: 1 stroke, Silent 15 sec., 1 stroke, Silent 15 sec.
3	White, conical tower; black cylindrical foundation.	.....	Bell struck by machinery.....	Bell strikes thus: 1 stroke, Silent 10 sec., 1 stroke, Silent 10 sec.
4	Red and white horizontally banded tower...	42	10-inch steam whistle. If whistle be disabled, a bell will be rung by hand.	Whistle sounds thus: Blast 3 sec., Silent 7 sec., Blast 3 sec., Silent 22 sec., Blast 3 sec., Silent 22 sec.
5	White, conical, iron tower.....	35	Bell struck by machinery.....	Bell strikes thus: 1 stroke, Silent 30 sec., 1 stroke, Silent 30 sec.
6	White, square tower on white dwelling.....	34	Bell struck by machinery.....	Bell strikes thus: 1 stroke, Silent 10 sec., 1 stroke, Silent 10 sec.
7	White, conical, granite tower.....	36	10-inch steam whistle. If whistle be disabled, a bell will be rung by hand.	Whistle sounds thus: Blast 2 sec., Silent 13 sec., Blast 2 sec., Silent 13 sec.
8	White tower; covered way to white dwelling.	46	Hand bell rung in answer to signals	
9	Lantern on red iron spindle.....	.....	.....	*Light maintained only during the season of navigation.*
10	White, square tower, connected with dwelling.	30	Bell struck by machinery.....	Bell strikes thus: 1 stroke, Silent 20 sec., 2 strokes, Silent 20 sec.
11	White tower, connected with white dwelling.	31	Bell struck by hand in answer to signals.	
12	Gray granite tower.....	107	10-inch steam whistle. If whistle be disabled, a bell will be rung by hand.	Whistle sounds thus: Blast 5 sec., Silent 15 sec., Blast 5 sec., Silent 35 sec.
13	White, conical tower; covered way to white dwelling.	32	Hand bell rung in answer to signals	E'ly white sector covers fairway between Cranberry Point and Little Black Ledge, and its E'ly edge cuts just to E'd of Cranberry Point Bell Buoy. W'ly white sector covers the fairway between buoy No. 2 and Petty Point, and its E'ly edge cuts the buoy.
14	White tower, connected to dwelling.....	19	Hand bell rung in answer to signals	
15	Conical, gray-granite tower.....	51	1st-class Daboll trumpet. If trumpet be disabled, a bell will be rung by hand.	Trumpet sounds thus: Blast 5 sec., Silent 10 sec., Blast 5 sec., Silent 10 sec., Blast 5 sec., Silent 25 sec.
16	White, square tower, on white dwelling.....	34	1st-class Daboll trumpet.....	Trumpet sounds thus: Blast 4 sec., Silent 2 sec., Blast 4 sec., Silent 20 sec.
17	Black, white "9"; conical, surmounted by pyramidal latticework and lantern. *Maintained each year from about Apr. 1 to Oct. 31; replaced by 2d-class can during winter.*	.....	.....	
18	Black, cylindrical pier, white conical tower..	.....	Bell struck by machinery.....	Bell strikes thus: 1 stroke, Silent 10 sec., 1 stroke, Silent 10 sec.
19	White tower, connected to dwelling.....	37	.....	
20	Red, black "2"; conical, surmounted by pyramidal latticework and lantern. *Maintained each year from about May 1 to Nov. 1; replaced by 1st-class nun during winter.*	.....	.....	
21	White, cylindrical, brick tower.....	36	10-inch steam whistle.....	Whistle sounds thus: Blast 5 sec., Silent 20 sec., Blast 5 sec., Silent 30 sec.

Number.	Name.	Latitude, north. Longitude, west.	Characteristic of light.	Order of light.	Height of light above mean high water.	Distance visible, in nautical miles.
		° ′ ″			Feet.	
22	BEAR ISLAND	44 17 01 68 16 14	Fixed white	5	100	13
23	BASS HARBOR HEAD	44 13 19 68 20 16	Fixed red	4	56	11½
24	BURNT COAT HARBOR	44 08 03 68 26 52	Fixed white	4	75	14
25	BLUE HILL BAY	44 14 56 68 29 54	Fixed white	5	26	10
26	*Roaring Bull Ledge Gas and Whistling Buoy, No. 10 RB.*		White light 10 sec., eclipse 10 sec	Lens lantern.	14	
	EAST PENOBSCOT BAY:					
27	**Saddleback Ledge**	44 00 52 68 43 37	Fixed white	5	54	13
28	ISLE AU HAUT	44 03 (53) 68 39 (06)	Fixed red with a fixed white sector between 34° and 60°.	4	48	12
29	DEER ISLAND THOROFARE	44 08 04 68 42 14	Fixed white	4	52	13
30	GOOSE ROCKS	44 08 08 68 49 52	Flashing every 5 sec.; red with white sector between 291° and 307°.	4	51	13
31	EAGLE ISLAND	44 13 04 68 46 06	Fixed white	4	106	16
32	PUMPKIN ISLAND	44 18 33 68 44 36	Fixed white	5	44	12
33	**Heron Neck**	44 01 31 68 51 45	Fixed red	5	92	9
34	**Matinicus Rock (N.)**	43 47 03 68 51 21	Fixed white	3	85	15
35	**Matinicus Rock (S.)**	43 47 01 68 51 20	Fixed white	3	90	15
36	**Two-Bush Island**	43 57 52 69 04 28	Flashing every 5 sec.; red between 196° and 247°, white between 247° and 61°.	4	65	14
37	**Whitehead**	43 58 44 69 07 29	Fixed white	3	75	14
	WEST PENOBSCOT BAY:					
38	OWLS HEAD	44 05 32 69 02 41	Fixed white (i. o. v.)	4	100	16
39	ROCKLAND BREAKWATER	44 06 15 69 04 41	Flashing white every 5 sec	4	39	12
40	BROWNS HEAD	44 06 43 68 54 36	Fixed white with fixed red sector between 1° and 50° and another between 61° and 91°.	4	39	12

Number.	Description of station.	Height from base of structure to center of lantern.	Fog signal.	Remarks.
		Feet.		
22	White tower, brown dwelling	25	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 15 sec., 1 stroke, Silent 15 sec.
23	White tower, connected to dwelling	26	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 10 sec., 1 stroke, Silent 10 sec.
24	White, square tower, connected to white dwelling.	33	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 15 sec., 1 stroke, Silent 15 sec.
25	White tower, connected to dwelling	22	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 20 sec., 2 strokes, Silent 20 sec.
26	Red, black "10 RB"; conical, surmounted by pyramidal latticework, whistle, and lantern.			
27	Gray granite tower, white base; white frame building attached.	36	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 10 sec., 1 stroke, Silent 10 sec.
28	Tower, lower part conical, gray granite, upper part cylindrical, white, brick; white wooden bridge to shore.	45	Bell struck by machinery	White light marks fairway into thorofare. Bell strikes thus: 1 stroke, Silent 30 sec., 2 strokes, Silent 30 sec.
29	White square tower, attached to white dwelling.	26	Bell struck by machinery	Bell strikes thus: 2 strokes, Silent 15 sec., 2 strokes, Silent 15 sec.
30	Black cylindrical foundation pier surmounted by white conical tower.		Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 20 sec., 2 strokes, Silent 20 sec.
31	White tower, attached to dwelling	28	Hand bell rung in answer to signals	
32	White tower, connected to dwelling	22	Hand bell rung in answer to signals	
33	White tower, connected to white dwelling	22	Hand bell rung in answer to signals	
34	Two cylindrical, granite towers, and dwelling, natural color, and two white wooden dwellings.	52	12-inch steam whistle. If whistle be disabled, a bell will be struck by hand.	Whistle sounds thus: Blast 5 sec., Silent 25 sec., Blast 5 sec., Silent 25 sec.
35		41		
36	Red-brick, square, pyramidal tower	36	Bell struck by machinery	*Red* flashing sector covers Two-Bush Reef; *white* flashing sector covers Two-Bush Channel. Light is not visible N'd of 61° nor W'd of 196°. N'ly edge of W'ly part of white sector passes clear to S'd of Crow Island Ledges. Bell strikes thus: 2 strokes, Silent 20 sec., 2 strokes, Silent 20 sec.
37	Gray-granite tower attached to red-brick service room.	34	10-inch steam whistle. If whistle be disabled a bell will be rung by hand.	Whistle sounds thus: Blast 5 sec., Silent 25 sec., Blast 5 sec., Silent 25 sec. Signal display and life-saving stations here.
38	White tower, covered way to white dwelling.	19	Bell struck by machinery. If machinery be disabled bell will be rung by hand.	Bell strikes thus: 1 stroke, Silent 15 sec., 1 stroke, Silent 15 sec.
39	White; square brick tower, on corner of white, brick, fog-signal house, on gray-granite pier, capping breakwater.	27	1st-class Daboll trumpet	Give good berth to clear slope of breakwater. Trumpet sounds thus: Blast 5 sec., Silent 15 sec., Blast 5 sec., Silent 15 sec.
40	White cylindrical tower connected to white dwelling.	14	Bell struck by machinery	SW'ly *white* sector marks fairway between Fiddler Ledge and Inner Bay Ledges; keeping light *white*, clears both dangers. Bell strikes thus: 1 stroke, Silent 20 sec., 2 strokes, Silent 20 sec.

Number.	Name.	Latitude, north. Longitude, west.	Characteristic of light.	Order of light.	Height of light above mean high water.	Distance visible, in nautical miles.
	WEST PENOBSCOT BAY—Continued.	° ′ ″			Feet.	
41	INDIAN ISLAND	44 09 56 69 03 42	Fixed red	4	53	11
42	NEGRO ISLAND	44 12 05 69 02 58	Fixed white	4	52	13
43	GRINDEL POINT	44 16 54 68 56 36	Fixed white	5	38	12
44	DICE HEAD	44 22 58 68 49 11	Fixed white (i. o. v.)	4	130	17
45	*Sears Island Ledge gas buoy, No. 3*		White light 10 sec., eclipse 10 sec. (U.)	Lens lantern.	10	
46	FORT POINT	44 28 02 68 48 44	Fixed white	4	88	15
47	TENNANT HARBOR	43 57 40 69 11 07	Fixed red varied by red flash every minute.	5	64	13
48	MARSHALL POINT	43 55 03 69 15 42	Fixed white	5	30	11
49	*Old Man Ledge gas and whistling buoy, No. 2 OM*	43 50 (15) 69 19 (00)	White light 10 sec., eclipse 10 sec. (U.)	Lens lantern.	14	
50	**MONHEGAN ISLAND**	43 45 53 69 18 59	Flashing white every minute	2	178	20
51	MANANA ISLAND FOG-SIGNAL STATION	43 45 47 69 19 37				
52	*Bantam Rock gas and whistling buoy, No. 16 BR*	43 41 (55) 69 38 (10)	White light 10 sec., eclipse 10 sec. (U.)	Lens lantern.	14	
53	FRANKLIN ISLAND	43 53 32 69 22 31	Fixed white varied by white flash every 90 sec.	4	57	13
54	**Pemaquid Point**	43 50 13 69 30 23	Fixed white	4	79	15
55	RAM ISLAND	43 48 14 69 35 59	Fixed red with fixed white sector between 256° and 263° and another between 27° and 49°.	4	36	11
56	BURNT ISLAND	43 49 31 69 38 27	Flashing every 5 sec.; red with white sector between 307° and 316° and another between 355° and 8°.	4	61	13
57	**The Cuckolds**	43 46 (47) 69 39 (02)	White double flash every 6 sec.	4	59	13
58	HENDRICKS HEAD	43 49 22 69 41 25	Flashing white every 30 sec.	4	43	12
	KENNEBEC RIVER:					
59	POND ISLAND	43 44 24 69 46 15	Fixed white	5	52	13
60	FORT POPHAM	43 45 18 69 47 00	Fixed red	Lens lantern.	27	
61	PERKINS ISLAND	43 47 13 69 47 09	Fixed red with fixed white sector between 11° and 37° and another between 166° and 170°.	5	41	9
62	SQUIRREL POINT	43 49 00 69 48 11	Fixed red with fixed white sector between 322° and 332°.	5	25	9

Number.	Description of station.	Height from base of structure to center of lantern.	Fog signal.	Remarks.
		Feet.		
41	White square tower	31	Hand bell rung in answer to signals.	
42	White tower, covered way to dwelling	25	1,000-pound bell struck by hand in answer to signals.	
43	White square tower, covered way to dwelling.	33	1,000-pound bell struck by hand in answer to signals.	
44	White tower connected to dwelling	45	Bell struck by hand in answer to signals.	
45	Black, white "3" conical, surmounted by pyramidal latticework and lantern. Maintained each year from about Apr. 1 to Dec. 27; replaced by *1st-class*, unlighted, *black, iron, spar buoy* in winter.			
46	White square tower connected to dwelling	26	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 10 sec., 1 stroke, Silent 10 sec.
47	White tower connected to dwelling	28	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 30 sec., 2 strokes, Silent 30 sec.
48	White tower, covered way to white dwelling	25	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 20 sec., 1 stroke, Silent 20 sec. U. S. Weather Bureau Signal Station.
49	Red, black "2 OM"; conical, surmounted by pyramidal latticework, lantern and whistle.			
50	Conical, gray-granite tower, covered way to white dwelling.	36		When within 3 miles of island light is obscured by high land between W'd and SW'd.
51	Brick fog-signal house; two white dwellings.		1st-class Daboll trumpet. If trumpet be disabled a bell will be struck by hand.	Trumpet sounds thus: Blast 10 sec., Silent 20 sec., Blast 10 sec., Silent 20 sec.
52	Red, black "16 BR"; conical, surmounted by pyramidal latticework, lantern and whistle.			
53	White tower connected to dwelling	36	Hand bell rung in answer to signals.	
54	White tower connected to dwelling	32	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 10 sec., 1 stroke, Silent 10 sec.
55	Tower of gray granite to height of 20 feet, white above; bridge to shore.	39	Bell struck by machinery	Keep light *white*, to avoid dangers. Bell strikes thus: 1 stroke, Silent 20 sec., 1 stroke, Silent 20 sec.
56	White conical tower, covered way to white dwelling.	26	Bell struck by machinery	Keep light *white*, to avoid dangers. Bell strikes thus: 2 strokes, Silent 60 sec., 2 strokes, Silent 60 sec.
57	White octagonal tower on conical roof of white, half-round, fog-signal house and dwelling.	42	1st-class Daboll trumpet. If trumpet be disabled a bell will be struck by hand.	Trumpet sounds thus: Blast 3 sec., Silent 17 sec., Blast 3 sec., Silent 17 sec.
58	White square tower and dwelling	33	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 20 sec., 1 stroke, Silent 20 sec.
59	White tower connected to dwelling	17	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 10 sec., 1 stroke, Silent 10 sec.
60	White, square, pyramidal bell tower, white, wooden bridge, to shore.		1,000-pound bell struck by machinery.	Bell strikes thus: 1 stroke, Silent 15 sec., 1 stroke, Silent 15 sec.
61	White, octagonal, pyramidal, shingled tower.	17	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 15 sec., 2 strokes, Silent 15 sec.
62	White, octagonal, pyramidal, shingled tower.	17	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 15 sec., 1 stroke, Silent 15 sec.

Number.	Name.	Latitude, north. Longitude, west.	Characteristic of light.	Order of light.	Height of light above mean high water.	Distance visible, in nautical miles.
	KENNEBEC RIVER—Continued.	° ′ ″			Feet.	
63	RANGE. DOUBLING POINT FRONT	43 52 (58) 69 47 (47)	Fixed white	Refl'r.	18	.....
64	RANGE. DOUBLING POINT REAR	43 53 (05) 69 47 (47)	Fixed white	Refl'r.	33	.....
65	DOUBLING POINT	43 52 57 69 48 26	Fixed red	5	33	9
66	RANGE. ABAGADASSET POINT FRONT	44 00 (07) 69 49 (07)	Fixed red (U.)	Lens lantern.	25	.....
67	RANGE. ABAGADASSET POINT REAR	44 00 (01) 69 49 (04)	Fixed red (U.)	Lens lantern.	56	.....
68	AMES LEDGE	44 01 (16) 69 48 (53)	Fixed red (U.)	Lens lantern.	.....	.....
69	**SEGUIN**	43 42 27 69 45 32	Fixed white	1	180	20
	CASCO BAY:					
70	***CAPE ELIZABETH LIGHTVESSEL, No. 74.***	43 31 (30) 70 05 (38)	Fixed red (foremast) Fixed white (mainmast) Three lanterns encircling each masthead.	Lens lantern.	33 45	11 12
71	**Halfway Rock**	43 39 22 70 02 15	Fixed white varied by a red flash every 90 sec.	3	76	14
72	**CAPE ELIZABETH (E)**	43 33 58 70 12 02	Fixed white	1	129	17
73	**CAPE ELIZABETH (W)**	43 33 52 70 12 11	Fixed white varied by white flash every minute.	2	130	17
74	*Witch Rock gas buoy, No. 2*	.....	White light 10 sec., eclipse 10 sec (U.)	Lens lantern.	10	.....
75	**Ram Island Ledge**	43 37 54 70 11 16	White double flash every 6 sec	3	77	15
76	**Portland Head**	43 37 23 70 12 30	Fixed white	2	101	16
77	HOUSE ISLAND	43 39 (22) 70 12 (30)	White light 0.3 sec., eclipse 2.7 sec. (U.) (a.)	Lens lantern.	20	.....
78	SPRING POINT LEDGE	43 39 08 70 13 28	Flashing every 5 sec.; white between 330° and 337° and between 74½° and 288°; red throughout intervening sectors.	5	54	13
79	PORTLAND BREAKWATER	43 39 20 70 14 07	Fixed red varied by red flash every 40 sec.	5	30	9
80	WOOD ISLAND	43 27 25 70 19 46	Fixed red varied by red flash every minute.	4	71	11
81	GOAT ISLAND	43 21 28 70 25 32	Fixed white	6	38	11
82	KENNEBUNKPORT PIER	43 20 (45) 70 28 (36)	Fixed white (U.) (e. a.)	.....	25	.....
83	**Cape Neddick**	43 09 55 70 35 29	Fixed red	4	88	11
84	**BOON ISLAND**	43 07 17 70 28 37	Fixed white	2	133	18

Number.	Description of station.	Height from base of structure to center of lantern.	Fog signal.	Remarks.
		Feet.		
63	White, octagonal, pyramidal, shingled tower.	17		Range line clears Bluff head and high bank about ⅜ mile below Morse Cove, and passes clear to E'd of Lithgow Rock and Fiddlers Ledge.
64	White, octagonal, pyramidal, shingled tower.	13		
65	White, octagonal, pyramidal, shingled tower on square, gray, granite pier; footbridge to shore.	17	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 15 sec., 1 stroke, Silent 15 sec.
66	White post	15		Range line clears rocks making off Abagadasset Point.
67	White post	26		
68	Red wooden spindle			*Light maintained only during season of navigation.*
69	White, cylindrical, granite tower, connected with dwelling.	42	10-inch steam whistle. If whistle be disabled a bell will be struck by hand.	Whistle sounds thus: Blast 5 sec., Silent 15 sec., Blast 5 sec., Silent 15 sec.
70	Flush-deck, steam, schooner-rigged vessel; two masts; red, circular, wire daymark at each masthead; red hull, "CAPE ELIZABETH" in white on each side, and "74" in white on each bow and each quarter; white masts, black smokestack and fog signal between masts.		12-inch steam chime whistle. Submarine bell. If whistle be disabled the ship's bell will be rung by hand.	Whistle sounds thus: Blast 3 sec., Silent 27 sec., Blast 3 sec., Silent 27 sec. Submarine bell strikes "74" thus: 7 strokes, Silent 5 sec., 4 strokes, Silent 10 sec.
71	White granite tower, attached to dwelling	66	1st-class Daboll trumpet. If trumpet be disabled a bell will be struck by machinery.	Trumpet sounds thus: Blast 8 sec., Silent 4 sec., Blast 4 sec., Silent 44 sec. Bell strikes thus: 1 stroke, Silent 10 sec., 1 stroke, Silent 10 sec.
72	Two white towers; covered way to white dwelling.	55	12-inch steam whistle	Whistle sounds thus: Blast 5 sec., Silent 20 sec., Blast 5 sec., Silent 30 sec.
73		55		
74	Red, white "2 W. R."; conical, surmounted by pyramidal latticework and lantern.			
75	Light-gray, conical, granite tower, cylindrical lantern.		Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 10 sec., 1 stroke, Silent 10 sec.
76	White tower connected to dwelling	69	1st-class Daboll trumpet. If trumpet be disabled a bell will be struck by hand.	Trumpet sounds thus: Blast 5 sec., Silent 15 sec., Blast 5 sec., Silent 15 sec.
77	Black pile dolphin			
78	Black, cylindrical foundation, white, conical, brick tower.		Bell struck by machinery	Bell strikes thus: 2 strokes, Silent 12 sec., 2 strokes, Silent 12 sec.
79	White tower attached to white frame dwelling.	20	1,000-pound bell struck by machinery.	Bell strikes thus: 1 stroke, Silent 15 sec., 1 stroke, Silent 15 sec.
80	White tower connected to dwelling	48	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 25 sec., 2 strokes, Silent 25 sec.
81	White tower, covered way to dwelling	25	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 20 sec., 1 stroke, Silent 20 sec.
82	Lamp suspended from pole on stone base			
83	White conical tower	35	Bell struck by machinery	Bell strikes thus: 1 stroke, Silent 15 sec., 1 stroke, Silent 15 sec.
84	White, conical, granite tower, connected to dwelling, lower story gray granite, upper story white, wood; black iron spindle, surmounted by cask on end, 750 feet, 268°.	122	Bell rung in answer to signals	

Number.	Name.	Latitude, north. Longitude, west.	Characteristic of light.	Order of light.	Height of light above mean high water.	Distance visible, in nautical miles.
		° ′ ″			Feet.	
85	**Whaleback**	43 03 32 70 41 49	Fixed white varied by white flash every 90 sec.	4	59	13
86	PORTSMOUTH HARBOR (NEWCASTLE)	43 04 16 70 42 33	Fixed red (i. o. v.)	4	52	12
	LITTLE HARBOR:					
87	JAFFREY POINT	43 03 18 70 42 51	Fixed red (U.)	Lens lantern.	22	.....
88	FROST POINT	43 03 (19) 70 43 (03)	Two fixed white (U.)	Lens lantern.	30 22	.....
89	**Isles of Shoals**	42 58 02 70 37 25	Flashing every 15 sec., alternately red and white.	2	82	15
90	RANGE. SALISBURY BEACH FRONT	42 49 (19) 70 49 (00)	Fixed red (U.)	Post lantern.	22	.....
91	RANGE. SALISBURY BEACH REAR	.....	Fixed white (U.)	Post lantern.	38	.....
92	NEWBURYPORT HARBOR	42 48 (55) 70 49 (10)	Fixed white	4	50	13
93	RANGE. NEWBURYPORT UPPER HARBOR OUTER BEACON	42 48 42 70 51 55	Fixed red (g.)	Refl'r.	37	.....
94	RANGE. NEWBURYPORT UPPER HARBOR INNER BEACON	42 48 41 70 52 00	Fixed red (g.)	Refl'r.	58	.....
95	RANGE. IPSWICH FRONT (*See remarks.*)	.....	Fixed white	Refl'r.	20	10
96	RANGE. IPSWICH REAR	42 41 08 70 46 00	Fixed white varied by white flash every 90 sec.	5	42	12
97	ANNISQUAM HARBOR	42 39 43 70 40 55	Fixed white	5	45	12
98	*Sandy Bay Breakwater gas buoy, No. 8*	.....	White light 5 sec., eclipse 5 sec. (U.)	Lens lantern.	10	.....
99	STRAITSMOUTH	42 39 44 70 35 19	Fixed white	6	46	11
100	**CAPE ANN (N)**	42 38 21 70 34 31	Fixed white (i. o. v.)	1	162	19
101	**CAPE ANN (S)**	42 38 13 70 34 32	Fixed white (i. o. v.)	1	166	19

1. **Bearings** are given in *degrees true*, reading clockwise from 0° at N. to 360°; bearings relating to visibility of lights are given from seaward.

2. **Distances** are given in *nautical* miles.

3. **Heights** are referred to *mean high water*.

4. **Depths** are referred to *mean low water*.

6. **Names** of lights are printed to indicate their relative importance, as follows:

a. **PRIMARY SEACOAST LIGHTS.**

b. **Secondary Lights.**

c. RIVER, HARBOR, AND OTHER LIGHTS.

Names of lightvessels and other floating lights thus:

d. ***LIGHTVESSELS.***

e. *Other Floating Lights.*

7. **Lights, visibility:** *a. Distances* are computed for the height of the observer's eye at 15 feet above the water level, and within which the lights can be seen under ordinary conditions of the atmostphere. These distances may be at times greatly increased by abnormal atmospheric refraction, which usually increases with the height of the barometer and a falling temperature.

b. In the majority of cases the computed distances given are *geographic* ranges. In cases in which the given distances are smaller than would be found by computation, *luminous* ranges have been substituted for the *geographic* ranges, because the lights (principally the lower orders of *fixed red lights*) are not of sufficient power to be seen, under ordinary atmospheric conditions, to the limit of their geographic range.

Number.	Description of station.	Height from base of structure to center of lantern.	Fog signal.	Remarks.
		Feet.		
85	Conical, gray-granite tower, on cylindrical gray-granite pier.	69	1st-class Daboll trumpet	Trumpet sounds thus: Blast 5 sec. Silent 25 sec. Blast 5 sec. Silent 25 sec.
86	White tower attached to brown building, white foundation.	42	Bell struck by machinery	Bell strikes thus: 1 stroke Silent 10 sec. 1 stroke Silent 10 sec.
87	Red wooden post on pier			
88	Black wooden post on pier; one lantern vertically above the other.			
89	White tower, covered way nearly to white dwelling.	46	Bell struck by machinery	Bell strikes thus: 2 strokes Silent 20 sec. 2 strokes Silent 20 sec.
90	Post	12		*Channel is constantly changing.*
91	Post	12		
92	White octagonal tower	35		
93	Brown, octagonal, pyramidal tower	31		
94	Square, pyramidal, red-brick tower	49		
95	White, pyramidal, shingled tower; upper half of seaward face black.	11		Channel is shifting.
96	White tower	30		
97	White, cylindrical, brick tower; covered-way to dwelling.	36		
98	Black, white "3"; conical, surmounted by pyramidal latticework and lantern. *Removed when endangered by running ice, and black,* unlighted, *2d-class can buoy substituted.*			*Do not pass to E'd of this buoy in entering harbor.*
99	White cylindrical tower	32		
100	Two gray-stone towers	113	10-inch steam whistle	Whistle sounds thus: Blast 8 sec. Silent 4 sec. Blast 4 sec. Silent 44 sec.
101		113		

c. Sectors in lights should be checked by taking bearings, especially in the case of a colored sector, as the edge will vary some with changes in atmospheric conditions and white lights sometimes appear decidedly reddish.

8. Flashing lights: The interval is reckoned from the *beginning* of one flash to the *beginning* of the next following flash.

9. "(U.)" in the column "Characteristic of light," indicates that the light is *unwatched.*

10. Illuminants other than oil burned in regular service lamps are indicated thus: "(a.)"=acetylene; "(e. a.)"=electric arc; "(e. i.)"=electric incandescent; "(g.)"=gas; "(i. o. v.)"=incandescent oil vapor.

11. Fog signals will, in all cases, be started as soon as practicable after signs of fog are observed, but the fact must never be forgotten that signals sounded in air (steam or compressed-air whistles, sirens, horns, or ordinary bells) may sometimes be sounding close-to, at full capacity, and still not be heard. It must also be remembered that the conditions for hearing a signal will vary at the same station within short intervals of time.

Mariners must not, therefore, judge their distance from a fog-signal station by the force of the sound and must not assume that a signal is not sounding because they do not hear it.

12. Geographic positions of lights which are uncertain by some seconds, not yet having been accurately determined, and those of lightvessels which vary somewhat in position, have the seconds inclosed thus: 41° 53′ (22″). The geographic positions which are given without having the seconds so inclosed are furnished by the United States Coast and Geodetic Survey and have been accurately determined by triangulation.

TIDES.[1]

Locality.	Lunitidal Intervals.[2]				Rise and Fall (Range).			Rise of highest tide observed.
	High water.		Low water.		Mean tides.	Spring tides.	Neap tides.	
	h.	m.	h.	m.	Feet.	Feet.	Feet.	Feet.
Eastport, Me	11	09	5	05	18.2	20.7	15.5	25.3
Little River, Cutler	10	56	4	50	13.9	15.9	11.8	19.7
Machias Bay, Starboard Island	10	54	4	57	12.9	14.7	10.9	18.0
Moosabec Reach, Jonesport	10	58	4	49	11.5	13.1	9.4	16.3
Narraguagus Bay, Trafton Island	10	57	4	45	11.1	12.6	9.4	16.6
Frenchman Bay, Bar Harbor	10	58	4	49	10.5	12.0	8.9	16.5
Blue Hill Bay, Bass Harbor	11	02	4	47	10.2	11.6	8.7	14.8
Eggemoggin Reach, Naskeag Harbor	11	01	4	48	10.2	11.6	8.6	15.4
Deer Island Thoroughfare, Stonington	10	59	4	45	9.7	11.0	8.2	14.1
Fox Islands Thoroughfare, Iron Point	11	03	4	50	9.5	10.8	8.1	14.8
Penobscot Bay, Rockland Harbor	11	08	4	53	9.7	11.0	8.2	14.1
Penobscot River, Fort Point	11	10	4	56	10.3	11.8	8.8	14.9
Penobscot River, Bangor	11	20	5	14	13.1	14.9	11.1	17.9
Port Clyde	11	00	4	46	9.3	10.6	7.9	13.9
Boothbay Harbor	11	05	4	50	8.8	10.0	7.5	13.9
Sheepscot River, Wiscasset	11	23	5	09	9.4	10.7	8.0	14.5
Kennebec River Entrance	11	11	4	53	8.3	9.5	7.1	12.4
Bath	12	15	6	17	6.4	7.3	5.5	10.7
Portland Harbor	11	11	4	56	8.9	10.2	7.5	13.1
Saco River Entrance	11	12	4	51	9.1	10.4	7.7	13.4
Portsmouth Harbor Light	11	21	5	01	8.7	9.9	7.4	13.6
Newburyport Harbor Entrance	11	30	5	38	7.9	9.1	6.7	11.8
Rockport Harbor	11	13	4	56	8.8	10.1	7.5	12.8

[1] Tide tables for the Atlantic coast of the United States, published annually by the Coast and Geodetic Survey, predicting the times and heights of tides for every day of the year, at all the principal ports, can be obtained from the agents named in the list given on pages 7–8, price $0.15.

[2] The mean lunitidal interval for high water or for low water is the average time from the meridian transit of the moon to the next following high or low water, respectively; it is also called the corrected establishment.

WIRELESS-TELEGRAPH STATIONS.

The following is a list of the U. S. Naval coastwise wireless-telegraph stations covered by this volume, and their call letters, corrected to October 1, 1910. Changes or additions to the stations or in the regulations are published in Hydrographic Office Notices to Mariners issued weekly:

Call letters.	Stations.
N A B	**Cape Elizabeth, Me.**
N A C	**Portsmouth, N. H.**
N A D	**Boston, Mass.**
N A E	**Cape Cod, Highland light, Mass.**
N L A	**Nantucket Shoals light ship.**

The following stations not operated by the Navy Department are open to public service:

Call letters.	Stations.
W Q	**Eastport, Me.**
A U	**Chatham, Mass.**
B H	**Boston, Mass. (Boston Herald).**
M S W	**Cape Cod, South Wellfleet, Mass.**
M C C	**Cape Cod, Mass.**
M S C	**Siasconsett, Mass.**

VARIATION OF THE COMPASS.

The magnetic variations for 1915, and annual increase at points mentioned, are as follows:

Locality.	Variation, west.	Annual increase.
	°	′
Eastport	20	6
Little River	19½	6
Machias Bay	19¼	6
Jonesport	18¾	6
Off Petit Manan	18½	6
Frenchman Bay Entrance	18	6
Off Mount Desert Rock	17¾	6
Blue Hill Bay Entrance	17½	6
Deer Island Thoroughfare	17¼	6
Off Matinicus Rock	17	6
Penobscot Bay, East of Rockland	17	6
Off Monhegan	16½	6
Muscongus Bay Entrance	16½	6
Boothbay Entrance	16¼	6
Off Seguin, Kennebec Entrance	16	6
Off Cape Elizabeth	15¾	6
Off Cape Porpoise	15¼	6
Off Isles of Shoals	14¾	6
Newburyport Harbor Entrance	14½	6
Off Cape Ann	14¾	6

GENERAL REMARKS ON APPROACHING OR STANDING ALONG THE COAST OF MAINE.

Tidal currents.—The tidal currents on the coast of Maine and in the bays and rivers have considerable velocity. They must always be considered and allowed for. In thick weather or light winds vessels are sometimes set ashore by them.

Alongshore the flood sets eastward and has greater velocity than the ebb, which sets westward. In passing from one headland to another it is always necessary to make allowance for the current setting into or out of the bays or rivers, according to the stage of the tide; such allowance frequently amounts to as much as ½ point.

Eastward of Mount Desert the currents have a greater velocity than farther west, but are more regular in their ebb and flow, conforming more exactly to the rise and fall of the tides. Along the coast between Mount Desert and Portland the effect of the westerly (ebb) set is more marked as compared with the flood than is the case farther east.

With easterly or southeasterly winds the currents have more of a tendency on shore than at other times, but they are not affected much by northerly, westerly, or southerly winds.

No systematic current observations have been made along the coast of Maine. (For offshore current data see Appendix I.)

Fogs are the dread of the navigator on this coast in summer. They are liable to set in at any time, often with almost no warning. They are of frequent occurrence during June, July, and August, and the months of May and September are not free from them. Some portion of this period invariably has much thick weather, while other portions may be free from it. Fogs have been known to last three weeks, almost without intermission. At the heads of the bays and within the rivers it is often comparatively clear when thick outside. The fog of such interior waters usually "scales up" (clears) throughout the middle of the day. Winds from east to southwest, by the way of south, are those which bring in fog; westerly and northerly winds clear it away.

Under this heading scarcely any rule can be made that is not subject to frequent exceptions, and those who have the most experience in the matter are the least apt to make predictions. It is usually the case, however, that a fall of the barometer below 30 inches during a fog will be followed by the lifting of the fog. If a wisp of mist is to be seen hanging over Mount Desert or over the Camden Hills, whether otherwise clear or not, the following day is usually foggy. When calm during the ebb tide, if the fog is seen in a bank offshore, provided it remains calm, the fog will come in with the following flood.

During thick weather great caution is necessary when approaching the coast, especially eastward of Petit Manan, where the tidal currents have considerable velocity. If one of the offshore lighthouses has not been made and the position accurately determined before the fog shuts in, it is advisable to keep well outside until it clears. East of Seguin Island, except southward and eastward of Grand Manan Island, in clear weather the land will always be made before any of the outlying dangers are encountered, and by keeping 3 miles outside of the headlands and outlying islands, vessels will clear all unmarked dangers.

Coming from the vicinity of Cape Sable.—Vessels bound to Machias or ports eastward of it, should make Machias Seal Island lighthouses and pass westward of them. If bound to Eastport or Calais, when 2½ miles northward of these lights haul northeastward and stand in through the Grand Manan Channel, passing North Shoal and North Rock at a safe distance. This route is preferable to passing eastward of Grand Manan, as in case of bad weather coming on an anchorage may be made either at Little River or in Machias Bay. Southward and eastward of Grand Manan there are numerous ledges and dangers, also strong tidal currents.

It is not advisable for a stranger to pass eastward of the Machias Seal Islands or between them and Grand Manan, where there are a number of ledges on which the sea breaks in heavy weather, including Bull Rock, an unmarked danger with 2 feet over it.

If bound to ports in Penobscot Bay, vessels should steer so as to make either Mount Desert lighthouse or Matinicus Rock lighthouses. In the former case, on a clear day, Green Mountain, the highest part of Mount Desert Island, may be sighted before the lighthouse. When steering for Matinicus Rock lighthouses, Isle au Haut, 556 feet high, on a clear day may be sighted about the same time as the rock.

Coming from the vicinity of Cape Cod or Cape Ann.—Vessels bound into Penobscot Bay or ports eastward either steer to make Monhegan Island lighthouse or Matinicus Rock lighthouses. In the winter the smaller class of vessels and coasters should follow the coast, sighting the principal lighthouses and making an anchorage on the approach of bad weather. East of Monhegan they should use the inland passage if it is free from ice.

On all the banks in or near the Gulf of Maine a number of fishing vessels may be found at anchor. They are sometimes very numerous in the South Channel, on the Georges Bank, and Jeffrey Ledge. In the summer a large fleet of mackerel fishermen will often be met near the coast between Mount Desert Rock and Cape Ann.

Standing along the coast.—In clear weather vessels stand along the coast close enough to make the lighthouses and to recognize the principal landmarks on shore. In thick weather they aim to make the fog signals or the whistling or bell buoys; these buoys are placed close enough to one another and to the fog signals to be readily followed up by vessels if not set too much off their course by the tidal currents. When running in thick weather a vessel should verify her position as often as possible by the aids, and when approaching a fog signal or buoy should proceed slowly, using the lead, and if necessary stop until the looked-for aid is found and recognized before she continue for the next aid. There are three good harbors for which a stranger standing along the coast in their vicinity can make in thick weather and enter with ordinary precaution—Machias Bay, Winter Harbor, and Boothbay Harbor.

Inside passages and thoroughfares.—The numerous islands along the stretch of coast from Mount Desert Island to Portland, Me., make it possible for vessels of limited draft to avoid a heavy sea and find convenient anchorages, for a great part of this distance, by using the thoroughfares and passages inside and among the islands. The principal and most frequented route is from Southwest Harbor across Cranberry Island Bar, Bass Harbor Bar, and Blue Hill Bay, through Casco Passage or York Narrows, across Jericho Bay, through Deer Island Thoroughfare or Merchants Row, across East Penobscot Bay, through Fox Islands Thoroughfare, across West Penobscot Bay, and through Fisherman Island Passage and Muscle Ridge Channel. This is practically a continuous inside passage, good, with the exception of Deer Island Thoroughfare, for a draft of 12 feet at low water and 18 feet at ordinary high water. A continuation westward is through Davis Straits, through Fisherman Island Passage (near Boothbay), and among the islands in the western part of Casco Bay.

SAILING DIRECTIONS, COAST OF MAINE, OFFSHORE.

From a position 1¼ miles southeastward of West Quoddy Head lighthouse and ½ mile southeastward of Sail Rock whistling buoy, steer 226° true (**SW** by **W** ⅞ **W** mag.) for 14 miles to a position 1⅜ miles southeastward from Little River lighthouse and ½ mile southeastward from Little River whistling buoy.

Then make good a 230° true (**WSW** ⅛ **W** mag.) course for 33½ miles, passing 2¼ miles off Libby Islands lighthouse, 2½ miles off Moose Peak lighthouse and ½ mile southward of Moose Peak whistling buoy, and to a position with Petit Manan lighthouse abeam distant 7 miles.

Then make good a 236° true (**WSW** ½ **W** mag.) course for 56¾ miles, passing 5 miles southward of Great Duck Island lighthouse, 6½ miles northward of Mount Desert (Rock) lighthouse, and to Matinicus Rock whistling buoy lying 2 miles 168° true (*S* ½ *W* mag.) from Matinicus Rock lighthouses. From the whistling buoy,

A 264° 30′ true (**W** by **N** mag.) course made good for 34 miles will lead 3 miles southward of Monhegan Island lighthouse and to a position ½ mile southward of Bantam Rock gas and whistling buoy. From this position a 260° 30′ true (**W** ½ **N** mag.) course made good for 23¾ miles will lead to Witch Rock gas buoy (see section 1 of the sailing directions for Portland Harbor, page 134).

From Matinicus Rock whistling buoy a 256° true (**W** ¼ **N** mag.) course made good for 56 miles will lead to Cape Elizabeth lightvessel.

See also the bearings and distances from Matinicus Rock lighthouses on page 13.

SAILING DIRECTIONS, PORTLAND TO CAPE ANN.

At night or in thick weather it is safer to pass eastward of Boon Island.

To pass eastward of Boon Island.—From Cape Elizabeth lightvessel a 199° true (**SW** by **S** mag.) course made good for 57 miles will lead to Cape Ann whistling buoy, passing 5¼ miles eastward of Boon Island Ledge whistling buoy.

Or, from Old Anthony whistling buoy a 195° true (**SSW** ⅝ **W** mag.) course made good for 56 miles will lead to Cape Ann whistling buoy, passing 5 miles eastward of Wood Island lighthouse, and 3¼ miles eastward of Boon Island Ledge whistling buoy.

To pass westward of Boon Island.—From Cape Elizabeth lightvessel a 218° true (**SW** ¾ **W** mag.) course made good for 34 miles will lead to York Ledge whistling buoy. The course leads 5¼ miles southeastward of Goat Island lighthouse, 1¾ miles northwestward of Boon Island lighthouse, and 1 mile southeastward of York Ledge.

Or, from Old Anthony whistling buoy make good a 217° true (**SW** ⅝ **W** mag.) course for 15 miles, passing 2 miles southeastward of Wood Island lighthouse, and to Cape Porpoise whistling buoy, which lies 1¾ miles southeastward from Goat Island lighthouse. Then make good a 206° true (**SW** ⅜ **S** mag.) course for 17½ miles, passing 2½ miles northwestward of Boon Island lighthouse, nearly 1 mile eastward of York Ledge, and to York Ledge whistling buoy.

From York Ledge whistling buoy steer 210° true (**SW** mag.) for 7 miles, passing 1 mile northwestward of Isles of Shoals, and to a position 1½ miles west-northwestward from Isles of Shoals lighthouse. Then steer 164° true (**S** ⅛ **E** mag.) for 21½ miles, passing close to White Island whistling buoy and to Cape Ann whistling buoy.

SAILING DIRECTIONS, INSIDE PASSAGES, WEST QUODDY HEAD TO PORTLAND.

1. ***West Quoddy Head to Moosabec Reach, 32 miles.***—From Sail Rock whistling buoy (nearly ¾ mile southeastward of West Quoddy Head lighthouse) steer 226° true (**SW** by **W** ⅞ **W** mag.) for 14 miles to Little River whistling buoy (1 mile southeastward of Little River lighthouse). Then steer 233° true (**WSW** ⅜ **W** mag.) for 4¾ miles and pass about ½ mile southward of Old Man and Double Shot Islands. Then steer 245° true (**W** ½ **S** mag.) for 5 miles to a position ½ mile southward of Libby Islands lighthouse.

Then steer 272° true (**WNW** ⅛ **W** mag.) for 2¾ miles to a position 100 yards northward of the black bell buoy lying 300 yards northeastward of the eastern end of The Brothers. Then steer 257° true (**W** ½ **N** mag.) through Brothers Passage, passing 250 yards southward of Green Island, and continue the course 1⅝ miles to a position 200 yards northward of Pulpit Rock. Then steer 249° true (**W** ⅛ **S** mag.) for 3¼ miles to a position about ¼ mile northward of Mark Island. Then follow the directions in section 2.

Or, from a position ½ mile southward of Libby Islands lighthouse, steer 260° true (**W** ¾ **N** mag.) for 3¼ miles to a position ¼ mile southward of the western end of The Brothers. Then steer 268° true (**WNW** ½ **W** mag.) for 1¼ miles to a position ¼ mile southward of Pulpit Rock. Then steer 255° true (**W** ⅜ **N** mag.) for 3 miles with the south side of The Brothers astern to a position ¼ mile northward of Mark Island.

Remarks and dangers.—From West Quoddy Head to The Brothers danger will be avoided by giving the coast and nearby islands a berth of ½ mile.

Green Island Ledge, on the north side of Brothers Passage, extends ¼ mile eastward from Green Island and is partly bare at low water. A buoy (spar, red, No. 4) is placed off the south side of the eastern end of the ledge. A ledge awash at high water extends nearly 200 yards westward from Green Island.

Pulpit Rock is a bare rocky islet, and is surrounded by deep water. Its southern and eastern sides should be given a berth of over 100 yards.

Approaching Moosabac Reach from eastward the dangers between The Brothers and Head Harbor Island will be avoided by following the directions preceding. Approaching from southward, steer for the eastern end of Mark Island on a 304° true (**NW** ¾ **N** mag.) course, which will lead between Breaking Ledge and the dangers near Eastern Ledges, and pass eastward and northward of Mark Island, giving it a berth of over 200 yards.

Jumper Ledge, a rock with 5 feet over it, lies ⅝ mile southward of Pulpit Rock and is marked by a buoy (nun, red and black horizontal stripes). A rock with 16 feet over it lies nearly 200 yards northeastward of the buoy.

Misery Ledge, with 14 feet over it, lies nearly ⅝ mile southward of Jumper Ledge, on the range of the latter and Pulpit Rock.

A rock with 28 feet over it lies ¾ mile southeastward of Jumper Ledge, nearly on the range of the latter and the southwest end of Little Spruce Island. The range of the summit of Green Island over the western end of The Brothers leads near the rock.

A rock, covered near high water and nearly always marked by a breaker, lies 1 mile westward of Jumper Ledge.

Eastern Ledges is about ¼ mile long east and west, and lies 1¼ miles easterly (true) from Mark Island. At its easterly end is a rock bare at low water, and at its westerly end are two sunken rocks nearly awash at low water.

Fifth Rock with 7 feet over it lies nearly ½ mile southwestward from the rock bare at low water on Eastern Ledges.

Black Ledge, a pinnacle bare at low water, lies ¼ mile from Head Harbor Island and ⅝ mile northward from Black Head. It is marked by a buoy (spar, black, No. 1).

Breaking Ledge, a pinnacle with 9 feet over it, lies ⅜ mile northeastward from Black Ledge.

2. ***Through Moosabec Reach to Petit Manan, 18 miles.***—These directions are good for vessels of 12 feet draft at low water.

Passing 400 yards northward of Mark Island steer 253° true (**W** ⅛ **N** mag.), leave Bay Ledges buoy (spar, red, No. 2) about 300 yards on the starboard hand, Gilchrist Rock can buoy (No. 1) and spindle on the port hand, the buoy about 100 yards distant, and red spar buoys Nos. 2½, 4, and 6 about 50 yards on the starboard hand. From buoy No. 6 steer 266° true (**WNW** ¾ **W** mag.) through the dredged channel, which is 300 feet wide and 14 feet deep; on this course leave red spar buoys Nos. 8 and 10 about 25 yards, and Moosabec Reach light (on red spindle) about 50 yards, on the starboard hand; and a stone beacon about 50 yards on the port hand. This beacon shows about 2 feet at high water, and is on the northerly end of a small jetty, which shows at low water. From Moosabec Reach light continue the 266° true (**WNW** ¾ **W** mag.) course and pass about 30 yards northward of Horse Ledge buoy (can, black, No. 9).

From Horse Ledge buoy steer 260° true (**W** ¾ **N** mag.) and pass about 100 yards southward of red nun buoy No. 12 and about 400 yards northward of Pomp Island. Fessenden Ledge spindle should be made a very little on the starboard bow, nearly ahead. When about ½ mile from the spindle and the eastern side of Hardwood Island bears 206° true (*SW* mag.), steer 251° true (**W** mag.), pass midway between the spindle and the bare rock close to the northwest side of Hardwood Island, and pass about 100 yards northward of Shabbit Island Ledge buoy (spar, black, No. 11).

When Nash Island lighthouse shows between the red and black spar buoys at the northern end of Tabbott Narrows, steer this range, course 225° true (**SW** by **W** ⅝ **W** mag.), pass 300 yards northwestward of Shabbit Island, and pass in mid-channel through Tabbott Narrows.

Ram Island, on the southeast side of the narrows, is wooded and the rocks light in color; and *Sheep Island*, on the northwest side of the narrows, is grass-covered and the rocks are dark in color. When through Tabbott Narrows steer 235° true (**WSW ½ W** mag.) with the northern end of Ram Island astern, pass midway between The Ladle and Cone Island, and pass about ⅜ mile northward of Nash Island lighthouse. Then steer 212° true (**SW ½ W** mag.) for 8¼ miles to the whistling buoy lying 1 mile southward of Petit Manan lighthouse. Then follow the directions in section 3.

The dangers between Nash Island and Petit Manan are described on page 51. The least depth in Moosabec Reach is 14 feet in the dredged channel at its eastern end.

Through Moosabec Reach from westward.—Passing ⅜ mile northward of Nash Island lighthouse, steer 55° true (**ENE ½ E** mag.) for the north end of Ram Island until about ⅜ mile from it. Then steer 45° true (**NE** by **E ⅝ E** mag.) with Nash Island lighthouse astern, pass in mid-channel through Tabbott Narrows and pass about 300 yards northwestward of Shabbit Island. When about ¼ mile past the latter, steer 71° true (**E** mag.), pass 100 yards northward of black spar buoy No. 11, and pass midway between Fessenden Ledge spindle and the bare rock close to the northwest side of Hardwood Island.

When ¼ mile past Hardwood Island, steer 80° true (**E ¾ S** mag.) for *Kelley Point* (eastern point on northern side of Reach) and pass about 100 yards southward of red nun buoy No. 12. Pass about 30 yards northward of Horse Ledge buoy (can, black, No. 9), steer 86° true (**ESE ¾ E** mag.), and leave Moosabec Reach light (on red spindle) and the red spar buoys, marking the northern side of the cut, on the port hand and the black stone beacon on the starboard hand. When abreast buoy No. 6, steer 73° true (**E ⅛ S** mag.), and leave the red spar buoys on the port hand and Gilchrist Rock buoy (can, black, No. 1) on the starboard hand.

3. ***Petit Manan to Bass Harbor Bar.***—These directions lead in deep water, except in Western Way, where the depth is 14 feet, and on Bass Harbor Bar, where the depth is 12½ feet.

Through Western Way (Cranberry Island Passage)—24 miles.—From the whistling buoy lying 1 mile southward of Petit Manan lighthouse steer 255° true (**W ¼ N** mag.) for 7¾ miles to Schoodic whistling buoy, lying ⅜ mile southward of Schoodic Island. Then steer 256° true (**W ⅜ N** mag.) for 8½ miles and pass between Lewis Rock buoy and Seal Harbor buoy (gas buoy in summer). Pass 200 yards southward of the latter buoy, steer 259° true (**W ⅝ N** mag.) for the southeast end of Greening Island, and pass midway between Bear Island and the western end of Sutton Island.

Then bring Bear Island lighthouse astern on a 204° true (**SW ¼ S** mag.) course until at the fairway buoy (can, white and black perpendicular stripes) at the northern end of Western Way. Then steer 176° true (**S** by **W ¼ W** mag.) for buoys Nos. 3 and 2 which will show nearly in line at the south end of the passage. Pass eastward of black buoy No. 3 and between it and buoy No. 2, and pass close to the fairway buoy (can, white and black perpendicular stripes) which lies 250 yards southwestward of buoy No. 2. Then steer 205° true (**SW ¼ S** mag.) and pass about 100 yards eastward and southward of Long Ledge bell buoy. Then steer 269° true (**WNW ½ W** mag.) and cross Bass Harbor Bar close to the fairway buoy lying about 350 yards southward of Bass Harbor Head lighthouse. Then follow the directions in section 4.

Passing southward of Baker Island—22½ miles.—From the whistling buoy 1 mile southward of Petit Manan lighthouse steer 242° true (**W ⅞ S** mag.) for 15⅝ miles to the whistling buoy lying 1⅛ miles south-southeastward from Baker Island lighthouse. Then steer 265° true (**WNW ⅞ W** mag.) for 5 miles, passing 600 yards southward of the spindle on South Bunker Ledge, to a position 100 yards southward of Long Ledge bell buoy. Then steer 269° true (**WNW ½ W** mag.) and cross Bass Harbor Bar close to the fairway buoy lying about 350 yards southward of Bass Harbor Head lighthouse. Then follow the directions in section 4.

Dangers.—A ledge extends 400 yards southward from **Schoodic Island.**

The dangers from East Bunker Ledge through Western Way to Bass Harbor Bar are described in the sailing directions for Southwest Harbor.

The Thumper is a ledge bare at low water lying 300 yards southward from **Baker Island**, and there is a depth of 4¾ fathoms 600 yards southward of the island. A ledge partly bare at low water lies ¼ to ⅜ mile off the southwest side of the island.

4. ***Bass Harbor Bar through Casco Passage—8 miles.***—From Bass Harbor Bar there are two routes that are used, Casco Passage and the passage northward of Pond Island. Casco Passage is good for a depth of 15 feet at low water. Directions to Eggemoggin Reach by the passage northward of Pond Island are given on page 75.

From the fairway buoy lying about 350 yards southward of Bass Harbor Head lighthouse, steer 254° true (**W** ⅛ **N** mag.) for 5⅜ miles to a position 300 yards off the south end of Black Island. Pass midway between Black Island and black can buoy No. 1 northward of Orono Island tripod and steer 265° true (**WNW** ⅞ **W** mag.). On this course pass midway between spar buoys Nos. 2 and 3, pass close-to on either side of spar buoy No. 2 NR, pass northward of spar buoys Nos. 5 and 7, the latter at a distance of 50 to 75 yards, and pass 50 to 75 yards southward of Casco Passage Ledge buoy (spar, red, No. 4). Then steer 240° true (**WSW** ⅞ **W** mag.) passing 250 yards northward of Egg Rock tripod, to the fairway bell buoy lying ⅜ mile westward of the tripod. From the bell buoy directions through Merchants Row are given in section 5 following, and through Deer Island Thoroughfare on page 78.

To Eggemoggin Reach.—From a position 100 yards westward of Casco Passage Ledge buoy, steer 301° 30′ true (**NW** ⅜ **N** mag.) for the head at the north end of Conary Island, and pass 400 yards southward of Mahoney Island Ledge buoy (spar, red, No. 2), and midway between Hay Island Ledge buoy (spar, red and black horizontal stripes) and Channel Rock buoy (spar, black, No. 3). When Devils Head is abeam, distant about 350 yards, follow the directions in section 2, page 76.

Remarks and dangers.—There is a rock, bare at low water only, 125 yards off the south side of **Black Island** 400 yards westward from its south end. The channel in Casco Passage between buoys Nos. 3 and 5 is narrow, the ledges on either side having little water on them.

Casco Passage Ledge is about 200 yards in diameter, has a least depth of 10 feet, and lies at the western entrance to Casco Passage ⅜ mile southwestward of John Island. The channel is south of the ledge, which is marked on its southwest side by a buoy (spar, red, No. 4).

Hay Island Ledge, Devils Head Ledge, and Channel Rock, at the entrance of Eggemoggin Reach, are described on page 76.

5. ***Through Merchants Row to Fox Islands Thoroughfare—15 miles.***—Directions to Merchants Row for vessels entering Jericho Bay from seaward between Marshall and Swan Islands are given on page 73. The following directions lead in a depth of 26 feet or more:

From the fairway bell buoy in Jericho Bay lying ⅜ mile westward of Egg Rock tripod, steer 212° true (**SW** ⅜ **W** mag.) for Southern Mark Island in range with the summit of Isle au Haut, and pass about ⅜ mile southeastward of Whaleback Ledge buoy (spar, red, No. 2) and the same distance northwestward of West Halibut Rock buoy (spar, red and black horizontal stripes).

Pass 300 to 500 yards northwestward of Southern Mark Island, and then bring its summit astern on a 264° true (**W** by **N** mag.) course heading for Ewe Island, passing 400 yards northward of Colby Pup buoy and 250 to 300 yards southward of Gooseberry and McGlathery Islands, to a position 350 yards southward of Barter Island Ledges spindle. Then steer 275° true (**WNW** mag.), and pass about 100 yards northward of Harbor Island Ledge buoy and the same distance southward of Mid-channel Ledge buoy. Pass midway between Farrel and Sparrow Islands, steer 312° true (**NNW** ¾ **W** mag.), passing about ¼ mile eastward of Scraggy Island, to a position ¼ mile southwestward of Deer Island Thoroughfare lighthouse. Then steer 268° true (**WNW** ⅝ **W** mag.) for 4⅜ miles to a position 100 yards southward from Channel Rock bell buoy, lying 125 yards southward of Channel Rock tripod. Then follow the direction in section 6.

Remarks and dangers.—Whaleback Ledge and West Halibut Rock are described on pages 73, 74.

Southern Mark Island Ledge is a small bare rock, surrounded by ledges, lying ¾ mile northward of **Southern Mark Island.** The latter is about 30 feet high and grass covered

Colby Ledge, bare at half tide, lies ⅞ mile west-northwestward from Southern Mark Island, and is marked by a red spindle with cage. A ledge with 19 feet over it lies 300 yards southward of the spindle.

Colby Pup, a small ledge with 3 feet over it, lies ½ mile southward of the spindle on Colby Ledge and ⅞ mile westward from Southern Mark Island. It is marked by a buoy (spar, red and black horizontal stripes). Halibut Rocks kept open northward of Southern Mark Island clears this ledge.

A rock, with 13 feet over it and not marked, lies about 650 yards southward of McGlathery Island. The 264° true (W by **N** mag.) course passes about 300 yards northward of it.

Barter Island Ledges, partly bare at low water, lie ½ mile westward from the southwest end of McGlathery Island and are marked by a red spindle with cage. The spindle should be given a berth of over 200 yards when southward of it.

Harbor Island Ledge is a rock awash at lowest tides lying ¼ mile northward from **Harbor Island**, the small prominent, grass-covered island with a few trees near the north side of Merchant Island. The ledge is marked on its north side by a buoy (spar, black, No. 3).

Ewe Island is a prominent, round, heavily wooded islet lying 600 yards northwestward from Merchant Island.

Mid-Channel Ledge is small, with a depth of 14 feet, and lies 600 yards northeastward from Ewe Island. It is marked on its southern side by a buoy (spar, red and black horizontal stripes).

Farrel Island is wooded and has no outlying dangers except on its northern side. **Sparrow Island** is grass covered; a rock with 19 feet over it lies 250 yards northeastward from its eastern end. **Scraggy Island** is wooded, and a ledge, bare at half tide, extends 200 yards eastward from it; it lies ½ mile southwestward from Deer Island Thoroughfare lighthouse, which is on the western end of **Mark Island**. The latter is partly wooded.

A ledge with a least depth of 18 feet at its southwest end lies 425 yards 186° true (**SSW** mag.) from Deer Island Thoroughfare lighthouse. The range of the south tangent of Farrel Island and the north tangent of Merchant Island, bearing 115° true (**SE** ¼ **E** mag.), leads 150 yards southwestward of the ledge.

6. ***Through Fox Islands Thoroughfare to Owls Head, 11 miles.***—These directions lead in a least depth of 16 feet.

Passing 100 yards southward of Channel Rock bell buoy, lying 125 yards southward of Channel Rock tripod, steer 292° true (**NW** ½ **W** mag.) with Goose Rocks lighthouse a little on the starboard bow, and pass northward of Bradstreet Rock buoy (spar, black, No. 1). Pass about 150 yards southward of the lighthouse, steer 267° true (**WNW** ¾ **W** mag.), and pass 100 yards northward of Birch Island buoy (spar, black, No. 3) and to a position 100 yards southward of Fish Point Ledge buoy (spar, red, No. 4).

Then steer 223° true (**SW** by **W** ⅜ **W** mag.), pass well eastward of Waterman Ledge buoy (spar, red, No. 6) and to a position close eastward of Dobbin Rock buoy (spar, red, No. 8). Then steer 230° true (**WSW** mag.), pass 75 yards northwestward of Iron Point Ledge spindle, and pass close southeastward of Grindstone Ledge buoy (spar, red, No. 10).

When past buoy No. 10 steer 284° true (**NW** by **W** ¼ **W** mag.) for the heavy clump of trees on the northeast one of the Dumpling Islands, and pass southward of Lobster Ledge buoy (spar, red, No. 12) and Post Office Ledge buoy (spar, red and black horizontal stripes). When the western point at the entrance of Young Cove is a little abaft the beam, steer 255° true (**W** ⅛ **N** mag.) to a position 100 yards northward of Young Point spindle.

Then steer 225° true (**SW** by **W** ½ **W** mag.), pass 100 yards southeastward of the Sugar Loaves, and to a position ¼ mile southward from the stone beacon on Fiddler Ledge. Then—

Bound to Rockland.—A 274° true (**WNW** ⅛ **W** mag.) course for 6 miles will lead to Rockland Breakwater lighthouse.

Bound to Muscle Ridge Channel.—A 263° true (**W** ⅞ **N** mag.) course for 4¼ miles will lead to a position 300 yards northward from the north point of Monroe Island. Then follow the directions in section 7.

Vessels from Fox Islands Thoroughfare bound through Muscle Ridge Channel will find it better and more direct to pass through Fisherman Island Passage, as follows:

From a position ¼ mile southward of the stone beacon on Fiddler Ledge steer 240° true (**WSW** ⅞ **W** mag.) for 5⅞ miles heading for the north end of Ash Island. On this course pass about 250 yards northward of the red and black horizontally striped bell buoy lying 1 mile southwestward of Fiddler Ledge beacon; pass 200 yards southward of red spar buoy No. 2 which marks the south end of a reef partly bare at low water extending 700 yards southward from Sheep Island; and pass well northward of black spar buoy No. 1, and Northwest and Emory Ledge buoys (spars, red and black horizontal stripes). When about 300 yards northward of Emory Ledge buoy steer 209° true (**SW** ⅛ **W** mag.) with the eastern end of Monroe Island astern, and pass about 200 yards eastward of the black bell buoy lying close southeastward of Ash Island tripod, and to a position 150 yards westward of Upper Gangway Ledge

buoy (nun, red and black horizontal stripes). Then follow the directions in the third paragraph of section 7.

Remarks.—The flashing white sector in Goose Rocks lighthouse, bearing between 291° true (**NW** ⅝ **W** mag.) and 307° true (**NW** ⅞ **N** mag.), marks the fairway for the easterly entrance of Fox Islands Thoroughfare.

The white sector in Browns Head lighthouse, bearing between 61° true (**ENE** ⅞ **E** mag.) and 50° true (**ENE** mag.), marks the fairway for the westerly entrance of Fox Islands Thoroughfare.

Vessels can reverse the directions preceding, but the following may assist: Passing 100 yards southeastward of the Sugar Loaves steer 45° true (**NE** by **E** ½ **E** mag.) for the summit of the sharp hill lying ⅜ mile northeastward of Amos Point until 100 yards northwestward of Young Point spindle. Then steer 75° true (**E** ⅛ **S** mag.) until the western point at the entrance of Young Cove is abeam. Then steer 104° true (**SE** by **E** ¼ **E** mag.) with the heavy clump of trees on the northeast one of the Dumpling Islands astern, and pass southward of the buoys southward and southeastward of North Haven. The last course insures clearing the unmarked ledge with 7 feet over it lying on the north side of the channel off the entrance of the shoal cove westward of North Haven.

Broken ground, which should be avoided by vessels, lies between the stone beacon on Fiddler Ledge and Drunkard Ledge spindle and extends nearly ¼ mile southward of a line joining them.

7. ***Muscle Ridge Channel, Owls Head to Whitehead, 8 miles.***—These directions are good for vessels of 15 feet draft at low water.

Pass 300 yards westward of the north point of Monroe Island, and steer 208° true (**SW** mag.) heading just clear of Ash Point, and pass midway between Dodge Point Ledge spindle and Monroe Island, and to a position 50 yards westward of Sheep Island Bar buoy (nun, red, No. 2). Then steer 191° 30′ true (**SSW** ½ **W** mag.) for 1¾ miles to a position 150 yards eastward of the black bell buoy lying close southeastward of the large triped beacon on the end of the ledge at the eastern end of Ash Island. Then steer 204° true (**SW** ⅜ **S** mag.) for ½ mile to a position 150 yards westward of Upper Gangway Ledge buoy (nun, red and black horizontal stripes).

From a position 150 yards westward of Upper Gangway Ledge buoy steer 216° 30′ true (**SW** ¾ **W** mag.) for 3 miles heading for Whitehead lighthouse. The course leads eastward of Ash Island Ledge buoy (spar, black, No. 7) at a distance of 150 yards; Otter Island Ledge spindle, 300 yards; Garden Island Ledge spindle, 500 yards; Sunken Ledge buoy (spar, black, No. 5), 200 yards; and black can buoy No. 3½ near Sprucehead Island, 200 yards: and westward of the large red tripod beacon on the north end of Otter Island at a distance of 350 yards; Oak Island Ledge buoy (spar, red, No. 6), 400 yards; Channel Rock, 600 yards; and Hurricane Ledge buoy (spar, red, No. 4), 450 yards.

When nearly up with Lower Gangway Ledge buoy (can, red and black horizontal stripes), steer 208° true (**SW** mag.), pass 150 yards westward of Lower Gangway Ledge buoy, 150 yards eastward of Hay Island Ledge buoy (can, black, No. 1), 300 yards eastward of Whitehead lighthouse, and to a position 100 yards westward of South Breaker bell buoy. Then to go through Davis Straits and the inside passages farther westward, follow the directions in section 8.

To go outside to Portland.—From a position 100 yards westward of South Breaker bell buoy steer 214° true (**SW** ½ **W** mag.) for 4⅝ miles to Marshall Point whistling buoy. Then steer 231° true (**WSW** mag.) for 7 miles, passing ⅝ mile southward of Old Cilley Ledge bell buoy and Burnt Island, and to a position ⅜ mile southward of Old Man Ledge gas and whistling buoy. Then steer 239° true (**WSW** ¾ **W** mag.) for 16 miles to a position ½ mile southward of Bantam Rock gas and whistling buoy. Then follow the directions of section 1 for Portland Harbor.

Dangers.—**Owls Head Ledge**, bare at low water, lies 250 yards southward of Owls Head lighthouse, and is marked on its eastern side by a buoy (can, black, No. 3).

Dodge Point Ledge, bare at half tide, extends 250 yards eastward from Dodge Point, on the western side near the northeast end of Owls Head Bay, and is marked near its end by a black spindle with cage.

There is foul ground between Monroe and Sheep Islands, and a shoal well bare at low water extends 350 yards northward from the latter. **Sheep Island Bar** is a sunken ledge extending 450 yards westward from Sheep Island, and is marked at its western end by a buoy (nun, red, No. 2). The channel is but little over 100 yards wide between this buoy and a shoal northwestward of it which extends 250 yards from the western shore. A buoy (can, black, No. 1) marks the western edge of the channel about 200 yards westward of buoy No. 2. **Sheep Island** is heavily wooded in part.

A rock bare at low water lies 350 yards eastward of **Emery Island** and nearly ½ mile southwestward of buoy No. 2, and is marked by a black spindle with cask.

Inner Grindstone Ledge is about ¼ mile in diameter, lies ½ mile southeastward of Ash Island, and is marked on its north side by a buoy (spar, red, No. 8). The south end of the ledge is a rock awash at low water, and there is 8 feet over the northern part.

Upper Gangway Ledge has 5 feet over it, lies ⅜ mile south-southeastward from the south end of Ash Island, and is marked at its southwest end by a buoy (nun, red and black horizontal stripes).

Rocks bare at low water extend nearly 250 yards southeastward from the south end of **Ash Island**, and are marked at the end by a buoy (spar, black, No. 9). **Ash Island Ledge** is a sunken ledge extending 650 yards south-southwestward from the south end of Ash Island, and is marked at its south end by a buoy (spar, black, No. 7).

Otter Island Ledge, covered at half tide and marked by a black spindle with cage, lies 650 yards northwestward from the red tripod beacon on the north end of **Otter Island.** The latter is partly wooded.

Oak Island Ledge, with 5 feet over it and marked on its northwest side by a buoy (spar, red, No. 6), lies 250 yards northwestward of **Oak Island**. The latter has some trees.

Channel Rock, awash at high water, lies ½ mile southwestward of Oak Island Ledge.

High Clam Ledge, southward of Channel Rock, is 600 yards long, and its northern part is awash at low water. At its south end is a rock with grass on top.

Garden Island Ledge is bare at half tide and marked by a black spindle with cylinder. It lies 1⅛ miles west by south from Otter Island and ⅜ mile eastward from **Garden Island**. The latter is a large grassy rock, from which a reef, partly awash at low water, extends 300 yards southwestward to a buoy (spar, red, No. 2).

Sunken Ledge has 9 feet over it, and is marked on its southeast side by a buoy (spar, black, No. 5) which lies ½ mile northeastward from Sprucehead Island.

Hurricane Ledge, lying nearly ½ mile southeastward from Sprucehead Island, is a rock bare at lowest tides, and is marked on its northwest side by a buoy (spar, red, No. 4).

Burnt Island Ledge, lying 200 yards southward from Burnt Island, is bare at low water and is marked on its southwest side by a buoy (spar, black, No. 3). The entrance to Seal Harbor is on the southwest side of the buoy.

Lower Gangway Ledge, lying ⅝ mile northeastward from Whitehead lighthouse, is a rock with 6 feet over it, and is marked on its southwest side by a buoy (can, red and black horizontal stripes).

Hay Island Ledge, lying ⅜ mile northeastward from Whitehead lighthouse, is a rock with 5 feet over it, and is marked on its eastern side by a buoy (can, black, No. 1).

An unmarked rock with 16 feet over it lies 275 yards east-northeastward from Whitehead lighthouse.

Yellow Ledge, covered at high water and marked by a red spindle with cylinder, lies ⅜ mile eastward of Whitehead lighthouse and 300 yards westward of **Yellow Ridge Island**. The latter is a large bare rock, from which a sunken ledge extends 300 yards northeastward. A rock with 5 feet over it lies 600 yards southward from Yellow Ledge.

South Breaker is a ledge about ¼ mile long, the top of which is awash at low water. It is marked at its southwest end by a buoy (spar, red, No. 2). A red bell buoy is moored nearly ¼ mile southwestward of the ledge and ⅝ mile 190° true (**SSW** ⅜ **W** mag.) from Whitehead lighthouse.

8. ***Whitehead to Davis Straits, 10 miles.***—These directions are good for vessels of 12 feet or less draft.

From a position 200 to 300 yards westward of South Breaker bell buoy steer 226° 30′ true (**SW** by **W** ⅝ **W** mag.) for 5 miles to the red bell buoy, No. 2 MI, lying 400 yards southward of Mosquito Island. Then steer 281° true (**NW** by **W** ½ **W** mag.) with Marshall Point lighthouse a little on the port bow, pass 350 yards southward of Mosquito Island, 250 yards northward of The Brothers, and to a position 100 yards northward of Gunning Rocks buoy (spar, black, No. 1). Then steer 259° true (**W** ½ **N** mag.) and pass about 100 yards southward of Marshall Ledge buoy (spar, red, No. 4).

Then steer 270° true (**WNW** ½ **W** mag.) and pass 50 yards northward and northwestward of Allen Ledge buoy (spar, black, No. 3). Give Hooper Island a berth of 200 yards and steer 231° true (**WSW** mag.) for the grassy islet on the north side of Davis Straits, passing southward of Hooper Island Rocks buoy and Old Horse Ledge spindle, and northward of The Sisters buoy and Gig Rock bell buoy. When about ¼ mile from Davis Straits steer 208° true (**SW** mag.) into the straits and pass 20 yards eastward of Griffin Ledge buoy (spar, red, No. 8). Then steer 244° true (**W** ⅞ **S** mag.) with the north end of Davis Island astern, and follow the directions in section 9.

Dangers.—Mosquito Island is large and wooded. Its eastern and southern shores should be given a berth of over 200 yards and its southwest end 300 yards. A red bell buoy, No. 2 MI, is moored 400 yards southward from its south end.

Hay Ledge is a grass-covered islet and should be given a berth of over 200 yards. **Barter Shoal**, a rock with 15 feet over it, lies 650 yards eastward from Hay Ledge, midway between it and the bell buoy southward of Mosquito Island. A rock with 16 feet over it lies midway between the north end of Hay Ledge and the southwest end of Mosquito Island.

The Brothers are three grass-covered, rocky islets northwestward of Hay Ledge, and should be given a berth of over 150 yards.

Gunning Rocks are grass-covered; from them rocks with 4 feet over them extend 400 yards northeastward, and are marked at their northeast end by a buoy (spar, black, No. 1).

Mosquito Island Ledge, with 7 feet over it, lies ⅜ mile northward from The Brothers, and is marked on its southeast side by a buoy (spar, red, No. 2).

Marshall Ledge, with 15 feet at its end, extends 275 yards southward from Marshall Point. It is marked at its south end by a buoy (spar, red, No. 4). Vessels should not pass between the buoy and Marshall Point.

Hart Bar is a ledge, partly bare at low water, making out ½ mile northward from Hart Island, the low, grassy island south-southwestward from Marshall Point. **Allen Ledge**, with 2 feet over it, is at the north end of the bar and is marked on its north end by a buoy (spar, black, No. 3). The channel is north of this buoy.

Hooper Island has shoals making out about 150 yards from its southern end.

Hooper Island Rocks is a ledge with 5½ feet on it and covered with kelp, lying 450 yards south-southwestward from the southwest end of Hooper Island. It is marked on its southeast side by a buoy (nun, red, No. 6). There is a detached 16-foot spot about 200 yards northeast from the buoy.

Old Horse Ledge, a rock bare at low water, lies ¾ mile southwestward from the southwest end of Hooper Island. It is marked by a red spindle with cage. **Outer Shag Ledge** (bare at half tide) and **Inner Shag Ledge** (awash at high water) lie between the spindle and McGee Island. These two ledges should be given a wide berth, especially when northeastward of them.

The Sisters are two small ledges, awash at low water, lying ⅜ mile southeastward from Old Horse Ledge, and marked on the northwest end by a buoy (spar, black, No. 5).

Gig Rock, with 5 feet over it, lies ⅝ mile east-northeastward from the northern end of Davis Island and is marked on its northwest side by a bell buoy (red and black horizontal stripes).

Griffin Ledge, with 10 feet over it, is in the middle of the narrow part of Davis Straits and is marked on its southeast side by a buoy (spar, red, No. 8). The channel is between it and Davis Island and is about 75 yards wide.

Davis Island, on the south side of Davis Straits, is grass covered and has two knolls with a saddle in the middle. A ledge extends 100 yards northward and 150 yards northeastward from its northern end. The two southernmost islets on the north side of Davis Straits are grass covered and the others are partly wooded.

9. ***Davis Straits to Fisherman Island Passage, 14 miles.***—These directions are good for vessels of 12 feet or less draft.

From Davis Straits steer 244° true (**W** ⅞ **S** mag.) for 3½ miles with the north end of Davis Island astern, and pass about 200 yards northward of Seal Ledges buoy, 400 yards southward of Old Hump Ledge, about 50 yards southward of Egg Rock North Ledge buoy, and 200 yards northward of Eastern Egg Rock beacon. Then steer 247° true (**W** ⅝ **S** mag.) for nearly 8 miles, passing ⅝ mile southward of Pemaquid Point lighthouse, ¼ mile northward of Pemaquid Ledge buoy, and ¼ mile southward of Thurmbcap Island. Then steer 261° true (**W** ⅝ **N** mag.) for a little over 2 miles and pass through Fisherman Island Passage northward of the black bell buoy marking The Hypocrites and Ram Island Ledge buoy (spar, black, No. 1), and about 350 yards northward of Ram Island lighthouse. Then follow the directions in section 10.

Dangers.—**Seal Ledges** are two ledges ⅜ mile apart, the southwestern one having 6 feet over it. The northeast ledge is partly bare at half tide and nearly ¼ mile long, and is marked at its northeast end by a buoy (spar, black, No. 7), lying ⅝ mile east-southeastward from **Old Hump Ledge.** The latter is high and rugged.

Eastern Egg Rock and Egg Rock North Ledge are described on page 107, and Pemaquid Ledge and the dangers in Fisherman Island Passage on page 114.

10. ***Fisherman Island Passage to Cape Small, 13 miles.***—These directions lead in a depth of 4 fathoms or more.

Pass about 300 yards northwestward of Ram Island lighthouse and steer 227° true (**SW** by **W** ⅝ **W** mag.) for nearly 3 miles to Cuckolds black bell buoy, lying ⅜ mile south-southwestward from The Cuckolds lighthouse. Then steer 242° true (**W** by **S** mag.) for 3⅝ miles to a position ¼ mile northward of The Sisters tripod beacon. Then steer 235° 30′ true (**WSW** ⅜ **W** mag.) for 1½ miles to a position 150 to 200 yards northwestward of White Ledge buoy (spar, black, No. 1). Then steer 229° true (**SW** by **W** ¾ **W** mag.) for 4 miles, when Fuller Rock should be ¾ mile distant on the starboard beam. Then—

To cross Casco Bay inside the islands.—Steer 278° true (**NW** by **W** ⅞ **W** mag.), passing ½ mile southwestward of Fuller Rock, and follow the directions in section 11.

To cross Casco Bay outside of Halfway Rock.—From a position ¾ mile southeastward of Fuller Rock steer 253° true (**W** ⅛ **S** mag.) for 9½ miles to Halfway Rock whistling buoy. Then

steer 260° 30′ true (**W** ½ **N** mag.) for 6¼ miles to a position 100 yards southward of Witch Rock gas buoy. See the directions for Portland Harbor, section 1, page 134.

Remarks and dangers.—The 227° true (**SW** by **W** ⅝ **W** mag.) course leads nearly ¼ mile southeastward of **Wylie Rock**, which has 16 feet over it and lies ¾ mile 254° true (**W** mag.) from Ram Island lighthouse.

The Cuckolds are described on page 115, and The Sisters and Black Rocks on page 118. White Ledge is described under section 1 of the sailing directions for Kennebec River, and the dangers between White Ledge and Cape Small are described under section 1A of the same directions, page 122.

11. ***Cape Small to Portland, crossing Casco Bay inside the islands, 20 miles.***—These directions are good for vessels of 12 feet or less draft.

Passing ½ mile southwestward of Fuller Rock steer 278° true (**NW** by **W** ⅞ **W** mag.) for Little Mark Island monument. The red bell buoy lying ⅜ mile southward of Jaquish Island should be made ahead. Pass about 100 yards southward of the buoy and steer 289° true (**NW** ⅞ **W** mag) for the south end of Haskell Island. When nearly up with Little Mark Island, steer 268° true (**WNW** ¾ **W** mag.), and pass 150 to 200 yards northward of Little Mark Island and about 100 yards southward of the red buoy off the southwest end of Haskell Island. Pass about 50 yards westward of this buoy, steer about 333° true (**N** by **W** mag.), and pass close eastward and northward of the black spar buoy northeastward of Haddock Rock.

Then steer 292° true (**NW** ⅝ **W** mag.) with the southwest end of Haskell Island astern, passing midway between Eagle Island and Upper Flag Island. Pass about 50 yards northward of Stave Island Ledge buoy (spar, black, No. 5), steer 250° true (**W** ⅜ **S** mag.), and pass 150 yards southward of Little Bangs Island and about 50 yards northward of Sand Island Ledge buoy (spar, black, No. 7). When about 200 yards westward of the latter buoy, steer 234° true (**WSW** ⅛ **W** mag.), and pass about 150 yards southward of Deer Point, the southwest end of Great Chebeag Island. Pass southward and westward of Deer Point Rock buoy, rounding it at a distance of about 100 yards, steer about 339° true (**N** ½ **W** mag.), and pass eastward and northward of the black spar buoy off the northeast side of Crow Island, rounding it at a distance of about 100 yards. Then steer 250° true (**W** ⅜ **S** mag.) to a position about 50 yards northward of a black can buoy.

Then pass midway between buoy No. 10 and the wharf on Long Island on a 226° true (**SW** by **W** ½ **W** mag.) course, and pass about 50 yards southward of buoy No. 12. Then steer 254° true (**W** mag.), pass about 250 yards northward of Cow Island, and continue the course until abreast Brimstone Point Ledge buoy (spar, red, No. 4) and the water tank on Great Diamond Island bears 153° true (*S* by *E* mag.). Pass 250 yards northwestward of buoy No. 4, steer 212° 30′ true (**SW** ¼ **W** mag.) for Portland Breakwater lighthouse in range with a church steeple in South Portland, and pass close westward of Diamond Island Ledge buoy (No. 2) and ¼ mile northwestward of Fort Gorges. When abreast the fort steer about 232° true (**WSW** mag.) into Portland Harbor.

Remarks and dangers.—**Bill Wallace Ground**, a rock with 18 feet over it, lies ½ mile west of Fuller Rock, and is the southernmost danger near Cape Small.

Flat Ground and Lumbo Ledge are described on page 134.

Jaquish Island and **Turnip Island**, low and grassy, have partly bare ledges making off 300 yards on all sides of them. **Turnip Island Ledge**, bare at low water, is marked at its southwest end by a buoy (spar, red, No. 2) lying ¼ mile southwestward of Turnip Island. Between Drunker Ledge and Jaquish Island there is broken ground with depths of 16 to 24 feet, and in heavy weather the sea breaks on the shoaler places. There is a depth of 19 feet ¼ mile northwestward of the bell buoy. Drunker Ledge and Mark Island Ledge are described on page 127.

Little Mark Island is grass covered and is marked by a square stone monument 50 feet high. Ledges shelve off 100 yards northward from the island, and 300 yards southwestward from Great Mark Island, the grassy island close to the southeast side of Haskell Island. The channel between these ledges is about 250 yards wide.

Haskell Island is partly wooded near the middle. Ledges extend 200 yards southward and westward from its south end, and are marked at their southwest end by a buoy (spar, red, No. 4).

Haddock Rock, bare and about 10 feet high, is surrounded by ledges which are marked at their northeast end by a buoy (spar, black, No. 3).

Ledges obstruct the opening to Potts Harbor between Haskell and **Upper Flag Islands.** The latter is high and grassy, and ledges extend 250 yards southward from it.

Eagle Island is high, wooded, and prominent. Partly bare ledges extend 350 yards northeastward from it.

Bates and **Ministerial Islands** are grass covered. Their northeast ends should be given a berth of ¼ mile.

Stave Island is described on page 130.

Little Bangs Island and **Stockman Island** are grass covered, and the southwest end of the latter is marked by a black tripod beacon.

Sand Island is low and grassy. A shelving ledge extends nearly ¼ mile northeastward from the island and is marked at its end by a buoy (spar, black, No. 7). Ledges also extend 200 yards northwestward from the island.

Jimmy Ledge, with about 14 feet over it, is 300 yards long and lies 400 yards from Great Chebeag Island off Johnson Cove. Its south end lies 300 yards west-northwestward of buoy No. 7 northeastward of Sand Island.

A buoy (spar, red, No. 8) marks a shoal which extends 150 yards from **Sand Point**, on Great Chebeag Island, west-northwestward from Sand Island.

Hope Island (wooded) has ledges making out 150 yards northward and northwestward from its northern part.

Deer Point Rock, with 4½ feet over it and deep water around it, lies 250 yards southwestward from Deer Point, and is marked on its southeast side by a buoy (spar, red and black horizontal stripes).

Crow Island (small and grassy) has shoals between it and Long Island, and is surrounded by them to a distance of 125 yards. A black spar buoy is placed off its northeast end.

A buoy (spar, red, No. 10) marks a shoal which extends 200 yards southward from Little Chebeag Island.

Channel Rocks, with 9 feet over them, are three detached rocky spots extending in a north and south direction for nearly ¼ mile. They are marked by a buoy (spar, red, No. 12) placed close southward of the southernmost, and lying ⅜ mile southwestward from the south end of Little Chebeag Island.

Brimstone Point Ledge and Diamond Island Ledge are described on page 132.

ST. CROIX RIVER AND APPROACHES.[1]

The waters comprising the approaches to the St. Croix River are Quoddy Roads, Lubec Narrows, Friar Roads, and Passamaquoddy Bay. The principal entrance is around the northern end of Campobello Island through Head Harbor Passage, and is deep and generally clear. The channel through Lubec Narrows is also frequently used, especially at high water. The tidal currents are strong, and sailing vessels can make no headway beating against them.

QUODDY ROADS AND LUBEC NARROWS.

Quoddy Roads lies between the southwestern end of Campobello Island and West Quoddy Head, marked by a lighthouse; it is the usual anchorage for vessels seeking shelter against northerly and westerly winds or waiting for a favorable tide to pass through Lubec Narrows. The entrance between Liberty Point Ledge and West Quoddy Head is about ¾ mile wide, with a least depth of 28 feet near the middle of the entrance; the best water leads about ¼ mile eastward of West Quoddy Head (see current notes). The anchorage affords shelter against all but east and southerly winds in 12 to 25 feet (low water); vessels anchored here for shelter when the wind hauls eastward, get under way and pass through Lubec Narrows to the anchorage in Johnson Bay. The northern and western parts of the roads between West Quoddy Head and Lubec are full of shoals, partly bare at low water, on which are numerous fish weirs.

The **channel** leading from Quoddy Roads to Lubec Narrows has been dredged to a width of 500 feet and a depth of 12 feet at mean low water, but low spring tides may fall 4 feet below this level. It is marked by **Lubec Channel lighthouse**, and the turns in the channel are marked by buoys. The average draft of vessels passing through this channel is 12 feet; the deepest draft is 19 feet. It is necessary for sailing vessels to have a fair wind to pass through the dredged channel and the Narrows, the most favorable time being about 2 hours before high water, but sailing vessels with a strong fair wind can stem an adverse current at any time after half flood or ebb.

Lubec Narrows is a narrow strait between Mulholland Point (marked by Lubec Narrows lighthouse) and the town of Lubec. The channel has been dredged 250 to 400 feet wide and 12 feet deep, and has strong tidal currents and eddies (see current notes). The narrowest part of the channel is at the northern end. The town of **Lubec** has several fish factories. The wharves in the Narrows are dry at low water, and are only used by small craft. The steamboat wharf is on the north side of the town and has a depth of about 18 feet at its end.

JOHNSON BAY,

on the northwest side of Lubec, is a well-sheltered anchorage for vessels of any draft and is frequently used. It is approached from southward through Quoddy Roads and Lubec Narrows, and from northward through Friar Roads. The southwestern part of Johnson Bay is shoal for a distance of ½ mile from its head, and a shoal with 17 feet over it lies on the west side near the middle. The shores of the bay should be given a berth of about 300 yards. The best anchorage for deep-draft vessels is just southward of a line from Lubec Narrows lighthouse to Rodgers Island, in 7 to 9 fathoms (low water).

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[1] St. Croix River shown on chart **300**, scale $\frac{1}{40,000}$, Quoddy Roads and Approaches to St. Croix River shown on chart **301**, scale $\frac{1}{40,000}$, price of each $0.25; both are shown on chart **101**, scale $\frac{1}{80,000}$, price $0.50.

FRIAR ROADS (EASTPORT HARBOR)

is on the western side of Campobello Island, north of Johnson Bay and east of Moose Island (Eastport). It is approached from northward around East Quoddy Head, and from southward through Quoddy Roads and Lubec Narrows, and is the principal approach to Passamaquoddy Bay and St. Croix River. Vessels seldom anchor in Friar Roads, as the water is deep, the bottom irregular, and the tidal currents have considerable velocity.

Harbor de Loutre, in the northwestern part of Campobello Island, is sometimes used as an anchorage by small vessels.

Friar Bay, a broad bight in the west shore of Campobello Island, southeastward from Eastport, is sometimes used as an anchorage.

Broad Cove, in the south shore of Moose Island, and west of Eastport, is a good anchorage for vessels of any draft; vessels anchored off Eastport get under way and anchor here or in Johnson Bay to ride out a gale. The head of the cove is shoal for a distance of ¼ mile. Rocks bare at low water extend 400 yards southeastward and southward from Shackford Head, on the western side of the entrance, and are marked at their southwest end by a red buoy, No. 4. A good berth for vessels of moderate size is about 250 yards off the point on the eastern side near the head of the cove, with the lone tree on Burial Islet in line with the high spire in Lubec, in 4 to 6 fathoms (low water). The eastern side of the cove is bold and should be favored when entering.

Eastport, on the southeastern end of Moose Island, is of some commercial importance, its principal business being in lumber, fish, and general merchandise. Vessels loading generally lie at the wharves, some of which are dry at low water; others have from 5 to 12 feet at their ends, and the steamer wharf about 16 feet. The best anchorage off the town for small vessels is abreast the customhouse and quite close to the wharves, where the current has the least velocity. Western Passage, leading into Passamaquoddy Bay and St. Croix River, is just northward of the town, and the entrance to Cobscook Bay south of it.

Pilots.—Canadian licensed pilots, and fishermen who are competent pilots for Maine ports, will be found at Head Harbor, near the north end of Campobello Island. Vessels from westward may take a pilot off Little River or at West Quoddy Roads. Pilots for St. Croix River and Cobscook Bay can be found at Eastport.

A **towboat** can be obtained from Calais.

Supplies.—Coal, in limited quantity, and water can be had alongside some of the wharves. Provisions and some ship-chandler's stores can be obtained in the town.

Repair.—Light repairs can be made, vessels being hauled out on the beach to be cleaned and calked.

Communication.—Steamers stop at Eastport on their trips from Boston, Mass., to St. John, N. B., and return. Eastport has railroad communication with Calais and towns westward.

Storm warning displays of the United States Weather Bureau are made from the customhouse, and show well to the shipping in Friar Roads; displays are also made at West Quoddy Head.

Marine hospital.—Relief is furnished under the provisions of the regulations for the United States Public Health and Marine-Hospital Service as for stations of Class III. (See Appendix IV.)

COBSCOOK BAY,

making in westward of Moose Island, is a large, irregular bay with several arms. It is approached through the channel leading between Moose Island on the north and Seward Neck on the south. The arms of the bay are full of rocks and have dangerous currents, which require local knowledge to keep a vessel in the channels. The towns of **Pembroke**, **Dennysville**, and **Whiting** are situated on its shores. Strangers seldom enter Cobscook Bay, and then only with a pilot, generally taken at Eastport. Good anchorage is found in many of the arms and coves, but everywhere in the channel the currents are too strong and the bottom too rocky for anchorage. Ice obstructs navigation during the winter.

PASSAMAQUODDY BAY

is a large, open bay indenting the shore of New Brunswick east of the mouth of the St. Croix River. **Western Passage**, the principal entrance to the bay, is between Deer Island on the east and Moose Island (Eastport) on the west. This passage has deep water and is comparatively free from dangers; it is 4 miles long from Eastport to Passamaquoddy Bay. Anchorage can be had out of the current in several coves on the sides of the passage. Johnson Cove being the best for vessels.

The Canadian town and port of **St. Andrew** is near the eastern point at the entrance to St. Croix River. It is a railroad terminus and has some commerce. The anchorage is between the town and Navy Island, and is available for light-draft vessels only. The principal entrance is from Passamaquoddy Bay, and is marked by lights and buoys.

ST. CROIX RIVER

empties into the western end of Passamaquoddy Bay from northward. For a distance of 6 miles up the river to Devils Head its least width is ⅘ mile. At Devils Head the river makes a sharp bend westward and narrows rapidly to **The Ledge**, a village on the New Brunswick side, 2 miles above. In several places above this point the river narrows to a width of 300 yards and can be navigated by vessels only at high water.

The river below Devils Head is deep and comparatively clear, but above this it is filled by flats through which is a narrow winding channel with a least depth of about 3 feet up to Calais. Vessels can anchor and lie afloat below The Ledge, but above this and at Calais they lie aground at low water. The channel is marked by buoys, but above The Ledge a pilot or towboat should be employed. Below The Ledge vessels may anchor anywhere in the river.

Robbinston and **Red Beach** are villages on the west bank of the river, the former near the entrance and the latter 3 miles above.

St. Stephen, on the north bank of the river, opposite Calais, is connected with the latter by a closed bridge just above the wharves. It has some trade in lumber and is the terminus of a railroad with connections through Canada.

The city of **Calais** on the south bank of the river, about 11 miles above its mouth and 23 miles above Eastport, is of considerable commercial importance and has a large lumber trade; it is a terminus of a railroad running through Maine and into Canada. The deepest draft brought up to the city is 21 feet by waiting for a spring high water; the usual draft is about 12 feet. The least depth in the channel up to the city is about 3 feet. Vessels lie aground while discharging and loading.

Pilots.—A pilot can be had at Eastport and The Ledge.

A **towboat** can be had from Calais, and one usually comes down to The Ledge at high water.

Supplies.—Anthracite and bituminous coal can be had alongside the wharves at Calais, and water from a water boat. Provisions and some ship-chandler's stores can be obtained.

Repairs to vessels' hulls can be made at Calais; there is one dry dock 150 feet long and 28 feet wide, and one marine railway of about the same dimensions.

Ice.—During January, February, and March the St. Croix River is obstructed by ice and not navigable above Robbinston, but the channel is sometimes kept open by tugs.

TIDAL CURRENTS, ST. CROIX RIVER AND APPROACHES.

In the Grand Manan Channel the flood sets in a general northeast direction, and at strength attains a velocity of about 2½ miles. The ebb sets in a southwesterly direction with a velocity at strength of about 2½ miles.

Approaching the entrance to Quoddy Roads, if less than 2 miles from the northern shore, the set of the flood is more northward, and about 1 mile southeastward of West Quoddy Head, the flood sets directly into the Roads. For a distance of ½ mile southeastward of West Quoddy Head the currents are dangerous on account of swirls and eddies, which are apt to draw a vessel, in a light breeze, on to Sail Rock.

Along the eastern side of Campobello Island the flood sets in a northeasterly direction following the trend of the shore, the ebb setting in a contrary direction.

Along the northwestern side of Campobello Island, 1 mile north of East Quoddy Head, the flood sets strongly westward on the islands lying in the passage westward of Campobello Island. The direction of the flood then changes more southward, following the general direction of the passage until nearly to Eastport, where the set is more westerly, toward the passage between Deer and Moose Islands and toward the entrance to Cobscook Bay. The ebb generally sets in a reverse direction.

Through Lubec Narrows the flood sets northward, following the general direction of the dredged channel; southward of the Narrows it has a velocity of about 4 miles at strength, but in the Narrows it attains a velocity of about 6 miles during spring tides. The ebb sets southward, following the general direction of the channel, and in the Narrows has a velocity of about 8 miles during spring tides. Below the Narrows its velocity is about 4 miles, and the set is in the general direction of the channel. The currents at strength form dangerous eddies on both sides of the channel in the Narrows; these are avoided by keeping in mid-channel. It is slack water in the Narrows about 1 hour before high and 1½ hours before low water; the duration of slack is short, from 5 to 15 minutes. With a strong fair wind small sailing vessels can pass through the Narrows with an adverse current at any time after the current has been running 3 hours.

Northward of Lubec Narrows the first of the flood current sets along the west shore of Campobello Island eastward of Popes Folly; it afterwards sets more westward, south of Popes Folly, and across the entrance of Johnson Bay, meeting the flood from Friar Roads westward of Treat Island, and both setting into Cobscook Bay.

Western Passage of St. Croix River.—The flood sets northward into the passage, and off Deer Point, abreast Dog Island, it forms whirlpools and eddies which are dangerous to open boats. The whirlpools and eddies are strongest 2 to 3 hours before high water and during spring tides; the flood then attains a velocity of 6 to 7 miles. The least

disturbance is usually about 300 yards northward of Dog Island, where there is a comparatively narrow direct current known locally as "straight water," which can be readily followed between the whirlpools and eddies on the Deer Island side and the eddies on the Eastport side of the passage. The ebb sets southward, but does not attain the velocity of the flood.

Above Deer Point the flood sets northward with decreasing velocity and follows the general direction of the channel with strong countercurrents and eddies close to the shore where the conformation of the land is favorable; it continues ½ to ¾ hour after the time of high water. The ebb sets southward with reduced velocity and disturbance off Deer Point, and the inshore reverse currents are less marked than on the flood; it continues ¾ to 1 hour after the time of low water.

St. Croix River.—The flood sets northward with countercurrents inshore on both sides where the conformation of the land is favorable for them. The ebb sets southward with less marked countercurrents.

Cobscook Bay and tributaries.—The tidal currents follow the general direction of the channels, but in the coves there are strong reverse eddy currents, and heavy overfalls are formed over the submerged rocks and ledges. The velocity is estimated at 5 to 8 miles, and some of the buoys are towed under when the currents are at strength.

SAILING DIRECTIONS, EASTPORT HARBOR.

1. ***Entering northward of Campobello Island.***—Passing about 1 mile southeastward of West Quoddy Head lighthouse, steer 46° true (**NE** by **E** ⅞ **E** mag.) for 2 miles to a position 1 mile off Owen Head, Campobello Island. Then steer 14° true (**NE** by **N** mag.) for 5½ miles, giving Campobello Island a berth of about ¾ mile. When Head Harbor lighthouse bears 332° true (*N.* ¾ *W* mag.), steer 337° true (**N** ¼ **W** mag.) for about 2¾ miles and pass at least ¼ mile eastward of it.

From a position ¼ mile northward of Head Harbor lighthouse follow the northern shore of Campobello Island at a distance of 300 to 400 yards, courses 239° true (**W** by **S** mag.) for 1 mile, then 224° true (**SW** by **W** ¾ **W** mag.) for ¾ mile until Green Islet is abeam, then 216° true (**SW** by **W** mag.) passing ¼ mile eastward of the white fog bell structure on the south end of Cherry Island. The course can then be changed for the wharves of the city of Eastport.

To anchor in Broad Cove, continue the 216° true (**SW** by **W** mag.) course to a position 100 to 200 yards southeastward of Buckman Ledge buoy, and then steer more westward and pass 150 yards or more southward of Estes Head. Then stand northward into the cove, favoring the eastern side. (See p. 37.)

To anchor in Johnson Bay, when off Eastport stand southward to the white can buoy lying 400 yards eastward of Treat Island (large, high, and partly wooded). Then steer about 211° true (**SW** ½ **W** mag.) and pass about midway between Popes Folly and Dudley Islands. Then stand more westward into Johnson Bay. (See p. 36.)

Remarks and dangers.—The eastern coast of Campobello Island is high and bold, and all dangers will be avoided by giving it a berth of ½ mile.

A spot with 4½ fathoms over it lies 600 yards southeastward of **Green Islet.** Vessels usually follow the northern shore of Campobello Island, which can be approached as close as 100 yards, and pass eastward of this spot. **Pope Shoal,** with 10 feet over it, lies 300 yards southeastward of Pope Island.

Margies Rock, with 14 feet over it, lies 150 yards from the wharves of Eastport, a little southward of the custom-house. **Pages Rock,** with 16 feet over it, lies about 100 yards from the wharves of Eastport, a little northward of the Eastern Steamship Co.'s wharf.

Buckman Ledge extends 250 yards southward from Buckman Head (southern part of Eastport) and is marked at its end by a buoy (nun, red, No. 2).

1 A. ***Entering through Quoddy Roads and Lubec Narrows.***—These directions are good for vessels of 14 feet draft at high water; strangers of deeper draft should employ a pilot, as local knowledge is necessary to handle a large vessel in the narrow channel with strong tidal currents. The tidal currents in the dredged channel and Lubec Narrows have great velocity, and vessels desiring to pass through from Quoddy Roads should do so on the last of the flood. Vessels bound through the Narrows from Eastport usually pass through at high water slack, which occurs about 1 hour before high water. (See p. 38.)

Passing eastward of Sail Rock whistling buoy, steer 334° true (**N** ½ **W** mag.) for West Quoddy Head bell buoy (black) and pass ¼ mile eastward of Sail Rock and West Quoddy Head

lighthouse. Leave the bell buoy on the port hand and steer 289° true (**NW** ½ **W** mag.) with Middle Ground buoy (nun, red, No. 2) a little on the starboard bow. If the wind and tide are not favorable, anchor about 150 yards southward of Middle Ground buoy in 3½ to 4½ fathoms, soft bottom.

Through Lubec Narrows.—Leave Middle Ground buoy (nun, red, No. 2) about 100 yards on the starboard hand and steer 330° true (**N** ⅞ **W** mag.) for Lubec Channel lighthouse. When about ¼ mile from the lighthouse, leave South End of Dredged Channel buoy (spar, black, No. 1) 75 yards on the port hand, steer 336° true (**N** ⅜ **W** mag.) and leave the lighthouse 75 yards on the port hand. Pass midway between red nun buoy No. 4 and black spar buoy No. 3 and steer about 14° true (**NE** by **N** mag.) for Cranberry Point buoy (nun, red, No. 6), which is left 50 yards on the starboard hand. From this buoy haul northward so as to leave The Gin Bottle buoy (can, black, No. 5) 50 yards on the port hand, and then steer 333° true (**N** ⅝ **W** mag.), heading for the northeast end of the wharves in Lubec until Leadurny Point is a little abaft the port beam. Then steer 341° true (**N** ⅛ **E** mag.) for Popes Folly Island until Lubec Narrows lighthouse is a little forward of the beam. Then pass midway between the lighthouse and the end of the breakwater on the western side on a 355° true (**N** by **E** ⅜ **E** mag.) course and leave black spar buoy No. 7, at the northern end of the dredged channel, about 25 yards on the port hand.

The 355° true (**N** by **E** ⅜ **E** mag.) course can be continued, passing in mid-channel eastward of Popes Folly Island, to a position 50 yards eastward of black can buoy No. 9, off the northeastern end of the island, and from this position a 0° true (**N** by **E** ¾ **E** mag.) course will lead to the wharves of Eastport. Or, after passing black buoy No. 7, vessels can haul sharply northwestward and pass southward of Popes Folly Island, and then pass in mid-channel between it and Dudley Island.

Remarks and dangers.—**Sail Rock** and **Little Sail Rock** are two bare rocks of a group of ledges which lie ¼ mile southeastward from West Quoddy Head lighthouse. Swirls form just southward and eastward of Sail Rock during the strength of the tidal current, and it should be given a good berth. A black whistling buoy is moored ⅝ mile 131° true (**SSE** ⅝ **E** mag.) from West Quoddy Head lighthouse, in line with it and Sail Rock.

Round Rock and **Liberty Point Ledge** lie a little over ¼ mile westward of Liberty Point, the eastern point at the entrance to Quoddy Roads. These rocks show above water, and vessels should pass at least 300 yards southward of the southernmost rock.

Middle Ground, with a least depth of 4 feet, is a shoal in the middle of Quoddy Roads, ⅝ mile northwestward of West Quoddy Head. It is marked on its southwestern side by a buoy (nun, red, No. 2).

Wormell Ledges, partly bare at low water, lie along the southern shore of Quoddy Roads westward of West Quoddy Head. The western edge of these ledges is a little over ¼ mile from the shore and ¼ mile southwestward from Middle Ground buoy (nun, red, No. 2).

Above Middle Ground and Wormell Ledges, Quoddy Roads is full of shoals, largely bare at low water, through which is the buoyed channel to Lubec Narrows.

There are shoals, bare at low water, on both sides of Lubec Narrows. Making off from the northeastern point of Lubec, opposite Lubec Narrows lighthouse, is a dangerous ledge, on the shore end of which is a breakwater which shows out of water; the northern end of this ledge is marked by a buoy (spar, black, No. 7), which also marks the western side of the northern end of the dredged channel.

SAILING DIRECTIONS, ST. CROIX RIVER.

Sailing vessels should not attempt to enter Western Passage except with a favorable tide or a strong fair wind, as no headway can be made against the strong tidal currents.

Give the shore at the northern end of Eastport a berth of about 400 yards, and pass 250 to 300 yards northeastward of Clark Ledge spindle and Dog Island. Then make good the course 329° true (**N** by **W** mag.) for 3 miles and pass 350 yards westward of Clam Cove Head. Then steer 335° true (**N** ½ **W** mag.) for 7 miles to a mid-channel position in the entrance of the river between Liberty Point and Joes Point.

Then steer 341° true (**N** ⅛ **E** mag.) for 2¾ miles to a position ⅜ mile eastward of Middle Ground buoy. Then steer 334° true (**N** ½ **W** mag.) for a little over 1 mile, heading for the end of Sandy Point, until St. Croix River lighthouse is ⅜ mile on the port beam. Then steer 310° true (**NNW** ⅝ **W** mag.) for ⅝ mile, heading for the summit of Devils Head, until about 400 yards off Sandy Point. Then steer 326° true (**N** by **W** ¼ **W** mag.) and pass about ¼ mile northeastward of Devils Head. Good anchorage can be had in the river between Devils Head

and the red buoy southward of Oak Point, taking care, however, to keep St. Croix River lighthouse well open from the shore at Devils Head to clear the shoal on the southern side of the river.

Dangers.—**Clark Ledge,** covered near high water only, lies about 225 yards from the wharves of the northern part of Eastport, and is marked by a black spindle and cask.

Dog Island, small, with grassy top, is about ¼ mile northwestward of Clark Ledge and close to Moose Island. A shelving ledge extends 100 yards off from its high-water mark.

Frost Ledge, showing bare in places near low water, lies on the western side at the northern end of Western Passage, 300 to 600 yards eastward of Frost Island. It is marked at its eastern end by a buoy (spar, black, No. 1).

A shoal extends ⅜ mile northwestward from **Navy Island,** and is marked by a beacon and a red spar buoy, which should be given a berth of 300 yards.

A ledge with 17 feet over it extends 600 yards northwestward from **Joes Point.**

Middle Ground has spots with 3 and 4 feet over them, is ½ mile long, and lies in the middle of the river, ⅝ to 1⅛ miles southward of St. Croix River lighthouse and 400 to 600 yards eastward from Little Dochet Island. The shoal is marked at its southwest end by a buoy (spar, red, No. 0), which is placed to mark the channel westward of the shoal.

Dochet Island is marked by St. Croix River lighthouse. **Half Tide Ledge,** partly bare at half tide, extends nearly ½ mile southward from the island and is marked at its southern end by a buoy (spar, red, No. 2). A ledge with 4 feet over it extends 300 yards eastward from Dochet Island. A ledge, extending 250 yards northward from Dochet Island, is partly bare at half tide and is marked on its northern end by a buoy (spar, red, No. 4).

Sandy Point is a spit on the eastern side, ⅝ mile northward from St. Croix River lighthouse. The spit extends out about 125 yards below high-water mark.

A shoal extends 400 yards southward from **Oak Point,** and is marked on its southern side by a red buoy.

From Devils Head to The Ledge, shoals make out from the southern bank of the river more than halfway across in places. The edge of the shoals is marked by black spar buoys Nos. 5 and 7.

COAST FROM WEST QUODDY HEAD TO MACHIAS BAY.[1]

From West Quoddy Head to Little River, about 14 miles, the coast is, for the most part, high, rocky, covered with trees, and with precipitous faces seaward. It is generally bold-to, and the only outlying dangers are: **Morton Ledge,** with 6 feet of water over it, lying about ⅜ mile offshore, 2¼ miles southwestward from West Quoddy Head lighthouse, and marked by a buoy (nun, red, No. 2). There is a 13-foot spot ¼ mile southwestward from Long Point, about 2 miles eastward of Little River lighthouse.

The shore is broken by the following unimportant coves, named from eastward with their distances in miles from West Quoddy Head lighthouse: Carrying Place Cove, 1¼; Wallace Cove, 1¾; Hamilton Cove, 3; Julia Cove, 3¼; Boot Cove, 4; Baileys Mistake, 5½; Haycock Harbor, 6¼; Sandy Cove, 6½; Moose Cove, 7¾; Bog Brook, 9½; Black Point Cove, 11¾; Long Point Cove, 12¼; and Schooner Brook, 13¾. The largest of these are Baileys Mistake and Moose Cove. When passing along outside, both of these will appear to be good, open anchorages, but neither has good holding ground, nor can they be used as a harbor of refuge. Both have ledges, not buoyed, at their entrances, and afford shelter only from northerly winds. **Bailey Ledge** lies off the western side of the entrance to Baileys Mistake, and **Eastern Head Ledges** off the eastern side of the entrance to Moose Cove; both are dangerous and are unmarked except at low water.

Little River is described under a separate heading following.

Little Machias Bay, about 2½ miles westward of Little River, is not used for an anchorage, as it is exposed to southerly and southeasterly winds, and is close to Little River and Machias Bay, both excellent anchorages. The bay is ⅝ mile wide at the entrance and wider inside, and about 2 miles long. **Long Ledge,** in the middle of the bay 1 mile inside the entrance, is covered at high water. Above this ledge the bay is much obstructed by ledges and shoals. There are some houses on the shores of the bay.

Old Man, a small but prominent rocky island lying 1 mile off the entrance of Little Machias Bay, is a good mark and may be safely approached as close as 400 yards.

Black Ledges are bare islets in the middle of the entrance of Little Machias Bay; there is deep water close-to on both sides.

LITTLE RIVER.[2]

This harbor is 14 miles westward of West Quoddy Head and about 9½ miles eastward of Libby Islands; the entrance is marked by **Little River lighthouse** on Little River Island. It is a small but excellent harbor of refuge, sheltered from all winds, has 12 to 30 feet of water with good holding ground, and is easy of access. The channel leads

[1] Shown in parts on charts **101, 102,** scale $\frac{1}{80,000}$, price of each $0.50; **301, 303,** scale $\frac{1}{40,000}$, price of each $0.25.

[2] Shown on chart **303,** scale $\frac{1}{40,000}$, price $0.25.

northward of the lighthouse and has a depth of 6 fathoms. The anchorage is about ½ mile long and ¼ mile wide, just inside of Little River Island.

Cutler, the village on the north side of the harbor, has communication by telephone and stage with East Machias. There is a fish wharf with a depth of about 10 feet at its end. A pilot can usually be found here to take vessels eastward or westward. The harbor is never obstructed by ice so as to prevent vessels entering.

GENERAL DIRECTIONS, LITTLE RIVER.

Approaching from westward Little River lighthouse will not be seen until it bears about 0° true (*N* by *E* ¾ *E* mag.). Approaching the entrance keep the lighthouse bearing between 307° true (*NW* by *N* mag.) and 251° true (*W* mag.). Pass about ¼ mile eastward and 300 yards northward of the lighthouse, and then steer 267° true (**WNW** ½ **W** mag.), in mid-channel northward of Little River Island, and leave Little River Ledge buoy on the starboard hand. Anchor in 12 to 30 feet of water anywhere northwestward of Little River Island.

Remarks and dangers.—A whistling buoy is moored 1 mile 111° true (**SE** ⅜ **E** mag.) from Little River lighthouse. A rock with 13 feet over it lies ¼ mile southwestward from Long Point, about 2 miles eastward of Little River lighthouse.

The eastern end of Little River Island should not be approached closer than 150 yards. The passage on the southwest side of the island has a depth of about 10 feet, but it is narrow and rocky and strangers should not attempt it.

Little River Ledge, bare at low water, lies 100 yards from the north shore just inside the entrance, and is marked by a buoy (spar, red, No. 2). A ledge extends 110 yards from the south shore just eastward of a prominent point ½ mile above Little River Island. With these exceptions there are no dangers in the harbor if the shores be given a berth of 100 yards.

MACHIAS BAY AND RIVER.[1]

This bay is easily entered either day or night, and affords well sheltered anchorage for the largest vessels. It is about 6 miles long, and the main entrance between Cross Island on the east and Stone Island on the west is a little over 2 miles wide. The principal guide to the entrance is Libby Islands lighthouse, which lies 9 miles westward of Little River lighthouse and 9 miles eastward from Moose Peak lighthouse. Avery Rock lighthouse, in the middle of the bay 4 miles from the entrance, is the guide for vessels bound up the bay. The best anchorages are Starboard Cove and the head of the bay above Avery Rock lighthouse.

Cross Island Narrows is a channel leading into Machias Bay east of Cross Island. This passage is much obstructed by rocks, sunken or awash at various stages of the tide, and should not be used by vessels without local knowledge. Small craft can go through the narrows by the following directions:

Pass on either side of Old Man at a distance of 300 to 500 yards, and then bring it astern on a 277° true (**NW** by **W** ¾ **W** mag.) course, heading for Thornton Point Ledge spindle. Pass 75 yards southward of the spindle and steer 277° true (**NW** by **W** ¾ **W** mag.) for black spar buoy No. 1 and pass close northward of it. Give the point on the northeast side a berth of 200 yards and steer 313° true (**NNW** ½ **W** mag.) for the middle of Chance Island with the summit of Mink Island astern, and pass 300 yards northeastward of the bare rock off Quaker Head. **Dog Fish Rocks** are bare at low water only.

North West Harbor, a bight in the north shore of Cross Island near its western end, has from 4 to 9 fathoms of water, but is little used as an anchorage.

Foster Channel is a narrow passage, marked by two buoys between Foster Island and Ram Island, and leads from Englishman Bay to the western entrance of Machias Bay. It has a depth of 19 feet and can be used by vessels up to 15 feet draft when the buoys can be seen. Red spar buoy No. 2, at the eastern end of the passage, lies 1¼ miles 305° true (**NW** ¾ **N** mag.) from Libby Islands lighthouse. To go through the passage from eastward, pass 100 yards southward of buoy No. 2, steer 279° true (**NW** by **W** ½ **W** mag.), and pass 25 yards northward of black spar buoy No. 1.

Starboard Cove, on the western side of the bay 2½ miles northward of Libby Islands lighthouse, is formed on the south by Starboard Island and a bar, bare at half tide, connecting it with the shore. It is an excellent anchorage with 15 to 24 feet of water, and is much frequented by coasting vessels making an anchorage for the night if bound through Moosabec Reach. A good berth is in the middle of the cove with the north end of Starboard Island in line with the south end of Stone Island, in 18 to 21 feet. Small vessels can anchor closer to the bar, taking care, however, not to shut out the north end of Stone Island by the north end of Starboard Island.

Starboard Cove is entered eastward of Starboard Island, passing on either side of Stone Island. Approaching from westward, bring Libby Islands lighthouse astern on a 344° true (**N** ¼ **E** mag.) course, and pass 250 yards westward of Stone Island and the same distance eastward of Starboard Island.

[1] Shown on charts **102**, scale $\frac{1}{80,000}$, price $0.50; **303**, and in part on **304**, scale $\frac{1}{40,000}$, price of each $0.25.

Howard Bay, northward of Starboard Cove, is exposed to southeast winds, the holding ground is poor, and it is not a good anchorage.

Buck Harbor is a shallow cove in the west shore of the bay inside of Bar Island, and 4 miles northward of Libby Islands lighthouse; a small village of the same name is located on the shore of this harbor. Small vessels can anchor 200 yards off the southern side of Bar Island in 8 to 15 feet of water.

Larrabee Cove, largely dry at low water, and **Indian Cove** are small coves in the west shore of the bay, northwest from Avery Rock lighthouse; these coves are of no importance, but good anchorage for vessels of 8 feet draft will be found on the flats between Salt Island and Bare Island, near their entrances.

Holmes Bay, a large bight in the northeastern part of Machias Bay and east of Hog Island, is so shallow that it can not be used as an anchorage.

Machias River empties into the northwestern part of the bay; it has a narrow, winding channel, marked by buoys at the turns, leading through flats which are mostly bare at low water. The least depth in the channel up to the town of Machiasport is 19 feet. A little below the town of Machias it shoals to 4 and 5 feet at low water. Machias is at the head of navigation, and about 6½ miles above the mouth of the river. Although the river is buoyed as far as Machiasport, it is advisable for strangers to take a pilot or towboat.

Machiasport is on the west bank of the river, about 2¾ miles above its entrance; it has telephonic communication with Machias. Vessels of 18 feet draft have been taken up to the town, but the usual draft is 11 feet. There is 6 to 7 feet of water alongside the wharves.

East Machias River is a narrow, shallow stream emptying into the Machias River from northward, 1 mile above Machiasport. **East Machias** is a village about 2½ miles above Machiasport on the East Machias River. The deepest draft entering here is 12 feet.

Machias is a town about 3¾ miles above Machiasport on the Machias River. The deepest draft going to Machias is 14 feet. It has railroad and telegraphic communication, and ships considerable lumber in small coasting vessels.

Towboats.—Vessels requiring a tug should take one off Round Island. If not found there, they will come from Machiasport when ordered.

Supplies.—Provisions and some ship chandler's stores can be obtained at Machias.

Repairs.—There are shipyards at Machias and Machiasport where wooden vessels are built.

Storm warning displays of the United States Weather Bureau are made at Machiasport.

Marine hospital.—Relief is furnished under the provisions of the regulations for the United States Public Health and Marine-Hospital Service as for stations of Class III. (See Appendix IV.)

Ice.—In severe winters Machias River is closed to navigation, and drift ice will sometimes fill the bay above Avery Rock. In ordinary winters the bay and river are open to Machiasport.

The currents follow the general direction of the channel and are not strong except in the river.

For tides see table, page 24.

SAILING DIRECTIONS, MACHIAS BAY.

1. ***Entering from eastward.***—Steer for Libby Islands lighthouse on any bearing northward of 251° true (**W** mag.), and when Avery Rock lighthouse is open from the western end of Cross Island, bearing 341° true (*N* mag.), shape the course to pass about ½ mile eastward of the northern end of Libby Islands. Bring Avery Rock lighthouse to bear 356° true (**N** by **E** ⅜ **E** mag.) and steer for it on that bearing. Pass westward of the lighthouse, giving it a berth of over 200 yards, and steer 352° true (**N** by **E** mag.) for the eastern end of Round Island. Anchor anywhere between Avery Rock and Round Island, or eastward or northeastward of the latter at a distance not greater than ½ mile, in 5 to 7 fathoms.

Bound up the Machias River.—Strangers are advised to take a pilot or towboat. If without either, the best time to go up the river is at low water, when the flats are bare and the edge of the channel fairly well defined.

To anchor in Starboard Cove.—Passing about ½ mile northeastward of Libby Islands, steer about 313° true (**NNW** ½ **W** mag.) and give the northeastern end of Stone Island a berth of over 200 yards. A 281° true (**NW** by **W** ⅜ **W** mag.) course will then lead northward of Starboard Island into the cove.

Dangers.—There are no dangers in approaching from eastward. **Libby Islands** are bold and may be approached as close as 300 yards, except on their southeast side and southwest end, where they should be given a berth of ¼ mile. A number of vessels have been lost on the eastern side of Libby Islands in thick weather.

Cross Island Ledge makes out nearly ½ mile westward from the southwest end of Cross Island. A buoy (nun, red, No. 2) lies about ¼ mile southward from this ledge and should be left well on the starboard hand in entering the bay.

Broken ground extends ⅜ mile southeastward and ½ mile eastward from Howard Point, on the western shore 1 mile northward of Stone Island. **Seashore Ledge**, with 4 feet over it, is near the eastern end of this broken ground, and lies ¼ mile eastward of a rock bare at low water. A buoy (spar, black, No. 1) is placed off the eastern side of Seashore Ledge.

Shoals make out ¼ to ½ mile westward from Sprague Neck, leaving a channel eastward of Avery Rock ⅜ mile wide, with a depth of 24 feet or more.

1 A. ***Entering from westward.***—Steer for Libby Islands lighthouse on any bearing northward of 57° true (**ENE** ¾ **E** mag.) and pass ¼ to ½ mile northwest of the lighthouse. Then steer 29° true (**NE** ¼ **E** mag.) until Avery Rock lighthouse bears 356° true (**N** by **E** ⅜ **E** mag.). Then steer for the latter on that bearing, pass westward of it, giving it a berth of over 200 yards, and steer 352° true (**N** by **E** mag.) for the eastern end of Round Island. Anchor anywhere between Avery Rock and Round Island, or eastward or northeastward of the latter at a distance not greater than ½ mile, in 5 to 7 fathoms.

To anchor in Starboard Cove.—Vessels may follow the directions in the preceding paragraph until up with Stone Island. Then pass eastward of Stone Island Ledge and round the northeast end of Stone Island at a distance of over 200 yards. A 281° true (**NW** by **W** ⅜ **W** mag.) course will then lead northward of Starboard Island into the cove.

Or, when up with Libby Islands lighthouse, bring it astern on a 344° true (**N** ¼ **E** mag.) course, and pass 250 yards westward of Stone Island and the same distance eastward of Starboard Island.

Dangers.—The dangers off Englishman Bay between Mark Island and The Brothers are described on page 28.

Starboard Island Ledge, with 7 to 18 feet over it, lies nearly ½ mile eastward of Foster Island and ½ mile southwestward from the southern end of Stone Island, and is marked by a buoy (spar, red and black horizontal stripes).

Stone Island Ledge, showing bare at low water and marked by a spindle, lies 320 yards eastward from the middle of the island. An 8-foot spot lies nearly 300 yards southwestward from the spindle.

LITTLE KENNEBEC BAY[1]

is an anchorage westward of Machias Bay and makes northward from the eastern part of Englishman Bay; it is of no commercial importance, and is frequented mostly by fishermen. There is good anchorage in 12 to 40 feet of water, soft bottom, and well sheltered, inside of Sea Wall Point, but it is seldom used, being so near Machias Bay and Starboard Cove, which are much easier of access and better anchorages.

SAILING DIRECTIONS, LITTLE KENNEBEC BAY.

From eastward.—Having come through Foster Channel as directed on page 46, when about 200 yards northwestward of black spar buoy No. 1 steer 314° true (**NNW** ½ **W** mag.) and pass 200 yards northeastward of the northeast end of Shag Ledge (this end of the ledge shows except at the top of high water). Then steer 332° true (**N** ¾ **W** mag.) with the northeast end of Shag Ledge in range with the northeast end of Scabby Islands astern, which leads 300 yards westward of Pierson Ledge and 400 yards eastward of Hickey Island.

Then pass about 200 yards eastward of Fan Island on an 8° true (**NNE** ⅜ **E** mag.) course to a mid-channel position in the entrance eastward of Sea Wall Point. Then steer 327° true (**N** by **W** ¼ **W** mag.) up the bay, favoring if anything the eastern shore and heading to pass 200 to 300 yards eastward of Hope Island. Anchor anywhere on this course between Sea Wall Point and Hope Island, in 3½ to 7 fathoms. Above Hope Island the channels are narrow and lead between flats that are not marked.

From westward.—Follow the directions in section 1 A for entering Englishman Bay until northeastward of Halifax Island. Then steer 28° true (**NE** ⅛ **E** mag.) on the range of Pulpit Rock touching the eastern end of Halifax Island astern, which leads ¼ mile westward of Cod Head Ledge and Hickey Island, the eastern end of Fan Island, will be ahead. Pass 200 yards eastward of Fan Island and enter the bay as directed in the preceding paragraph.

[1] Shown on charts **102**, scale $\frac{1}{80,000}$, price $0.50; **303,304**, scale $\frac{1}{40,000}$, price of each $0.25.

Vessels can enter between Scabby Islands and Ram Island, taking care to avoid a rock with 17 feet over it lying midway between their south ends; or can enter on the west side of Scabby Islands, taking care to avoid Scabby Island Ledge. Then stand northward and pass eastward of Shag Ledge as directed in the first paragraph.

Dangers.—Scabby Island Ledge and Cod Head Ledge are described on page 46.

Shag Ledge is about ¼ mile in diameter, and has a low islet on its western end. The northeast end of the ledge is covered only at high water. The ledge shelves off 300 yards southward of the islet, and has 13 feet over its southern end.

Pierson Ledge is a rock bare at low water, and lies 600 yards northeastward from Shag Ledge and 350 yards from shore. Above Pierson Ledge the eastern shore is free from outlying dangers until inside Sea Wall Point.

A rock awash at low water lies 250 yards eastward from **Hickey Island,** and a sunken rock lies the same distance northward of the island.

A shoal with 12 feet at its end extends 350 yards eastward from **Sea Wall Point** (⅜ mile northward of Fan Island). Between Sea Wall Point and **Hope Island** (wooded and prominent) shoals with 8 to 10 feet on them extend about 350 yards from the western shore.

A rock bare at low water lies 250 yards off the point on the east side ¼ mile above Sea Wall Point. A similar rock lies 200 yards off **Yoho Head,** opposite Hope Island.

ENGLISHMAN BAY AND CHANDLER BAY[1]

form a large bight in the coast between Libby Islands and Head Harbor Island, with Roque Island and numerous smaller islands in the middle. The bays unite northward of Roque Island and form a good anchorage with depths of 3¼ to 6 fathoms, good holding ground.

Englishman Bay, eastward of Roque Island, has numerous unmarked dangers before reaching the anchorage northward of Roque Island, but the channel is broad and easily followed in the daytime in clear weather. The principal entrance to the bay from eastward is between Scabby Islands on the east and The Brothers on the west, and affords a straight course to Shoppee Island, above which is the anchorage. The bay may be entered from Machias Bay through Foster Channel. Vessels from westward, bound to the anchorage at the head of Englishman Bay or to Chandler River, usually pass through Chandler Bay.

Roque Bluff is a post village on and eastward of Shoppee Point on the northeast side of Englishman Bay. There is a landing on the point southeastward of Pond Cove Island.

Roque Island Harbor is formed on the north and west by Roque Island, and on the south by Great Spruce Island and the islands extending eastward to Halifax Island. It affords shelter from all winds, but is used only by small local vessels. The holding ground is not good except in spots, the entrances to the harbor are generally foul, and it should be avoided by strangers. **Thoroughfare** is a narrow crooked channel with a depth of 9 feet leading into the harbor from Chandler Bay. The best entrance is from eastward passing north of Halifax Island.

To enter, pass ⅜ mile northward of Halifax Island on a 253° true (**W** ⅛ **N** mag.) course heading for the south end of Lakeman Island until Halifax Island is passed, and then keep near the middle of the harbor. Or, coming from northward in Englishman Bay, steer 149° true (**S** by **E** ⅛ **E** mag.), with the western side of Shoppee Island in range with the western side of Pond Cove Island astern, which leads clear between unmarked spots in Englishman Bay to the entrance of the harbor. The best anchorage is in the western or northwestern part of the harbor where the bottom is soft.

The principal dangers in Roque Island Harbor are a spot with 8 feet on it lying ¼ mile off the middle of the north side of Great Spruce Island; and **Seal Ledge,** bare at low water, lying 300 yards westward from the southern point at the eastern end of Roque Island.

Shorey Cove is a bight, with 8 to 13 feet of water, in the north shore of Roque Island; it is a good anchorage for small vessels, but is little used. There are no dangers if the southern and western shores of the cove be given a berth of over 300 yards.

Pond Cove, on the northeast side of Englishman Bay above Shoppee Point, has excellent anchorage westward or northwestward of Pond Cove Island, at a distance not greater than ½ mile, in 12 to 18 feet, soft bottom. The entrance is westward of Pond Cove Island, between it and Little Ram Island, and is clear with the exception of a rock bare at low water lying 300 yards northeastward of Little Ram Island. The part of the cove northward of Pond Cove Island is shoal.

Chandler Bay is on the west side of Roque Island, and extends northward from Mark Island to **Squire Point,** the northwestern point of Roque Island, where it joins Englishman Bay. A good channel leads eastward of Ballast Island and around Squire Point into Englishman Bay and Chandler River. The principal dangers in this channel are buoyed,

[1] Shown on charts **102,** scale $\frac{1}{80,000}$, price $0.50; **304,** scale $\frac{1}{40,000}$, price $0.25.

and it can be readily followed in the daytime in clear weather. This bay is the approach from westward to Chandler River and the anchorage in Englishman Bay, and is the one generally used by strangers. There is no anchorage in the bay until north of Roque Island. Vessels of 21 feet draft can safely pass up the bay, but the anchorage for vessels of this draft is limited to ½ mile square or less.

Mason Bay, a shallow unimportant body of water, makes westward on the western side of the mouth of Chandler River.

Chandler River, at the head of Englishman Bay, is very narrow and crooked to **Jonesboro,** a village at the head of navigation, about 3½ miles above its mouth. Strangers should not attempt to enter without a pilot. Vessels of 10 feet draft go up to it at high water; 12 feet is the deepest draft entering the river. Provisions can be obtained at Jonesboro. Ice closes the river to its mouth from December to April.

SAILING DIRECTIONS, ENGLISHMAN BAY.

The following directions are good for a draft of 17 feet or less.

1. ***From eastward.***—Passing ½ to ¾ mile southward of Libby Islands lighthouse steer 273° true (**WNW** mag.) for 2 miles heading for the black bell buoy northward of The Brothers. Then pass about midway between The Brothers and Scabby Islands, and steer 307° true (**NW** by **N** mag.) for Shoppee Island until nearly up to it. Pass westward of Shoppee Island at a distance of about 300 yards, and select anchorage above it or in Pond or Shorey Coves.

From Machias Bay through Foster Channel.—This channel may be used, when the buoys can be seen, by vessels drawing not over 15 feet.

Steer 304° true (**NW** ¾ **N** mag.) with Libby Islands lighthouse astern, or steer 260° true (**W** ¾ **N** mag.) with the north end of Libby Islands astern; either course will lead for red spar buoy No. 2 at the eastern entrance of Foster Channel. Pass 100 yards southward of buoy No. 2, steer 279° true (**NW** by **W** ½ **W** mag.), and pass 25 yards northward of black spar buoy No. 1.

Then steer 273° true (**WNW** mag.) for 2 miles until Pulpit Rock is in range with the eastern end of Halifax Island. Then steer 297° true (**NW** ⅛ **N** mag.) with the southern end of Scabby Islands astern, pass about 300 yards southwestward of Shoppee Island, and select anchorage above it or in Pond or Shorey Coves.

Remarks and dangers.—The Brothers and **Scabby Islands** are rugged and have grass on top, but no trees. **Scabby Island Ledge,** awash at low water, lies 250 yards southwestward from the southern end of Scabby Islands.

There are a succession of unmarked shoal spots, with 10 to 16 feet over them, extending from Halifax Island to Great Head and lying about ½ mile off the northeast side of Roque Island. The range of the eastern end of The Brothers kept well open from the eastern end of Halifax Island leads eastward of them. A reef, on the outer part of which are rocks bare at low water only, extends ½ mile from **Roque Island** in a 48° true (**ENE** mag.) direction to within ⅜ mile from the northern part of Shoppee Island.

Shoppee Island is flat, with straggling trees. There is a village on and eastward of Shoppee Point, northward of the island.

Ledges, partly bare at low water, extend 400 yards eastward and the same distance southward from **Foster Island.** The southern end of the ledges is marked by a buoy (spar, red, No. 2), which also marks the eastern entrance of Foster Channel.

A sunken ledge extends nearly ¼ mile northward from **Ram Island,** and is marked at its northern end by a buoy (spar, black, No. 1), which also marks the western entrance of Foster Channel.

Shag Ledge is described on page 45. A rock with 5 feet over it lies midway between Shag and Cod Head Ledges.

Cod Head Ledge is awash at low water, and lies ⅞ mile westward of Shag Ledge and a little over 1 mile northeastward of Halifax Island. The range of Pulpit Rock touching the eastern end of Halifax Island leads ¼ mile westward of it. The north end of Libby Islands in range with the south end of Foster Island leads 400 yards southward of Cod Head Ledge and 250 yards southward of Shag Ledge.

1 A. ***From westward.***—Keep Libby Islands lighthouse bearing northward of 57° true (**ENE** ¾ **E** mag.) and pass about 1 mile southward of The Brothers to avoid the dangers between The Brothers and Head Harbor Island. (See p. 28.) Then pass between The Brothers and Scabby Islands as directed in section 1.

From Moosabec Reach.—Pass 75 yards northward of Gilchrist Rock buoy (can, black, No. 1), steer 69° true (**E** ⅛ **N** mag.), and pass 200 yards northward of Pulpit Rock. Then

bring the rock astern on a 43° true (**NE** by **E** ½ **E** mag.) course and pass ⅜ mile southeastward of Halifax Island. Give the northeastern side of Halifax Island a berth of ¼ mile or more, and steer for Shoppee Island, course about 307° true (**NW** by **N** mag.), until nearly up to it. Pass westward of Shoppee Island at a distance of about 300 yards, and select anchorage above it or in Pond or Shorey Coves.

Dangers.—**Great Spruce Ledges** lie close to the south side of Great Spruce Island; the southernmost rock lies 300 yards from shore and is covered at high water.

A rock, covered well at high water, lies 350 yards southward of **Double Shot Island**. **Shag Rock**, lying ¼ mile eastward of Double Shot Island, is high and bare.

A rock bare at low water lies 350 yards southeastward from the southeast end of **Halifax Island**. The island is high and rugged and has some stunted trees on its eastern part. The bottom is uneven between Halifax and Green Islands, and this passage should not be used by vessels of over 17 feet draft; a depth of 23 feet lies ⅜ mile southeastward of Halifax Island, and 19 feet 600 yards northeastward of Green Island.

SAILING DIRECTIONS, CHANDLER BAY.

The directions on page 28 for approaching Moosabec Reach from eastward or southeastward will lead northward of Mark Island in the entrance of the bay. A 259° true (**W** ⅝ **N** mag.) course with the north side of Pulpit Rock in range with the north side of The Brothers astern will lead clear southward of Great and Little Spruce Ledges and into the bay.

Bring the western end of Mark Island astern on a 348° true (**N** ⅝ **E** mag.) course, and pass about 250 yards eastward of the black buoy eastward of Ballast Island and the same distance westward of Roque Island Ledge buoy (spar, red, No. 2). From this buoy steer 38° true (**NE** by **E** mag.) for Little Ram Island and pass about 250 yards southeastward of Great Bar buoy. Select anchorage anywhere northward of Roque Island or in Pond or Shorey Coves, taking care to avoid the shoal on the western side northward of Great Bar.

Dangers.—A rock with 17 feet on it lies a little over ¾ mile southeastward of Ballast Island and ⅝ mile from Little Spruce Island.

Little Spruce Ledge, lying 400 yards off the southwest side of Little Spruce Island, is partly bare at low water.

Ballast Island is grassy and lies near the middle of Chandler Bay. Ledges extend 250 yards southward and eastward and nearly 400 yards northwestward from the island. The eastern end of the ledges is marked by a black spar buoy.

Roque Island Ledge has 13 to 18 feet on its outer part and extends ⅜ mile westward from Roque Island, ⅜ mile southward from its northwest end. The western end of the ledge is marked by a buoy (spar, red, No. 2).

Great Bar, mostly bare at low water, is a part of the shoals which extend ½ to ¾ mile off the western shore northward of Roque Island. Its southeastern edge is marked by a buoy (spar, black, No. 7). The range of **Little Mark Island** (single tree) and the eastern side of the mouth of Chandler River, bearing 357° true (**N** by **E** ⅜ **E** mag.), leads well eastward of the shoals.

COAST BETWEEN CHANDLER BAY AND PLEASANT BAY.[1]

Lying between Chandler Bay and Pleasant Bay and extending about 5 miles southward from Moosabec Reach is a group of islands, which, though of no commercial importance, form several prominent landmarks for vessels passing along the coast. The passages between these islands lead to several small and sheltered anchorages, of which Mistake Harbor is the only one available for strangers on account of numerous unmarked rocks and ledges.

Head Harbor is between Head Harbor Island, the easternmost of the group, and Steel Harbor Island, and is a sheltered anchorage with depths of 15 to 21 feet. The harbor is small and has unmarked rocks bare at low water on both sides of the entrance and anchorage. Strangers should not enter without a pilot. A peculiarity of the entrance to Head Harbor is that the rocks of Man Island, the eastern side of the entrance, are dark, and those on the western side are light in color.

Mistake Harbor, on the northwest side of Steel Harbor Island, is small, but affords a secure anchorage with depths of 4 to 7 fathoms. It is entered from southward through the Main Channel Way, a deep but narrow channel leading between Steel Harbor Island on the east and Mistake and Knight Islands on the west. Moose Peak lighthouse, on the southeast end of Mistake Island, marks the western point at the entrance. With care the harbor may also be entered through Mud Hole Channel; vessels delayed by a head wind in Mistake Harbor sometimes beat out through the Mud Hole Channel.

[1] Shown on charts **102**, scale $\frac{1}{80,000}$, price $0.50; **304**, scale $\frac{1}{40,000}$, price $0.25.

Eastern Bay lies between Head Harbor and Great Wass Islands northward of Mistake Harbor; a thorough local knowledge is required for its navigation.

Mud Hole Channel is ½ mile westward of Moose Peak lighthouse and leads northwestward to the Mud Hole, a narrow cove in Great Wass Island used by boats which enter at high water and lie aground at low water. There is good anchorage for a small vessel at the entrance to Sand Cove and Mud Hole, in 14 to 30 feet, soft bottom.

On the southwest side of Mud Hole Channel and extending nearly 1 mile in a southeasterly direction from Little Cape Point, Great Wass Island, is a group of rocks and ledges called **Black Ledges**, many of which are bare at half tide. **Channel Rock**, the southeasternmost of the Black Ledges, is awash at high water and lies 600 yards northeastward of Freeman Rock, a bare rock about 40 feet high.

Western Bay, lying westward of Great Wass Island, has numerous groups of islands which lie generally in a north and south direction. Between the groups are passages that lead to the western end of Moosabec Reach and are used by vessels with local knowledge.

The passage between Great Wass Island and Crumple Island has numerous unmarked sunken rocks and is also obstructed by a line of ledges and rocks extending from Browney Island to Great Wass Island. There is a narrow channel with a depth of about 11 feet through these ledges, and is marked by Popplestone Ledge buoy (spar, red, No. 2). This passage should not be used by a stranger.

Crumple Island is a high, bare, rocky island with several nubbles; on its summit is a flagstaff and lookout house. Fisherman and Browney Islands lie northwestward of Crumple Island, with rocks and ledges between. **Egg Rock**, a bare, rocky islet, lies 1½ miles westward of Crumple Island, with numerous rocks and ledges between. **Western Egg Rock** is a small, bare, rocky islet about ½ mile northward of Egg Rock. **Sea Horse Rock** is bare at half tide and lies ⅜ mile westward of Egg Rock.

The passage between Sea Horse Rock, Western Egg Rock, and Ram Island on the east and the Sand and Drisco Islands on the west has a broad channel in its southern part, although there are unmarked dangers on either side. The northern end of the passage, on either side of Hardwood Island, is foul, and the passage should not be used by strangers.

The passage westward of the Sand and Drisco Islands and Shabbit Island and eastward of Black Rock, Flat Island, and Plummer Island is comparatively clear. There is also a comparatively clear passage westward of Black Rock, Flat Island, and Green Island and eastward of Cone Island. Both passages can be used by vessels in the daytime and clear weather with the assistance of the chart.

Sand and **Outer Sand Islands** are partly wooded. The **Drisco Islands**, **Stevens**, **Shabbit**, **Plummer**, and **Ram Islands** are wooded. **Flat**, **Green**, **Cone**, and **Nash Islands** are comparatively low and covered with grass, and Nash Island is marked by a lighthouse. The highest parts of **Stanley Ledge** (¼ mile southward of Outer Sand Island) and **Batson Ledge** (⅜ mile eastward of Sand Island) show above high water. **Black Rock** is a low, bare rock lying 1¼ miles 188° true (**SSW** ⅜ **W** mag.) from Flat Island and 2⅛ miles 137° true (**SSE** ¼ **E** mag.) from Nash Island lighthouse.

SAILING DIRECTIONS, MISTAKE HARBOR.

Give the south end of Steel Harbor Island a berth of about ¼ mile when southeastward of it, and enter in mid-channel, about 400 yards eastward of Moose Peak lighthouse, on a 301° true (**NW** ½ **N** mag.) course. When through the narrowest part of the channel select anchorage between the northwest end of Knight Island and the black spar buoy (No. 1) ½ mile northwestward of it, in 4 to 7 fathoms.

To leave by Mud Hole Channel.—From Mistake Harbor steer 287° true (**NW** ¾ **W** mag.) for the southwest side of Minx Island in range with the high bluff on the south side of Sand Cove North, and pass about midway between the outer bare rock northeastward of Green Island and buoy No. 1. Pass 200 to 400 yards southeastward of Minx Island, and steer 181° true (**S** by **W** ¾ **W** mag.), with eastern end of Minx Island in range with the northwestern end of Head Harbor Island astern. When the outer bare rock northwestward of Green Island is abaft the beam, steer 123° true (**SE** ½ **S** mag.), pass about ¼ mile southwestward of the outer bare rock northwestward of Green Island, and pass about midway between Water Island and Channel Rock to sea.

Remarks and dangers.—A shelving ledge, with 24 feet over its end, extends 300 yards southeastward from the south end of Steel Harbor Island. **Main Channel Way** leads between Steel Harbor and Knight Islands, and has a least width of 200 yards and a depth of 13 fathoms or more; both shores of the passage are bold.

Green Island is the largest of the islets and rocks extending northwestward from Knight Island. The northernmost rock of the group is bare at low water, and lies 350 yards northward of Green Island and 200 yards northwestward of the outer bare rocks northeastward of the island. The northwestern end of the group is two sunken rocks with 4 feet over them, which lie 300 yards northwestward from the outer bare rock lying 300 yards northwestward of the island.

A rock bare at low water only lies ½ mile northwestward of Knight Island and is marked at its southeast end by a buoy (spar, black, No. 1). About 400 yards northward of buoy No. 1 is a black spar buoy No. 3, which is placed off the eastern end of a reef, bare at low water, which extends 300 yards southeastward from **Calf Island.**

The principal dangers on the northeast side of **Mud Hole Channel** are a rock, bare at low water, lying 150 yards off the southwest side of the island on the northeast side, at the entrance, and a sunken rock lying 350 yards westward of Green Island and 250 yards southward from the bare rock northwestward of the island.

Black Ledges, some of which show at all times, lie on the southwest side of Mud Hole Channel. **Channel Rock**, at the southeast end of the ledges, is awash at high water. The northernmost rock of the ledges is covered near high water and lies ⅜ mile eastward from Little Cape Point, Great Wass Island.

MOOSABEC REACH [1]

is the narrow passage west of Chandler Bay, leading between the mainland on the north and the group of islands between Chandler Bay and Pleasant Bay on the south. Mark Island, heavily wooded, is the prominent guide to the eastern entrance and Nash Island lighthouse to the western entrance. This passage is an important thoroughfare and is much used by vessels of 12 feet or less draft in the daytime; a draft of 23 feet can be taken through at high water. Sailing vessels of over 12 feet draft are advised to take a pilot. The eastern entrance has been straightened and dredged to a width of 300 feet and a depth of 14 feet; it is well buoyed and can readily be followed in the daytime in clear weather, but no vessel should attempt to pass through at night. Pilots can be had at the eastern entrance by sending to Kelley Point, and at the western entrance by sending to either Cape Split Harbor or Tabbott Narrows. The channel westward of the dredged channel has a least width of 300 yards in several places before reaching Tabbott Narrows, but it is straight, and the most prominent dangers are marked by buoys or spindles. Vessels headed off by the wind or caught in a fog while passing through the Reach, anchor anywhere in the channel where the bottom is soft.

Jonesport is a village on the north shore about 1¾ miles westward of Kelley Point. There is communication by telephone with Columbia Falls, the nearest point on the railroad, and a steamer occasionally stops at Jonesport. The depth at the end of the steamboat wharf is about 15 feet at low water; most of the other wharves run dry. Pilots for the adjacent waters can generally be found by inquiry at Jonesport.

Cape Split Harbor, lying 2 miles 20° true (**NE** ⅝ **N** mag.) from Nash Island lighthouse, is a secure anchorage for small vessels and with the aid of the buoys is easily entered in the daytime. The harbor has extensive flats and ledges, between which is a channel 200 yards or more wide. The anchorage with best swinging room is ⅜ to ½ mile inside the entrance, from abreast buoy No. 4 to just above buoy No. 3, in 3 to 4 fathoms; and vessels of less than 9 feet draft can anchor in the entrance of the cove on the eastern side opposite buoy No. 3, in 9 to 15 feet. The flats are soft mud in places, and small vessels are sometimes beached on them. A reef, which shows well at low water, extends 400 yards southward and southwestward from the eastern point at the entrance and is marked on its western side by red spar buoy No. 2.

The approach to Cape Split Harbor between Sheep Island and The Ladle is clear if these islands be given a berth of over 300 yards. From westward the approach is clear between the spindle southward of Norton Island and the Pot Rocks. Enter the harbor midway between the red and black buoys at the entrance on a 12° true (**NNE** ¾ **E** mag.) course.

Ice during January and February obstructs navigation in Moosabec Reach.

Tides.—The mean rise and fall of tides at Jonesport is 11.5 feet (see table, page 24).

The tidal currents have considerable velocity in the dredged channel, particularly at the beacon on the stone jetty which extends northwestward from Nova Rocks.

Sailing directions for Moosabec Reach are given on page 28.

PLEASANT BAY AND RIVER.[2]

Pleasant Bay is a secure anchorage and is easily entered in the daytime. It is about 4 miles long in a 0° true (N by E ⅝ E mag.) direction from Flint Island to the mouth of Pleasant River, and is 1 to 2 miles wide. There are numerous islands and ledges in the bay, but the important dangers are marked by buoys. The entrance is marked by Nash Island lighthouse. A channel in no place less than ½ mile wide, with depths of 6 fathoms or more, leads up the bay to an anchorage in 5 to 6 fathoms westward of Night Cap Island and southward of Barton Ledge. The best and most frequently used anchorage is southeastward and eastward of Birch Islands, in 14 to 18 feet.

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[1] Shown on charts **102**, scale $\frac{1}{80,000}$, price $0.50; **304**, scale $\frac{1}{40,000}$, price $0.25.

[2] Shown on charts **102**, scale $\frac{1}{80,000}$, price $0.50; **305**, scale $\frac{1}{40,000}$, price $0.25.

Flint Island Narrows is a deep passage leading from Pleasant Bay to Narraguagus Bay, between Flint and Dyer Islands. It is used principally by steamers and is not recommended for sailing vessels on account of ledges which make out from the southern shore of Dyer Island and contract the channel to a width of about 200 yards. A black spar buoy is placed on the northern edge of the ledges making off from the northeastern side of Flint Island and marks the eastern entrance to the Narrows. The course through the Narrows is 232° true (**WSW ¼ W** mag.), passing 50 yards northwestward of buoy No. 1, and about 150 yards off the northwest sides of Flint and Shipstern Islands.

Harrington Bay has its entrance on the western side of Pleasant Bay northeastward of Dyer Island. It is described on page 51.

Pleasant River can be approached on either side of Birch Islands, the channel eastward of them having a depth of 16 feet, and that westward 17 feet. For a distance of about 2 miles up the river to Wass Point the channel, with a depth of over 12 feet narrows gradually from 400 to 200 yards, and affords good anchorage in 3 to 6 fathoms. Above Wass Point the channel is narrow and crooked, with a least depth of 5 feet at one place just below Addison Point, and is suitable only for small craft, except with local knowledge. Above this the river is navigable at high water to Columbia Falls, about 10 miles above its mouth.

Addison Point, a village about 5 miles above the mouth of Pleasant River, has a little trade. Vessels of 12 feet draft go up as far as this; there is from 2 to 4 feet of water alongside the wharves. Just above Addison Point the river is crossed by a bridge (width of draw about 35 feet). The village of **Columbia Falls** is 5 miles above and has railroad communication; the deepest draft of vessels trading there is 9 feet. The wharves run dry at low water.

Pilots can generally be found at Cape Split or in Narraguagus Bay, and can always be obtained from the anchorage in the bay. Strangers bound to Addison Point or Columbia Falls should take a pilot.

Ice obstructs navigation in the river from December to April.

Tides.—The mean rise and fall of tides is 11 feet at Nash Island and 11.3 feet at Addison Point. It is high water at the latter place 34 minutes later than at Nash Island (see table, page 24).

SAILING DIRECTIONS, PLEASANT BAY.

The following directions lead to the anchorage above Night Cap Island, and are good for a draft of 14 feet. Vessels of deeper draft should anchor westward of Night Cap Island and southward of Barton Ledge, in 5 to 6 fathoms.

1. ***From eastward.***—Pass ¼ mile or more southward of the islands and rocks westward of Great Wass Island, course about 247° true (**W ⅜ S** mag.), and continue the course ½ mile past Egg Rock to clear Sea Horse Rock. Then steer 274° true (**WNW** mag.) and pass ⅜ mile or more southwestward of Black Rock. Then steer about 316° true (**NNW ¼ W** mag.) and pass about ⅜ mile westward of Nash Island lighthouse.

Then steer 339° true (**N ¼ W** mag.) nearly 2 miles, passing about ⅜ mile eastward of Coles Ledge buoy and to a position ⅜ mile westward of Norton Island Ledge. Then steer 12° true (**NNE ¾ E** mag.) for the eastern end of Birch Islands in range with Tumble-down Dick Head, and pass 250 yards westward of Night Cap Island. Anchor anywhere eastward or southeastward of the south end of Birch Islands, in 14 to 18 feet, soft bottom.

From Tabbott Narrows.—Steer 267° true (**WNW ⅝ W** mag.) with the south end of Ram Island astern, and pass nearly ¼ mile northward of The Ladle and the same distance southward of the spindle on the end of the ledge extending southward from Norton Island. Pass southward and westward of Norton Island Ledge at a distance of about ¼ mile, steer 12° true (**NNE ¾ E** mag.), and proceed as directed in the preceding paragraph.

Remarks and dangers.—Approaching Pleasant Bay from southward, vessels may steer for Nash Island light on any bearing between 327° true (**N by W ¼ W** mag.) and 13° true (**NNE ¾ E** mag.). The former bearing leads ⅜ mile westward of Black Rock and the latter leads ⅞ and ½ mile, respectively, eastward of the buoys marking Southeast and Tibbett Rocks. The latter dangers are described on page 51. Sea Horse and Black Rocks are described on page 48.

A ledge, the southern end of which shows bare, extends about 500 yards southward from **Nash Island.**

Coles Ledge, a small rock showing bare near low water with deep water around it, lies ¼ mile eastward of Flint Island, and is marked on its eastern side by a buoy (spar, black, No. 1). The southeastern side of **Flint Island** should be given a berth of at least ¼ mile.

Norton Island Ledge, showing bare in spots at high water, lies ¼ mile westward from the southwestern point of Norton Island. The partly bare reef extending ¼ mile southward from Norton Island is marked near its end by a red spindle and cage.

Narrows Island Ledge is a small ledge, dry at half tide, and lies on the western side of the channel, ⅜ mile southwestward from the southeast point of Narrows Island. A spot with 13 feet over it lies about 400 yards southward from the southeast point of Narrows Island.

Night Cap Ledge extends in a broken line 700 yards southward from Night Cap Island. A part of the ledge nearest the island is dry at half tide; there are spots with 7 and 14 feet over them southward of the dry part of the ledge.

Barton Ledge is a small ledge, bare at low water and surrounded by depths of 3¼ to 5 fathoms, 600 yards southward (true) from the southwest point of Birch Islands; it is marked by a buoy (spar, red and black horizontal stripes) placed about 50 yards southward of the ledge. The buoy is left on the port hand when bound east of Birch Islands and on the starboard hand when bound west of the islands.

Bunker Ledge, dry at half tide, lies 600 yards westward (true) of the southernmost Birch Island and is marked off its southeast side by a buoy (spar, black, No. 3). The ledge extends about 225 yards northward and westward of the buoy; the channel westward of Birch Islands leads eastward of the buoy, and there is a depth of 14 feet westward of the ledge.

1 A. ***From westward.***—From the whistling buoy 1 mile southward of Petit Manan lighthouse, steer 32° true (**NE ½ E** mag.) for 8 miles to a position ½ mile northwestward of Nash Island lighthouse. Then steer 339° true (**N ¼ W** mag.) and proceed as directed in the second paragraph of section 1, preceding.

Dangers.—Petit Manan Reef is described on page 54.

Simms Rock is two sunken rocks about 400 yards apart, with a least depth of 6 feet, and lies 1¾ miles 162° true (**S** mag.) from Petit Manan lighthouse. It is marked by a buoy (nun, red and black horizontal stripes), which is placed midway between the rocks, and there is deep water around them.

Southeast Rock, with 5 feet over it, lies 3¼ miles 133° true (**SSE ½ E** mag.) from Petit Manan lighthouse, and is marked by a buoy (can, red and black horizontal stripes).

Jo Leighton Ground, with 15 feet over it, lies 2⅛ miles 40° true (**NE by E ¼ E** mag.) from Petit Manan lighthouse.

Jackson Ledge, nearly ¼ mile in diameter, with a least depth of 3¾ fathoms, lies 2½ miles 86° true (**ESE ¾ E** mag.) from Petit Manan lighthouse.

Tibbett Rock, with 12 feet over it, lies 3½ miles 73° true (**E ⅛ S** mag.) from Petit Manan lighthouse and 5 miles 198° true (**SW ¾ S** mag.) from Nash Island lighthouse. It is marked by a buoy (nun, red and black horizontal stripes).

Jordans Delight Ledge, the southern end of which is marked by a spindle, is described on page 54.

The dangers in Pleasant Bay are described under section 1, preceding.

HARRINGTON BAY AND RIVER.[1]

Harrington Bay is separated from the upper part of Pleasant Bay on the east by Ripley Neck and from Narraguagus Bay on the west by Foster Island. The bay extends 2½ miles in a northerly direction from Strout Island to Chamberly Island, where it is met by Harrington River from northeastward and by Flat Bay and Mill River from northwestward. It has a depth in the channel of 4¾ fathoms, and good anchorage in 5 to 7 fathoms, but is seldom used except by local vessels.

Flat Bay and **Mill River** are mostly bare at low water.

Harrington River has a narrow, crooked channel, with a depth of 2 feet at low water. The town of **Harrington** is at the head of navigation on Harrington River, about 4 miles above its mouth. The greatest draft taken up to the town is 12 feet; the usual draft 6 to 10 feet. There is 2 feet alongside the wharves at low water.

Dyer Island Narrows, the passage between Dyer Island and Foster Island, has a depth of 9 feet at low water, and connects Harrington Bay with Narraguagus Bay. This passage is buoyed, but is not suitable for sailing vessels on account of the sharp turns and narrowness of the channel. See the directions following.

Ice forms in the river and in the bay between December and April as far down as Ripley Neck.

SAILING DIRECTIONS, HARRINGTON BAY.

Follow the directions for entering Pleasant Bay, and then steer 319° true (**NNW** mag.) with Nash Island lighthouse astern and pass midway between Otter Island and Strout Island. Follow the western side of Strout Island at a distance of about 200 yards and pass about 75 yards eastward of buoy No. 1. Then steer about 1° true (**N by E ¾ E** mag.), pass 125 yards westward of Shag Islet, and then follow the eastern shore at a distance of about 300 yards. Anchor anywhere in the channel on the eastern side of the bay.

Through Dyer Island Narrows.—This channel has a depth of 9 feet at low water.

Pass about 75 yards eastward and 50 yards northeastward of buoy No. 1, lying 300 yards westward from the northern end of Strout Island, steer 304° true (**NW ¾ N** mag.), and pass

[1] Shown on charts **102**, scale $\frac{1}{80,000}$, price $0.50; **305**, scale $\frac{1}{40,000}$, price $0.25.

50 yards northward of buoy No. 3. Haul sharply southwestward around this buoy, leaving it about 50 yards on the port hand, and steer 209° true (**SW ¼ W** mag.) to a position 100 yards westward of buoy No. 5. Then steer 235° true (**WSW ½ W** mag.) and leave buoy No. 7 close-to on the port hand.

Remarks and dangers.—Foul ground extends between ⅜ and ½ mile off the southwest side of Narrows Island and Ripley Neck. **Narrows Island Ledge**, at the southeast end of this foul ground, is bare at half tide. A rock awash at low water lies midway between Narrows Island Ledge and the south end of Strout Island, and is marked by a buoy (spar, red, No. 2). **Strout Island Ledges**, lying eastward and southeastward of the south end of Strout Island, are covered at high water; the south end of the ledges is bare at low water and is marked by a buoy (spar, red, No. 4).

Strout Island, in the middle of the entrance of Harrington Bay, has a scrubby growth of trees on its southern part, but the summit at its north end is cleared. The better channel is westward of it. **Otter Island** is the small island at the mouth of a cove in Dyer Island, and lies southwestward from the southern end of Strout Island.

Shag Islet is a small bare rock ¼ mile northward of Strout Island. Its southern end should be given a berth of over 100 yards. When passing westward of the islet care must be taken to avoid a rock with 5 feet over it which lies nearly midway between the islet and Dry Ledge. The western side of Harrington Bay is shoal.

Dyer Island Narrows has much foul ground, and the buoys should be closely followed. Buoy No. 1 marks the northeast side of a small rock with 1 foot over it; buoy No. 3 marks the northern end of a flat with 7 to 8 feet on it which extends ½ mile northward from Dyer Island; buoy No. 5 is at the northern end of a small ledge which is bare at low water; and buoy No. 7 is on the northwest side of a rock with 4 feet over it.

NARRAGUAGUS BAY [1]

lies north-northeastward from Petit Manan and northwestward from Nash Island. The lower part of the bay is a well-sheltered anchorage much used as a harbor of refuge in all seasons by vessels up to 18 feet draft. The principal dangers in the channels are buoyed, and the lighthouses on Nash, Petit Manan, and Pond Islands (Narraguagus light) are guides for the entrance. Trafton Island lies in the middle of the lower end of the bay, with a good channel on each side. The upper half of the bay and the western shore above Trafton Island are shallow. The eastern shore is formed by Dyer and Foster Islands, between which Dyer Island Narrows, a narrow buoyed channel with 9 feet at low water, leads into Harrington Bay. North of Foster Island is **Back Bay**, which runs dry at low water with the exception of a small channel into Harrington Bay.

Douglas Island Harbor lies north of the Douglas Islands and west of Pond Island. It has anchorage in 4 to 6 fathoms, but is seldom used, the anchorage above Trafton Island being better. Considerable sea makes into the harbor in heavy southerly weather. The harbor is clear except at its southwest end where **Douglas Island Ledges**, partly bare at low water, extend 350 yards northwestward from the middle Douglas Island. The dangers in the southern part of the harbor will be avoided by keeping the summit of Pond Island bearing southward of 94° true (**ESE** mag.).

Entering Douglas Island Harbor northward of Pond Island, pass northward and at least ¼ mile westward of the black spar buoy (No. 3) on the end of the ledge which extends nearly ⅜ mile northward from Pond Island. The harbor may also be entered from southward between the islands, the best channel being between the wooded island near the southwest end of Pond Island on the east, and the eastern one of the three Douglas Islands and the bare rock 250 yards southward from it on the west. Entering by this passage, avoid two rocks, bare at low water, which lie 125 yards southwestward from the wooded islet lying 250 yards off the middle of the west side of Pond Island.

A narrow, crooked channel leads from the western side of Douglas Island Harbor, between Joe Dyer Point on the north and Bois Bubert Island on the south, into Pigeon Hill Bay, but it is not available for strangers on account of numerous unmarked rocks and ledges.

Wyman is a fish factory and wharf on the western shore 1¾ miles northward of Trafton Island and just northward of Turner Point. The dredged channel leading to the wharf has shoaled to a depth of about 8 feet.

Narraguagus River empties into the northwestern part of the bay; it is crossed by a bridge at Millbridge. From Turner Point to Millbridge the channel is narrow and crooked, with a depth of about 4 feet, and leads between extensive flats partly bare at low water. Above Millbridge the river is a narrow stream, dry in places at low water. Local knowledge is necessary for the navigation of the river.

Millbridge is a town about 2 miles above Turner Point. The principal industries are canning fish and shipbuilding. Vessels of 16 feet draft can go up to the town, but vessels of over 5 feet draft lie aground at low water; the usual draft is about 9 feet. There is from 5 to 8 feet at the ends of some of the wharves at low water. There is communication by telephone and stage with Cherryfield.

Cherryfield, 4 miles above Millbridge, has railroad communication. Its principal industry is lumber, which is brought down to Millbridge in scows at high water.

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[1] Shown on charts **102**, scale $\frac{1}{80,000}$, price $0.50; **305**, scale $\frac{1}{40,000}$, price $0.25.

Prominent objects.—Nash Island lighthouse is eastward of the entrance. Petit Manan lighthouse is the most conspicuous and easily recognized object when coming from westward. **Pigeon Hill**, round, smooth, bare top, 307 feet high, is 5 miles northward from Petit Manan. **Jordans Delight** is a small high island, wooded except its extreme northern end, lying ⅝ mile southeastward of Pond Island. **Pond Island** shows from southward as a bare, conical hill, 160 feet high; Narraguagus lighthouse is on its eastern end.

Shipstern Island is small, high, round, and wooded and has rocky bluffs on its south side. It lies 2⅜ miles northwestward from Nash Island and just westward of Flint Island, which is much the larger.

Anchorages.—The usual anchorage for vessels seeking shelter is between Trafton Island and Lower Middle Ground buoy, in 21 feet, soft bottom; vessels of 10 feet draft or less sometimes anchor in 14 to 17 feet north of Trafton Island, about midway between it and the spindle on Half Tide Ledge. Vessels bound up to Millbridge anchor in 14 to 16 feet about ½ mile east of Wyman, the wharf bearing about 274° true (**WNW** mag.). Good anchorage in 24 feet, soft bottom, will be found about ⅜ mile northeastward from the spindle on Half Tide Ledge.

Pilots are not necessary to enter the bay. Fishermen who are good pilots can usually be found if the weather is fine, on the ledges off Petit Manan. Pilots to take vessels up to Millbridge can be found at Wyman.

Repairs.—There is a set of blocks at Millbridge on which small vessels are repaired.

Ice seldom obstructs navigation except in January and February, during which months the river is frozen to its mouth.

For **tides** see table, page 24.

SAILING DIRECTIONS, NARRAGUAGUS BAY.

1. ***From eastward.***—Follow the directions for approaching Pleasant Bay (page 50), and when ¾ mile southwestward of Black Rock steer 305° true (**NW ¾ N** mag.) for the southwest end of Trafton Island. Pass southward and westward of the island at a distance of about 300 yards, and steer 356° true (**N** by **E ¼ E** mag.). The depth will shoal gradually from 5 fathoms abreast Trafton Island to 15 feet about 1¾ miles above its southwest end, and anchorage can be selected in any depth desired.

Or, to pass eastward of Trafton Island, steer for its southwest end on a 305° true (**NW ¾ N** mag.) course until Narraguagus lighthouse is abeam. Then steer 353° true (**N** by **E** mag.), and pass about 400 yards westward of Western Reef buoy, and midway between Trafton and Tommy Islands. Pass 200 to 300 yards eastward of Trafton Island and steer 336° true (**N ½ W** mag.). The depth will shoal gradually from 6 fathoms abreast Trafton Island to 15 feet 1¼ miles northward of it, and anchorage can be selected in any depth desired.

From Moosabec Reach.—Pass ⅜ mile northward of Nash Island lighthouse and steer 257° true (**W ½ N** mag.) for Narraguagus lighthouse to a position ½ mile southward of Flint Island. Then steer 291° true (**NW ½ W** mag.) and pass about ¼ mile southward of Shipstern Island, and about 300 yards southward of Trafton Island as directed in the first paragraph. Or, when ½ mile past Shipstern Island and Western Reef buoy is about ¼ mile on the starboard beam, steer 353° true (**N** by **E** mag.) and pass about midway between Trafton and Tommy Islands as directed in the second paragraph.

Remarks and dangers.—See "Remarks and dangers," section 1, page 50.

Mackerel Rock, with 10 feet over it, lies 1¼ miles 111° true (**SE ½ E** mag.) from Narraguagus lighthouse, and ⅝ northeastward from Black Ledge, in range with the latter and Petit Manan lighthouse.

Black Ledge is described under section 1A following.

Western Reef, extending ⅜ mile southward from Tommy Island, has a bare rock on its southern part, and is marked at its southern end by a buoy (spar, red, No. 2).

Pond Island Ledge, partly bare at low water, extends about ⅜ mile northward from Pond Island, and is marked near its northern end by a buoy (spar, black, No. 3).

Trafton Island Ledge is a bare rock about 400 yards from Trafton Island, in the middle of the entrance to the cove on the northern side of the island.

Half Tide Ledge, partly bare at low water, is about 600 yards long and 150 yards wide, and is marked near its northern end by a red spindle and wheel which lies ⅝ mile north-northwestward from the northern end of Trafton Island.

Lower Middle Ground is an extensive shoal which extends ¼ to ⅜ mile from the western shore from abreast the northern end of Trafton Island to the mouth of Narraguagus River. That part of the shoal abreast Half Tide Ledge has depths of 2½ to 5 feet over it, and is marked on its eastern side by a buoy (spar, black, No. 5).

1 A. ***From westward.***—From the whistling buoy lying 1 mile southward of Petit Manan lighthouse, steer 13° true (**NNE** ¾ **E** mag.), pass about ⅝ mile southeastward of Bois Bubert Island, about 400 yards westward of Jordans Delight, the same distance eastward of Narraguagus lighthouse, and about 200 yards eastward of black spar buoy No. 1 lying northeastward of the lighthouse. Then steer 336° true (**N** ½ **W** mag.) to a position 300 yards westward of Trafton Island, and then steer 356° true (**N** by **E** ¼ **E** mag.) to the anchorage. The depth will shoal gradually from 5 fathoms abreast Trafton Island to 15 feet about 1¾ miles above its southwest end, and anchorage can be selected in any depth desired.

Or, to pass eastward of Trafton Island, from a position 200 yards eastward of black spar buoy No. 1, lying 400 yards northeastward of Narraguagus lighthouse, steer 8° true (**NNE** ⅜ **E** mag.) and pass midway between Trafton and Tommy Islands. Pass 200 to 300 yards eastward of Trafton Island and steer 336° true (**N** ½ **W** mag.). The depth will shoal gradually from 6 fathoms abreast Trafton Island to 15 feet 1¼ miles northward of it, and anchorage can be selected in any depth desired.

Remarks and dangers.—In thick weather the sound from the fog signal on Petit Manan is subject to aberration. In some instances vessels coming from westward have been unable to hear it when close to the island.

Petit Manan Reef, making off ⅜ mile southward of Petit Manan Island, is marked at its end by a buoy (nun, red, No. 2), which should be given a berth of not less than 200 yards when passing inside the whistling buoy.

Simms Rock, Jackson Ledge, and **Tibbett Rock** are described on page 51.

Jo Leighton Ground has small unmarked 15-foot rocky spots on it lying 2⅛ miles 41° true (**NE** by **E** ¼ **E** mag.) from Petit Manan lighthouse. The general depth over the shoal is 4½ to 7 fathoms.

Whale Ledge is described on page 55.

Jerry Ledge, partly bare at low water only, extends ¼ mile eastward from the southern end of Bois Bubert Island. A 15-foot spot southward of the ledge is marked off its southern side by a black spar buoy, which lies ⅜ mile southeastward from the south end of the island. A rock with 15 feet over it lies ⅜ mile eastward from **Big Head**, the southeast end of Bois Bubert Island.

Jordans Delight Ledge is about 1 mile long in a northeasterly direction. At its southern end is a rock bare at low water and marked by a red spindle and cage, which lies 1 mile southward of Jordans Delight. That part of the ledge between the spindle and Black Ledge has sunken rocks with as little as 2 feet over them. **Black Ledge**, at the northern end of Jordans Delight Ledge, is bare at half tide and lies ⅝ mile southeastward of Jordans Delight.

Pond Island is bold-to southward of the lighthouse, but northward of it the island should be given a berth of ¼ mile. There is **a dangerous 9½-foot spot**, marked by a buoy (spar, black, No. 1), about 350 yards northeastward from Narraguagus lighthouse.

A small rock with 4 fathoms over it lies ⅜ mile eastward from the northern end of Pond Island; this is not dangerous except for deep-draft vessels at low water or in a heavy sea.

For other dangers see section 1 preceding.

PIGEON HILL BAY AND PETIT MANAN BAR.[1]

This bay lies north of Petit Manan and west of Bois Bubert Island; it affords good anchorage in 12 to 24 feet of water, but is seldom used except by those well acquainted with the locality. The approach to the entrance of Pigeon Hill Bay is eastward and northward of Petit Manan Island, between it and the ledges making southward from Bois Bubert Island, and the bay is easy of access in the daytime.

Petit Manan Bar connects Petit Manan Island with Petit Manan Point on the mainland; it is composed of ledges and large bowlders, between which is a channel, marked by a buoy, which may be used by vessels of 8 feet draft at low water when the sea is smooth. The sea breaks along the whole length of the bar with a swell or in heavy weather and the tidal currents set over it with considerable velocity, the flood northeastward, the ebb southwestward; sailing vessels are cautioned not to approach the bar in a light breeze.

There is a narrow channel (Eastern Passage) from Pigeon Hill Bay into Douglas Island Harbor north of Bois Bubert Island. It leads between unmarked rocks and ledges, and is available at half tide only for small vessels with local knowledge.

Pigeon Hill, the high, bare-topped hill on the western shore near the head of the bay, is conspicuous and a landmark for some distance at sea.

[1] Shown on charts 102, 103, scale $\frac{1}{80,000}$, price of each $0.50; 305, scale $\frac{1}{40,000}$, price $0.25.

SAILING DIRECTIONS, PIGEON HILL BAY.

From eastward.—Steer for Petit Manan lighthouse on a 253° true (**W** ⅛ **N** mag.) course until Tibbett Rock buoy (nun, red and black horizontal stripes) is sighted, and pass on either side of the buoy, giving it a berth of over 200 yards. Then steer for the south end of Petit Manan Point on a 277° true (**NW** by **W** ¾ **W** mag.) course, which leads nearly ⅜ mile southward of Jo Leighton Ground and to a position 400 yards southwestward of Whale Ledge buoy (spar, red, No. 2).

Then steer 349° true (**N** ⅝ **E** mag.) for the summit of Pigeon Hill, with Petit Manan lighthouse astern, which leads 600 yards westward of Egg Rock and in mid-channel in Pigeon Hill Bay. When in the bay, follow a mid-channel course and anchor above Gull Rocks in 4½ fathoms, soft bottom.

From westward.—From the whistling buoy 1 mile southward of Petit Manan lighthouse shape the course to pass ½ mile eastward of the lighthouse, and then steer 333° true (**N** ¾ **W** mag.) to a position 400 yards southwestward of Whale Ledge buoy. Then proceed as directed in the preceding paragraph.

Dangers.—**Whale Ledge**, bare at half tide, lies 1⅞ miles 359° true (**N** by **E** ⅝ **E** mag.) from Petit Manan lighthouse and about ½ mile southward of Egg Rock. A buoy (spar, red, No. 2) marks a 13-foot spot 300 yards southward of Whale Ledge.

Egg Rock shows at low water as a large ledge of dark bowlders, with several high parts which are always out of water. There is a narrow channel between Egg Rock and Bois Bubert Island, but a stranger should not attempt it.

Ledges with 7 to 11 feet over them extend a greatest distance of ⅝ mile eastward from the southern end of **Petit Manan Point**, and leave a channel ½ mile wide between them and Whale Ledge and Egg Rock. From Egg Rock to the south end of Bois Bubert Island the dangers near the western shore will be avoided by giving that shore a berth of ⅜ mile.

Gull Rocks are a large ledge, bare at half tide, making off ¼ mile from the shore of Bois Bubert Island about 1⅜ miles northward of Egg Rock. These rocks are avoided by keeping in mid-channel.

DYER BAY,[1]

the entrance to which lies 3 miles northwestward from Petit Manan lighthouse, has excellent anchorage in 4 to 7 fathoms, but it is seldom used except by small local vessels. Petit Manan Point, on the eastern side of the bay, has a large watch tower which forms a prominent mark. A group of islands and rocks, with narrow, deep passages between them, extends from westward across the entrance of Gouldsborough Bay and part way across Dyer Bay entrance, leaving a good passage nearly ½ mile wide between the easternmost bare ledge, **The Castle**, and Petit Manan Point. One mile above The Castle the channel is contracted to a width of 250 yards by rocks and ledges, which extend out from both shores and have a depth of 9 to 11 feet over them. Above this the channel widens to ½ mile, and contracts gradually to ¼ mile westward of Sheep Island. The least depth in the channel is 3¼ fathoms, but a stranger should not attempt to enter at low water with a vessel of more than 9 feet draft.

Pinkham Bay, at the head of Dyer Bay, is full of rocks and ledges; a narrow, crooked channel with a depth of 8 feet at low water leads for some distance toward its head, which runs dry at low water.

Dyer Harbor, north of Sheep Island and west of Good Point, is shallow; the upper part is dry at low water.

Carrying Place Cove makes southeastward, north of Sheep Island; the head of this cove is nearly all dry at low water and is 300 yards from Pigeon Hill Bay.

The **tidal currents** are strong in the entrance of the bay, but follow the general direction of the channel except near Dyer Point, where they set in and out of Gouldsborough Bay.

SAILING DIRECTIONS, DYER BAY.

1. ***From eastward.***—From the whistling buoy 1 mile southward of Petit Manan lighthouse steer 315° true (**NNW** ⅜ **W** mag.) for 3¼ miles until the south end of Petit Manan Point is in range with Egg Rock, bearing 60° true (*E* by *N* mag.). Then steer 351° true (**N** ⅞ **E** mag.) and pass 250 yards eastward of The Castle. Then bring it astern on a 359° true (**N** by **E** ½ **E** mag.) course, heading to pass in mid-channel westward of Sheep Island. Select anchorage near the middle of the bay when over 1¼ miles above The Castle, in 4 to 7 fathoms, but do not go over ¼ mile above Sheep Island.

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[1] Shown on charts 103, scale $\frac{1}{80,000}$, price $0.50; 305, scale $\frac{1}{40,000}$, price $0.25.

Remarks.—On the 315° true (**NNW** ⅜ **W** mag.) course care should be taken not to be swept on Petit Manan Bar or Point by the flood current setting northeastward; the point should be given a berth of ½ mile. The western shore of Petit Manan Point, from its southern end until nearly up to Yellow Birch Head, should be given a berth of 300 to 400 yards. **Yellow Birch Head** is the high, bare bluff on the eastern shore, about ⅞ mile northeastward from The Castle. **Sheep Island** is wooded and lies 3¼ miles above The Castle.

1 A. ***From westward.***—From the whistling buoy off Schoodic Island steer 46° true (**NE** by **E** ¾ **E** mag.) for 7 miles to a position ⅜ mile southward of The Castle. Pass about 250 yards eastward of The Castle, and proceed as directed in section 1 preceding.

Remarks and dangers.—On the 46° true (**NE** by **E** ¾ **E** mag.) course Schoodic Island should be given a berth of at least ¼ mile; **Old Woman, Old Man, Big Black,** and **Little Black Ledges** will be left well on the port hand. Little Black Ledge, the easternmost of the ledges, shows at high water, and will be left about ⅜ mile on the port hand.

Moulton Ledge, bare at low water and marked by a buoy (spar, red and black horizontal stripes), will be left about 1 mile on the starboard hand, and **Stone Horse Ledge**, with 11 feet on it, lying nearly ⅞ mile, 18° true (**NE** ¾ **N** mag.) from Moulton Ledge, will be left ⅝ mile on the starboard hand. The course leads well southward of the islands off Gouldsborough and Dyer Bays.

GOULDSBOROUGH BAY [1]

lies 4 miles northwestward from Petit Manan lighthouse and 6 miles northeastward of Schoodic Island. This bay is about 4½ miles long and 1 mile wide, and is an excellent anchorage with from 2 to 9 fathoms. Sally Islands, a chain of small islands and ledges, extend across the entrance; through the chain are two navigable channels known as **Eastern Way** and **Western Passage**. When approaching from westward care must be taken not to mistake the passages, the islands being difficult to recognize. Inside the islands the bay is free from outlying dangers and the water shoals gradually toward its head.

Indian Harbor is a small shallow cove on the western side of the entrance to Gouldsborough Bay; it is of no importance and can only be entered by small vessels well acquainted with the locality.

Joy Bay, a shallow body of water 1½ miles long, with a narrow, crooked channel to the village of Steuben, makes northward from Gouldsborough Bay at Rogers Point; it separates into two coves at its head; the eastern one is **Steuben Harbor** and the western **Joy Cove**. **Steuben** can be reached at high water by vessels of 7 to 8 feet draft; it has telephone communication with Cherryfield.

Gouldsborough Harbor is a large shallow arm with numerous ledges at its entrance, making into the northwestern part of Gouldsborough Bay and extending about 2½ miles to the village of Gouldsborough, which is of no commercial importance. The harbor has a narrow, crooked channel, nearly dry at low water.

Channels.—**Eastern Way,** or Ship Channel, leads into the bay between Eastern Island and Bald Rock; it is about 350 yards wide between the 18-foot curves and has a spot with 24 feet over it about 200 yards west of Eastern Island. This channel has the strongest tidal currents, and when the current is running ebb sailing vessels can enter only with a strong favorable breeze.

Western Passage leads into the bay between Sally Island and Sheep Island. It is about 200 yards wide between the 12-foot curves and leads close along the eastern side of Sheep Island; the least depth in the channel is 18½ feet. The tidal currents run true with the channel and have a velocity of 2 to 3 miles at strength.

There is a passage from Dyer Bay to Gouldsborough Bay north of Sally Islands. It is obstructed by rocks, partly bare at low water only, which extend 300 yards southward and southwestward from the southern end of Dyer Neck, and by a shelving ledge which extends 250 yards northeastward from Eastern Island. The channel where narrowest, abreast Eastern Island, is 250 yards wide, and the range of the northwest sides of Bald Rock and Sheep Island, bearing 240° true (**W** by **S** mag.), leads through the middle of it.

Anchorage.—Anchor anywhere in the bay from 1 mile above the islands to Point Francis in 3½ to 9 fathoms, giving the shores a berth of about 500 yards.

Pilots can sometimes be found fishing on the ledges outside, but in clear weather strangers should be able to enter by the chart or directions.

Supplies.—Provisions can be obtained at Gouldsborough or Steuben.

Ice obstructs navigation in the head of the bay from December to March. In severe winters the bay is closed by ice down to the entrance.

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[1] Shown on charts **103**, scale $\frac{1}{80,000}$, price $0.50; **305**, scale $\frac{1}{40,000}$, price $0.25.

SAILING DIRECTIONS, GOULDSBOROUGH BAY.

A depth of 4 fathoms can be carried into the bay through the Eastern Way, and 18 feet through the Western Passage. The tidal currents have a velocity of 2 to 3 miles at strength through these passages.

1. ***From eastward, entering through Eastern Way.***—From the whistling buoy off Petit Manan steer 312° true (**NNW** ⅝ **W** mag.) a little over 4 miles. Continue nearly this course and pass midway between Eastern Island and Bald Rock. When inside the islands steer a little more northward and stand up the middle of the bay; the water shoals gradually toward the head.

Through Western Passage.—From the whistling buoy off Petit Manan steer 305° true (**NW** ¾ **N** mag.) for the northeastern side of Sheep Island. When about 100 yards from the eastern side of the island steer 343° true (**N** ⅛ **E** mag.) and stand up the middle of the bay.

Remarks.—When standing for the entrance attention should be paid to the tidal currents which set across Petit Manan Bar with considerable velocity; the flood sets northeastward and ebb southwestward. There are no marked natural features to distinguish the different islands at the entrance of the bay. **The Castle** and **Bonny Chess Ledge** are bare ledges, and **Little Ledge** is a bare rock. **Eastern Island** is wooded on top; its western shore should be given a berth of about 125 yards.

When standing through Eastern Way, care should be taken not to be set too close to the islands by the tidal currents which have considerable velocity at strength between the islands, and set diagonally across the channel. **Bald Rock** lies close eastward of Sally Island and has some grass on top; its eastern end should be given a berth of at least 125 yards.

In Western Passage the best water is about 100 yards eastward of Sheep Island, but the south side of the island should be given a berth of over 200 yards. On the eastern side of this passage are extensive ledges, some showing bare at half tide, which extend 450 yards westward from **Sally Island**; the latter is grass-covered and has a scrubby tree on its north side.

Point Francis, on the western shore, 3¼ miles above the entrance, is high and wooded, showing prominently from the lower end of the bay.

Dangers.—The ledges off Petit Manan are described on page 51.

Moulton Ledge is about 350 yards in diameter and partly bare at low water; it lies 3 miles 266° true (**WNW** ¾ **W** mag.) from Petit Manan lighthouse, and is marked on its western side by a buoy (spar, red and black horizontal stripes). The buoy should be given a berth of at least ¼ mile. About ⅝ mile southward from Moulton Ledge is an unmarked spot with 18 feet over it.

Stone Horse Ledge (unmarked), with 11 feet over it, lies 2⅞ miles 282° true (**NW** by **W** ¼ **W** mag.) from Petit Manan lighthouse, and ⅞ mile 18° true (**NE** ¾ **N** mag.) from Moulton Ledge.

The dangers in Eastern Way and Western Passage are described in the remarks preceding.

Rocks partly bare at low water only extend 300 yards southward and southwestward from the southern end of Dyer Neck.

1 A. ***From westward, entering through Eastern Way.***—From the whistling buoy off Schoodic Island steer 46° true (**NE** by **E** ¾ **E** mag.) for 4¼ miles until Cranberry Point is in line with Prospect Harbor lighthouse. Then steer 27° true (**NE** mag.) for the eastern end of Eastern Island until about ¼ mile from the island. Then steer about 342° true (**N** mag.) and pass about midway between Eastern Island and Bald Rock. Then steer more northwestward to avoid the rocks, bare at low water only, lying 300 yards off the southwest side of the south end of Dyer Neck, and then stand up the middle of the bay.

Through Western Passage.—From the whistling buoy off Schoodic Island steer 46° true (**NE** by **E** ¾ **E** mag.), and continue the course for 1 mile after Cranberry Point is in range with Prospect Harbor lighthouse. Then steer 343° true (**N** ⅛ **E** mag.), keep the eastern side of Sheep Island aboard distant about 100 yards to clear the ledges which extend 450 yards westward of Sally Island, and stand up the middle of the bay.

Remarks and dangers.—On the 46° true (**NE** by **E** ¾ **E** mag.) course, the ledges off the entrance to Prospect Harbor (see p. 58) are left well on the port hand; Little Black Ledge, the easternmost, will be left ⅜ mile distant when abeam. Moulton and Stone Horse Ledges and the dangers in Eastern Way and Western Passage are described under section 1 preceding.

There is a **4-fathom spot**, with a possibility of less depth, lying 1⅛ miles 105° true (**SE** by **E** mag.) from Cranberry Point.

PROSPECT HARBOR [1]

lies 4 miles northeastward from Schoodic Island and 6 miles northwestward from Petit Manan lighthouse. It is 1½ miles long above Cranberry Point and about ¾ mile wide. At its head are two coves. Sand Cove, eastward of Prospect Harbor lighthouse, is of no importance.

Inner Harbor, westward of the lighthouse, is sheltered from all but southeast winds, but is used only by small local vessels; the anchorage is on the southwest side between the spindle on Clark Ledges and the fish factory inside Clark Point, about 200 yards northward of the line joining them, in 3 to 6 fathoms, soft bottom. Inner Harbor is very foul for a distance of nearly ½ mile from its head, and thence to the lighthouse ledges extend 250 yards from its north side. **Prospect Harbor** is a village at its head.

The outer harbor affords anchorage, exposed to southerly winds; there is ample swinging room for large vessels, but it is little used. The outlying ledges divide the approach into two channels. The depths in the approach are 6 to 20 fathoms and very irregular.

SAILING DIRECTIONS, PROSPECT HARBOR.

From eastward.—Pass ¼ mile northward of Petit Manan whistling buoy and steer 286° true (**NW** by **W** mag.) for 5½ miles for the bell buoy lying 600 yards southward of Cranberry Point, taking care to pass ⅜ to ½ mile northward of Moulton Ledge buoy. When Prospect Harbor lighthouse bears 322° true (**N** by **W** ¾ **W** mag.) steer for it until about ⅜ mile from it. Then steer 286° true (**NW** by **W** mag.) into Inner Harbor, passing close to the fairway buoy (can, black and white perpendicular stripes), and select anchorage on this course (see description preceding).

From westward.—From Schoodic whistling buoy pass ¼ mile southward and ⅜ mile eastward of Schoodic Island. Then steer 10° true (**NNE** ½ **E** mag.) and pass about midway between Bunker Ledge and Old Woman buoys. When Prospect Harbor lighthouse bears 349° true (**N** ⅝ **E** mag.) steer for it, give the western shore a berth of ¼ mile, and pass eastward of Clark Ledges buoy (spar, black, No. 3). When up with the fairway buoy (can, black and white perpendicular stripes) steer 286° true (**NW** by **W** mag.) into Inner Harbor and select anchorage on this course (see description preceding).

Remarks and dangers.—There are two white sectors in Prospect Harbor light, the eastern one covering the fairway between Cranberry Point and Little Black Ledge and the western one the fairway between Old Woman and Petty Point.

Moulton Ledge and Stone Horse Ledge are described on page 57.

Little Black Ledge and **Big Black Ledge** show at high water; **Old Man** and **Old Woman** are partly bare at low water. Little Black Ledge at the eastern end of the group lies 2⅝ miles 144° true (**S** by **E** ⅝ **E** mag.) from Prospect Harbor lighthouse. Old Woman, at the northwest end of the group, is marked off its southwest end by a buoy (spar, red, No. 2) lying 2 miles 169° true (**S** ⅝ **W** mag.) from Prospect Harbor lighthouse.

Bunker Ledge, partly bare at low water only, extends ⅜ mile eastward from the southern side of the entrance to Bunker Harbor, and is marked at its end by a buoy (spar, black, No. 1).

Clark Ledges extend nearly ¼ mile from the shore on the south side at the entrance of Inner Harbor. They are marked on the eastern side by a buoy (spar, black, No. 3), and at the northeast end by a black spindle with wheel and pendants.

WINTER HARBOR.[2]

On the eastern side of Frenchman Bay, between Schoodic Peninsula and Grindstone Neck, is a frequently used harbor of refuge, with good anchorage in 5 to 9 fathoms, good holding ground. It is comparatively free from dangers, and although open southward a heavy sea never enters. **Winter Harbor lighthouse** is the guide for entering, and buoys and spindles mark the principal dangers. The village of **Winter Harbor** at its head has steamboat communication with Bar Harbor in summer. **Sand Cove**, in the northwestern part of the harbor, is the usual and best anchorage. **Winter Harbor Cove**, at the head of the harbor, is small with depths of 6 to 12 feet in its lower part, and is used as an anchorage by small craft. **Grindstone Neck**, on the western side of the harbor, has a number of large cottages, club houses, and hotels. There is a wharf on the west side near the head of Sand Cove and another on the west side of Grindstone Neck abreast Crow Island. Ice seldom forms sufficiently to interfere with navigation.

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[1] Shown on charts **103**, scale $\frac{1}{80,000}$, price $0.50; **305**, scale $\frac{1}{40,000}$, price $0.25.

[2] Shown on chart **103**, scale $\frac{1}{80,000}$, price $0.50; **306**, scale $\frac{1}{40,000}$, price $0.25; **317**, scale $\frac{1}{20,000}$, price $0.20.

SAILING DIRECTIONS, WINTER HARBOR.

From eastward or southward.—From the whistling buoy off Schoodic Island steer 296° true (**NW** ⅛ **W** mag.) for Egg Rock lighthouse. When Winter Harbor lighthouse bears between 339° true (**N** ¼ **W** mag.) and 21° true (**NE** ½ **N** mag.) steer for it and pass 300 yards eastward of the lighthouse. Then steer 0° true (**N** by **E** ⅝ **E** mag.) about 1 mile, and then steer more northward and follow the western shore into the middle of Sand Cove. Anchor ¼ mile or more from the head of Sand Cove, in 5 to 7 fathoms, or in the broad part of the harbor off the entrance to the cove, in 8 to 9 fathoms.

From westward.—When between Seal Harbor gas buoy and Lewis Rock buoy, northward of East Bunker Ledge, steer 58° true (**ENE** ¾ **E** mag.) for nearly 7 miles until Winter Harbor lighthouse bears northward of 21° true (**NE** ½ **N** mag.). Then steer for the lighthouse and enter the harbor as directed in the preceding paragraph.

From the whistling buoy off Baker Island steer 27° true (**NE** mag.) for about 9 miles to a position 300 yards eastward of Winter Harbor lighthouse, and enter the harbor as directed in the first paragraph.

Dangers.—**Turtle Island** is the large island on the western side at the entrance. **Turtle Island Ledge**, partly bare at half tide, extends ¼ mile off the southwest side of the island. **White Ledge**, with a depth of 5¾ fathoms, lies 350 yards eastward from the south end of the island and 196° true (**SW** by **S** mag.) from Winter Harbor lighthouse.

Grindstone Ledge, partly bare at half tide, extends 400 yards southward from Grindstone Neck. It is marked near the middle by a black spindle and cage, and a buoy (nun, red, No. 2) is placed about 200 yards southward of the ledge.

Abijah Ledge, bare at low water, extends 250 yards from the eastern shore 1½ miles above the lighthouse, and is marked on its western side by a buoy (spar, red, No. 4).

Harbor Point is the low wooded point separating Sand Cove and Winter Harbor Cove. A ledge extends 150 yards southward from the point and is marked on its southeast side by a buoy (can, black, No. 1).

FRENCHMAN BAY [1]

lies westward of Schoodic Peninsula and eastward of Mount Desert Island; the bay proper is about 10 miles long, and has an average width of about 4 miles. Halfway toward its head is a group of islands extending across the bay, between which are two good channels leading to the upper part. Vessels of the largest size and deepest draft can find an anchorage, and the navigation is not difficult to strangers. Steamers ply between the landings on the bay and its tributaries.

During the winter navigation is practically closed by ice above the Porcupine Islands. Winter Harbor is the only harbor of refuge at that season.

The principal guides to the bay from seaward are Mount Desert (Rock), Baker Island, Egg Rock, and Winter Harbor lighthouses. **Green Mountain**, the highest point of Mount Desert Island, is 1,532 feet above the sea, and is visible in clear weather between 35 and 45 miles.

BAR HARBOR

is a town and anchorage on the eastern side of Mount Desert Island, 3½ miles above Egg Rock lighthouse. This harbor is formed by an indentation in the shore of Mount Desert Island and two islands northward; a breakwater (not completed) extending soutwesterly from Round Porcupine Island affords some shelter against southerly winds. The bottom is generally rocky and poor holding ground except near the head of the harbor, and the water deepens quickly from 4 to 13 fathoms. A swell heaves in during southeast winds, and vessels should not attempt to ride out a gale here from that direction.

The usual anchorage is southward and southeastward of the eastern end of Bar Island, in 3 to 13 fathoms, the depths shoaling rapidly toward the bar southward of Bar Island. The southern limit of the anchorage is marked by white barrel buoys placed by the harbor master to leave a clear channel to the wharves.

Coal, either anthracite or bituminous, can be had in limited quantities at the wharf or from lighters; water can be had alongside the steamboat wharf or from water boats. Provisions can be obtained in the town. There is 10 to 13 feet alongside the steamboat wharves, and but little depth at the coal wharves at low water.

The principal entrance is from eastward between Round Porcupine and Sheep Porcupine Islands, and is clear. Passing about 300 yards northeastward of Round Porcupine Island a 289° true (**NW** ¾ **W** mag.) course will lead to the

[1] Shown on charts **103**, scale $\frac{1}{80,000}$, price $0.50; **306**, scale $\frac{1}{40,000}$, price $0.25. Bar Harbor is shown on chart **318**, scale $\frac{1}{10,000}$, price $0.20.

anchorage. Local vessels sometimes enter from northward between Sheep Porcupine Island and the islet eastward of Bar Island, where the depth is 8 feet. There is a deep but narrow channel into the harbor from southward between the end of the breakwater extending southwestward from Round Porcupine Island and the western shore. To enter by this channel, pass 50 yards westward of the red spar buoy marking the end of the breakwater, and give the shore northward of the breakwater a berth of 300 yards or more.

Large vessels frequently anchor northward or northwestward of **Bar Island**, in 7 to 10 fathoms, soft bottom. A 7½-fathom rocky patch lying 650 yards northward of Bar Island should be avoided. The bar inside of Bar Island will be avoided by keeping the north side of Sheep Porcupine Island open from the north side of Bar Island. The western shore is fairly bold, with the exception of a rock bare at low water lying ⅝ mile westward of Bar Island and 250 yards from the shore at the entrance of **Duck Brook**. **Bald Rock Ledge**, the highest part of which shows at low water, lies ⅞ mile northward of Bar Island, and is marked at its southwest end by a buoy (spar, red, No. 2). Vessels should keep over ¼ mile southward of a line joining the buoy and Bald Rock.

STAVE ISLAND HARBOR

is an excellent harbor of refuge on the eastern shore of the bay, formed by the mainland on the east, Stave Island on the north, and Jordan Island on the south; the anchorage has a depth of 3½ to 6 fathoms, soft bottom, and is sheltered from all winds. Vessels bound to West Gouldsborough, or other towns at the head of the bay, sometimes call here for pilots, who can generally be found by inquiry on shore.

The harbor is clear with the exception of a rock with 7 feet over it lying 200 to 400 yards from shore in its southeast part. The north end of the harbor eastward of Stave Island is shoal. There is a narrow channel into the harbor from southward over Jordan Island Bar, which is used only by small local craft; the channel has a depth of 5 feet and lies close to Jordan Island.

The entrance to Stave Island Harbor is between Stave and Jordan Islands. There is a rock with 4¼ fathoms on it nearly midway between Jordan and Stave Islands, the deeper channel lying southward of it. **Yellow Island**, lying 200 yards westward from the north end of Jordan Island, is named from the color of its rocks and is wooded. To enter, pass 200 to 300 yards northward of Yellow Island on a 72° true (**E** mag.) course.

Approaching Stave Island Harbor from southward there is a broad clear channel between Ironbound and Long Porcupine Islands, and the approach northward of the Porcupine Islands is also clear. **Halibut Hole**, the passage between Jordan and Ironbound Islands, has good water with the exception of a rock with 17 feet over it lying 200 yards southward of Jordan Island. The channel is between the rock and Ironbound Island. The northwestern entrance of the passage is marked by a black buoy (gas buoy in summer).

FLANDERS BAY,

in the northeastern part of Frenchman Bay, north of Stave and Calf Islands, is an excellent anchorage but of no importance except as an approach to **West Gouldsborough** and **East Sullivan**, the former lying at the head of a shallow cove in the eastern part and the latter at the head of **Bass Cove** in the northern part. There are two entrances to Flanders Bay, one across Calf Island Bar between Stave and Calf Islands and the other between Calf and Preble Islands; the latter has the better water, but takes a vessel some distance out of a direct course to either of the villages. Strangers bound to West Gouldsborough or East Sullivan are advised to take a pilot in Stave Island Harbor. It is only at high water that vessels can get to these villages; 10 feet is the deepest draft entering; the wharves are dry at low water.

Approaching from southward the direct route is across **Calf Island Bar**, between Stave and Calf Islands, which has depths of 9 to 11 feet and is good for vessels of 8 feet draft at low water. **Little Calf Island** and **Thrumbcap** are partly wooded and are on a large shoal extending southward from Calf Island to a point 350 yards southeastward of Thrumbcap.

To enter across Calf Island Bar, give the western shore of Stave Island a berth of ¼ mile and steer 19° true (**NE** ¾ **N** mag.) for the bar buoys, passing ⅜ mile southeastward of the Thrumbcap. Pass the black buoy and the red buoy on the bar close-to, and from the latter steer 61° true (**E** by **N** mag.) for Half Tide Ledge buoy (No. 3). Pass about 100 yards southward and eastward of it and steer 348° true (**N** ½ **E** mag.) for Hall Point until about ¼ mile from it. Then steer 308° true (**NW** by **N** mag.), pass midway between Hall Point and buoy No. 5, and follow the shore of Ash Neck at a distance of 300 yards. Anchor ¼ mile to ⅜ mile northwestward of Ash Point, in 3 to 4 fathoms.

The entrance to Flanders Bay between Preble and Calf Islands is clear and deep. Enter in mid-channel, and follow the shore of Calf Island, giving it a berth of 200 yards. When northeastward of the island, steer 111° true (**SE** ½ **E** mag.) and pass 100 yards southward of Half Tide Ledge buoy (No. 3). Round the buoy at this distance and proceed as directed in the preceding paragraph.

Eastern Point Harbor is a sheltered anchorage for small craft on the north side of the eastern end of Preble Island. The head of the harbor is shallow, and is separated from Sorrento Harbor by a partly dry reef.

SORRENTO HARBOR

is a small anchorage, used by small pleasure craft in summer, on the north side of Frenchman Bay north of Preble and Dram Islands. **Sorrento**, a summer resort and landing, is on its north side. The entrance from southward favors Dram Island slightly and is narrowed by reefs bare at low water which extend 100 yards from Preble Island and 50 yards from Dram Island. The entrance from westward is narrowed by a reef, partly showing at high water, which extends 175 yards from the north side. The best water is found 100 yards north of Dram Island on a 91° true (**ESE ¼ E** mag.) course.

SULLIVAN HARBOR (SULLIVAN RIVER)

is an arm of Frenchman Bay making northward from its northern end, and lies between Waukeag Neck on the east and Crabtree Neck on the west. The mouth of Sullivan Harbor is obstructed by Bean Island and the surrounding ledges, but a deep channel nearly ⅜ mile wide leads on the western side between it and Crabtree Ledge, which is marked by **Crabtree Ledge lighthouse**, the principal guide for the entrance to the harbor. Above this the channel has a number of well-marked ledges on either hand, and is about ¼ mile wide up to the town of **Sullivan**. Here it turns sharply northwestward through the narrows and nearly 2 miles farther in Sullivan River to **Taunton Bay**, which, with the exception of a very narrow, crooked channel, is almost dry at low water. The town of **Franklin** is at the head of this bay.

There is a narrow buoyed channel east of Bean Island, but it is little used. **Bean Ledge** shows at high water. Nearly midway between Bean and Ingalls Islands is a ledge, the highest part of which is awash at high water.

About ½ mile above Sullivan, and for a distance of about 300 yards, the narrows are so contracted and obstructed by ledges that the tidal current forms dangerous rapids known as **Sullivan Falls.** Vessels of 11 feet draft may pass up at low water slack, which occurs after a rise of 2 feet in the tide below the narrows. Vessels coming out must pass at slack water; after the ebb begins to run, the falls are not safe. The rise and fall of tide is 4 feet less above the falls than below. High water slack is 1 hour 18 minutes later, and low water slack 1 hour 45 minutes later in the falls than below them.

The towns of Sullivan and Franklin are places of little commercial importance. Strangers going above the falls should take a pilot, and sailing vessels generally take a tug, they may be found at Sullivan. Halfway from Crabtree Point to Sullivan, on the western shore of the harbor, is **Mount Desert Ferry**, a terminus of the Maine Central Railroad; it has frequent steamer communication with Bar Harbor. Ice obstructs navigation during January, February, and March.

Approaching Sullivan Harbor from southward, when in mid-channel between Burnt Porcupine and Sheep Porcupine Islands steer 343° true (**N ⅛ E** mag.) for 4½ miles and pass between Crabtree Ledge lighthouse and Bean Island; the former should be given a berth of 100 yards, and the western end of Bean Island a berth of over 200 yards. Then steer 15° true (**NE by N mag.**) with Crabtree Ledge lighthouse astern, and pass westward of red nun buoy No. 6, and to a mid-channel position between the two spindles above Mount Desert Ferry. Then steer 21° true (**NE ½ N** mag.) to a position 125 yards eastward from Moon Ledge buoy (can, black). Then steer more northward and anchor, favoring the northern shore, in 3½ to 7 fathoms off the town of Sullivan. The water shoals abruptly on both sides of the channel throughout the harbor.

SKILLINGS RIVER

is an arm of the northern part of Frenchman Bay westward of Sullivan Harbor. The entrance is 1⅝ miles wide between Crabtree Point on the east and Meadow Point on the west, but it contracts rapidly to a width of 400 yards 1¾ miles above Crabtree Point. Above this the river leads about 4 miles in a northwesterly direction to the post village of **North Hancock.** The channel is narrow and crooked and has numerous rocks and ledges, making its navigation difficult. Strangers wishing to enter the river should get a pilot at Bar Harbor, or anchor 1½ miles above Crabtree Point in 5 to 7 fathoms, and get a pilot from South Hancock.

South Hancock is a village on the east bank 2½ miles above Crabtree Point; 14 feet is the deepest draft trading here, and 9 feet the usual draft. There is 3 feet at low water at the wharves; 19 feet can be found in the channel at low water. There is a narrow anchorage in the channel abreast of the village in 4 to 7 fathoms.

The town of **Hancock** is near the head of a large shallow cove called Young Bay, about 1½ miles above South Hancock, on the eastern bank of the river; it has little trade. Vessels going there lie aground at low water.

North Hancock is a small village at the head of the river on **Kilkenny Cove**; this cove is shallow and has a narrow channel leading through it; vessels of 9 feet draft have been taken up at high water.

EASTERN BAY, MOUNT DESERT NARROWS, AND JORDAN RIVER.

These waters lie north of Mount Desert Island, Eastern Bay and Mount Desert Narrows separating the island from the mainland. Eastern Bay has good water, and the dangers are marked by buoys; it is about 1 mile wide. The United States naval coaling station is on the north shore ½ mile northwestward of Googin Ledge. There is good anchorage

for deep draft vessels between Googin Ledge and the buoys northwestward of the coaling station, in 6 to 9 fathoms. There is also good anchorage about ¼ mile from shore off the entrances of Salisbury and Emory Coves, in 7 to 8 fathoms. At Hadley Point, Eastern Bay merges into Mount Desert Narrows, and **Berry Cove** makes into the northern shore. There is good anchorage in 3 to 4 fathoms off the entrance to this cove, which is shallow at its head.

Westward of Hadley Point the channel of Mount Desert Narrows contracts, and shoals make out from the shores on both sides; 2½ miles above this point a drawbridge crosses the narrows from Mount Desert Island to the mainland. At low water the island and mainland are connected by extensive flats.

Jordan River, making northward just west of Berry Cove, has a narrow, crooked channel with 5 feet at low water up to Lamoine. Strangers should take a pilot at Berry Cove (**East Lamoine**); the channel is not marked so as to be followed, except by persons well acquainted with the locality. **Lamoine** is a town on the east bank of the river just above the entrance; a draft of 15 feet can be taken up to it, the usual draft is 10 feet, the wharves are dry at low water. Water can be had at the wharves; provisions can be obtained in the town.

Tidal currents.—In Mount Desert Narrows the flood current sets westward and ebb eastward.

For **tides**, see table, page 24.

SAILING DIRECTIONS, FRENCHMAN BAY.

The following directions are good for vessels of the deepest draft, and lead to Eastern Bay at the head of Frenchman Bay. General directions for entering the harbors and arms of Frenchman Bay are given in the description preceding.

1. ***From eastward.***—From the whistling buoy off Schoodic Island steer 296° true (**NW** ⅛ **W** mag.) for Egg Rock lighthouse, and continue the course 3¼ miles until Winter Harbor lighthouse is in line with the southern end of Turtle Island. Then steer 314° true (**NNW** ½ **W** mag.) for 4 miles to a position 300 to 500 yards eastward of Round Porcupine Island.

Or, from the whistling buoy off Schoodic Island steer 284° true (**NW** by **W** ⅛ **W** mag.) for 4¾ miles to Egg Rock whistling buoy. Continue the course about ⅜ mile past the buoy, and then steer 342° true (**N** mag.) to a position 300 to 500 yards eastward of Round Porcupine Island.

From a position 300 to 500 yards eastward of Round Porcupine Island steer 329° true (**N** by **W** ⅛ **W** mag.), pass midway between Burnt Porcupine and Sheep Porcupine Islands, and when 1½ miles northward of them leave Bald Rock buoy about ¼ mile on the port hand. Then steer 300° true (**NW** ¼ **N** mag.) for 2 miles and pass ¼ mile northeastward of Sunken Ledge buoy. When about ¼ mile past this buoy and Sands Point bears 252° true (*W* mag.), steer 266° true (**WNW** ¾ **W** mag.), pass about ¼ mile northward of Sands Point, and pass southward of the buoys marking Googin Ledge giving them a berth of over 100 yards. Then steer northwestward and select anchorage near the middle of Eastern Bay. (See description preceding.)

Dangers.—Turtle Island Ledge extends ¼ mile off the southwest side of Turtle Island. It is bare at half tide except its southern end, which is bare at low water.

Egg Rock is a rocky islet in the middle of Frenchman Bay, and is marked by Egg Rock lighthouse. The islet is prolonged by a ledge to a distance of nearly ¼ mile northeastward and ⅜ mile southwestward of the lighthouse. The greater part of the ledge shows at high water. A whistling buoy is moored 1 mile 191° true (**SSW** ⅝ **W** mag.) from Egg Rock lighthouse.

Bald Rock is a small rocky islet lying 1⅜ miles above Sheep Porcupine Island, and the same distance from the shore of Mount Desert Island. The ledge extending 300 yards northward from Bald Rock is marked on its northeast side by a buoy (spar, black, No. 5). **Bald Rock Ledge**, the highest part of which shows at low water, extends nearly ¾ mile southwestward from Bald Rock, and is marked at its southwest end by a buoy (spar, red, No. 2).

A buoy (spar, black, No. 7), lying 1 mile northwestward of Bald Rock, marks the eastern side of a rock, bare at low water, which lies ½ mile from the shore of Mount Desert Island, with foul ground between.

Sunken Ledge, with 5 feet over it, lies ¼ mile from Mount Desert Island and ⅞ mile eastward of Sands Point. It is marked on its northeast side by a buoy (spar, black, No. 9).

Googin Ledge, on the northern side of the middle of Eastern Bay, is ⅜ mile long, and the highest part shows at low water. The ledge is marked on its southern and western sides by three red spar buoys. The channel is southward of the ledge.

1 A. *From westward.*—From the whistling buoy 1⅛ miles south-southeastward from Baker Island lighthouse, steer 13° true (**NNE** ¾ **E** mag.) for 6¼ miles, heading for Egg Rock lighthouse. When Egg Rock whistling buoy is ½ mile distant ahead and Great Head bears 266° true (*WNW* ¾ *W* mag.), steer 342° true (**N** mag.) for 3¾ miles to a position 300 to 500 yards eastward of Round Porcupine Island. Then follow the directions in the third paragraph of section 1, preceding.

Or, having come from westward through the passage northward of Sutton Island, pass about 200 yards southward of Seal Harbor gas buoy and steer 58° true (**ENE** ¾ **E** mag.) for 2½ miles, following the shore of Mount Desert Island at a distance of ¼ mile. When Otter Cliff Ledge bell buoy is about 200 yards on the port beam, steer 21° true (**NE** ½ **N** mag.) for 1¾ miles, passing about 400 yards southeastward of Great Head, to a position 200 yards eastward of Schooner Head buoy (can, black, No. 3). Then steer 353° true (**N** by **E** mag.) for 3¼ miles to a position 300 to 500 yards eastward of Round Porcupine Island. Then follow the directions in the third paragraph of section 1 preceding.

Dangers.—Otter Cliff Ledge, bare at half tide, lies 400 yards eastward of Otter Creek Point. A black bell buoy is placed 250 yards southeastward of the ledge.

Schooner Ledge, bare at low water, lies 350 yards from shore and midway between Great Head and Schooner Head; a buoy (can, black, No. 3) is placed 300 yards eastward of the ledge.

Newport Ledge shows at lowest tides and is marked on its eastern side by a buoy (can, black, No. 3½). It lies 400 yards from shore and midway between Schooner Head and **The Thrumbcap.** The latter is a small, rocky islet nearly ¼ mile from shore. Strangers should not pass between The Thrumbcap and Mount Desert Island.

SOUTH SHORE OF MOUNT DESERT ISLAND.[1]

Newport Cove is a small cove making northward west of Great Head; it is not an anchorage, being exposed southward, and the holding ground is poor. There is a bare rock off its entrance.

Otter Cove is a long, narrow, shallow cove making northward west of Otter Creek Point, and is exposed southward.

Seal Harbor makes into the south shore of Mount Desert Island about 1⅜ miles east of Bear Island; it is an anchorage for small vessels, but is exposed to southeasterly winds. There is a steamboat landing and the village of Seal Harbor, a summer resort, on the eastern shore. A black spar buoy marks the end of the ledge which extends from the western shore halfway across the entrance of the harbor. The anchorage is about 400 yards in diameter, in the middle of the cove, in 16 to 18 feet; the head of the cove must be given a berth of over 300 yards. The approach is between Seal Harbor gas buoy on the east and Bowden Ledge buoy on the west.

Bracy Cove, westward of Seal Harbor, is unfit for anchorage. It is exposed to southeast winds, and the bottom is rocky and uneven.

Sutton Island, about 1 mile long and wooded, lies in the middle of the passage between the south shore of Mount Desert Island and Cranberry Islands. **Sutton,** a post office and summer resort, is on its western part. The channel north of Sutton Island has a depth of about 8 fathoms and is generally used. That south of it has a depth of about 17 feet and is contracted by rocks; the principal dangers are marked by buoys, and its navigation is not difficult in the daytime with the aid of the chart.

Bear Island, north of the western end of Sutton Island, is small and high and is marked on its western end by a lighthouse. The passage north of the island is blocked by reefs. The south side of the island should be given a berth of 200 yards.

Northeast Harbor has its entrance northwestward of Bear Island. The head of the harbor is shoal, but there is anchorage 200 yards wide for very small vessels for a distance of ⅜ mile inside its entrance, favoring the western side, in 3 to 4 fathoms. Vessels generally anchor just outside the entrance, between it and buoys Nos. 2 and 4, in 4 to 6 fathoms. There are several large summer hotels on the shores of the harbor. The steamer landing is outside the harbor northwestward of Gilpatrick Cove.

A rock bare at low water lies ¼ mile northwestward of Bear Island lighthouse, and is marked on its western side by a buoy (spar, red, No. 2) and on its eastern side by a buoy (spar, black, No. 1). There is deep water around the rock, but the best passage into Northeast Harbor is westward of it.

A ledge with 4 feet over it extends 250 yards from the shore just eastward of the entrance of Northeast Harbor, and is marked at its end by a buoy (spar, red, No. 4).

Southwest Harbor and Somes Sound are described under their respective headings.

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[1] Shown on charts **103,** scale $\frac{1}{80,000}$, price $0.50; **306, 307, 308, 292,** scale of each $\frac{1}{40,000}$, price of each $0.25.

Cranberry Harbor is southward of Sutton Island between Little Cranberry and Great Cranberry Islands. It is frequented by small local vessels, and coasting vessels sometimes anchor here, but Southwest Harbor is a much better anchorage. The post village of **Islesford** is on the east side of the harbor, and the usual anchorage is in 14 to 20 feet in the middle of the harbor with the wharves bearing about 50° true (**ENE** mag.), taking care to keep well clear of the black spar buoy on the end of the ledge which extends 350 yards westward from the east side at the entrance.

Western Way (Cranberry Island Passage) is a frequently used channel lying between the west side of Cranberry Island and Mount Desert Island. There is a depth of 14 feet on the bar about halfway through the passage. Two ledges contract the channel south of the bar to a width of 200 yards, with depths of 16 to 17 feet, where it is marked by buoys.

SOUTHWEST HARBOR

is the most important harbor on the south side of Mount Desert Island. It is an excellent, well-sheltered anchorage in 2 to 8 fathoms, and can be entered from eastward, northward of Sutton Island, by vessels of the deepest draft. The approach from southward across Cranberry Island Bar has a depth of 14 feet.

The villages of **Southwest Harbor** on the north side and **Manset** on the south side of the harbor are summer resorts, and there are several fish factories. The steamboat wharf at each village has about 14 feet at the end and the other wharves have much less. There is telephone communication.

Anchorage.—Deep draft vessels can anchor midway between Greening Island and the southern shore, in 7 to 9 fathoms. Smaller vessels can anchor farther in, the depths shoaling gradually to 12 feet 150 yards eastward of the islet which lies 400 yards from the head of the harbor.

Pilots.—In the daytime, with clear weather, a pilot is not required to enter from eastward. Strangers coming from westward and crossing Bass Harbor and Cranberry Island Bars can take a pilot at Bass Harbor, if desired. Pilots for the waters eastward and westward can generally be found at Southwest Harbor by making inquiries on shore.

Supplies.—Anthracite coal and ship-chandler's stores in limited quantities can be had alongside the wharves. Water and provisions can be obtained.

Ice does not interfere with navigation except during the most severe winters, and then only for a short time.

The tides are the same as at Bar Harbor. (See table, p. 24.)

SAILING DIRECTIONS, SOUTHWEST HARBOR.

1. ***From eastward.***—The directions reversed of the second paragraph of section 1 A of the directions for Frenchman Bay, preceding, will lead from Round Porcupine Island to Seal Harbor buoy.

Pass 200 yards southward of Seal Harbor buoy (gas buoy in summer) and steer 259° true (**W** ⅝ **N** mag.) for the southeast end of Greening Island, until midway between Bear Island and the western end of Sutton Island. Then steer 249° true (**W** ¼ **S** mag.) and pass 100 to 200 yards southward of the buoy lying nearly 200 yards southward from the southeast end of Greening Island. Then steer 269° true (**WNW** ½ **W** mag.) and select anchorage according to draft.

From Baker Island whistling buoy steer 348° true (**N** ½ **E** mag.) passing ⅜ mile eastward of Baker Island. When Baker Island lighthouse bears 213° true (*S W* ½ *W* mag.) steer 317° true (**NNW** ¼ **W** mag.) for East Bunker Ledge beacon and pass about ¼ mile eastward of the black spar buoys eastward of Cranberry Island. When the beacon is about ½ mile distant, steer 283° true (**NW** by **W** ¼ **W** mag.) for Bear Island lighthouse and pass ¼ mile southward of the beacon and 400 yards northward of Sutton Island. Pass midway between Bear Island and the western end of Sutton Island, steer 249° true (**W** ¼ **S** mag.), and pass 100 to 200 yards southward of the buoy lying nearly 200 yards southward from the southeast end of Greening Island. Then steer 269° true (**WNW** ½ **W** mag.) and select anchorage according to draft.

Dangers.—Harding Ledge, with 3 feet near its end, extends ¼ mile eastward from Little Cranberry Island, and is marked at its end by a buoy (spar, black, No. 3). A rock with 10 feet on it lies ½ mile southeastward from Harding Ledge and ⅞ mile 359° true (**N** by **E** ½ **E** mag.) from Baker Island lighthouse, and is marked on its eastern side by a buoy (spar, black, No. 1).

East Bunker Ledge, lying 1 mile eastward of Sutton Island, is ¼ mile long and partly bare at high water. It is marked near its southwest end by a white, stone beacon. **Lewis Rock**, with 6 feet over it, lies nearly ¼ mile northward of the beacon and is marked on its north side by a buoy (spar, black, No. 3).

Old Tom is a rock with 22 feet over it lying ½ mile eastward of Sutton Island and the same distance southwestward from East Bunker Ledge beacon.

A ledge, with 4 feet over it, extends 250 yards from the north shore just eastward of the entrance to **Seal Harbor**, and is marked at its end by Seal Harbor buoy (gas buoy in summer).

Bowden Ledge, with 2 feet over it, lies 300 yards southward from the western point at the entrance of Seal Harbor, and is marked on its southern side by a buoy (spar, red, No. 4).

Long Pond Shoal is a rock with 5 feet over it, lying ⅜ mile eastward of Bear Island and 600 yards from the northern shore, and is marked on its south side by a buoy (spar, red, No. 6). A rock with 14½ feet over it lies 400 yards eastward (true) from the buoy.

Greening Island, lying on the north side of the entrance to Southwest Harbor, has shoals making out 200 to 350 yards from it on all sides. It is marked off its southeast end by a buoy (spar, red, No. 6), and off its southwest end (**Greening Ledge**) by a buoy (spar, red, No. 8). The latter buoy is also a guide to the passage between Greening Island and Clarke Point.

1 A. ***From westward through Western Way.***—Crossing Bass Harbor Bar close to the fairway buoy lying about 350 yards southward of Bass Harbor Head lighthouse, steer 89° true (**ESE ½ E** mag.) and pass about 100 yards southward of Long Ledge bell buoy. Round the buoy at this distance and steer 25° true (**NE ¼ N** mag.) for a little over 1 mile to the fairway buoy (can, black and white perpendicular stripes).

From the fairway buoy steer northeastward about 300 yards and pass between Cranberry Island Ledge buoy (spar, red, No. 2) and Flynn Ledge buoy (spar, black, No. 3). From the latter buoy steer 356° true (**N by E ¼ E** mag.) for the fairway buoy (can, black and white perpendicular stripes) at the northern end of Western Way. Then steer 323° true (**N by W ¾ W** mag.) and follow the western shore at a distance of about 400 yards into Southwest Harbor.

Approaching southward of Long Island, pass about 1 mile southward and eastward of Long Island Head and steer 6° true (**NNE ⅛ E** mag.) for nearly 8 miles, passing ⅜ mile eastward of The Drums buoy, ¼ mile westward of South Bunker Ledge spindle, and to the fairway buoy (can, black and white perpendicular stripes) nearly ¾ mile northward of the spindle. Then proceed as directed in the preceding paragraph.

Dangers.—The Drums and Horse Shoe Ledge are described on page 71.

The Nubble is a dangerous reef, mostly bare at low water, and with a few detached rocks showing at high water. It extends ½ mile southeastward from Mount Desert Island, about 1½ miles eastward from Bass Harbor Head lighthouse, and is marked at its end by Long Ledge bell buoy (black).

South Bunker Ledge is a detached ledge about 400 yards in diameter, and lies ¾ mile southwestward from Cranberry Island. It shows partly bare at half tide, and is marked by a red iron spindle and cage near the middle of the ledge.

Cranberry Island Ledge is a rocky shoal, with 4 to 9 feet over it, extending 600 yards westward from the southwest end of Great Cranberry Island. It is marked at its end by a buoy (spar, red, No. 2).

Flynn Ledge, with 2 to 11 feet over it, makes out ½ mile southeasterly from Sea Wall Point, and is marked on its end by a buoy (spar, black, No. 3).

Cow Ledge is a rocky shoal, with a spot bare at low water, extending 400 yards westward from **Spurling Point**. It is marked off its western end by a buoy (spar, red, No. 4). The ledge making northward 250 yards from Spurling Point is marked by a buoy (spar, red, No. 4½).

SOMES SOUND.[1]

This is a narrow body of water, about 4½ miles long and ¼ to ¾ mile wide, making into the south shore of Mount Desert Island. It lies between steep, rocky shores, and has a narrow entrance with few dangers. With the aid of the chart, good anchorage can be selected in the sound, in 9 to 12 fathoms, but it is out of the way and little used. Sailing vessels should enter under easy canvas on account of the heavy squalls of wind which occasionally strike down from the mountains. Greening Island lies in the middle of the approach, with a channel on either side of it. The eastern channel is the wider, and has a least depth of 8½ fathoms; the western channel has a depth of 15 feet and is narrow. The channel in the entrance off Manchester Point is only 200 yards wide between the 18-foot curves; above the point it widens.

Somes Harbor, on the northwestern side at the head of the sound, is a small cove, shallow on its western side and at its head. The village of **Somesville** is on the west shore of the harbor. There is 8 feet at low water alongside the eastern wharf. During the summer a small steamer runs to Southwest Harbor from Somesville.

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[1] Shown on charts **103**, scale $\frac{1}{80,000}$, price $0.50; **306, 307, 292**, scale of each $\frac{1}{40,000}$, price of each $0.25.

SAILING DIRECTIONS, SOMES SOUND.

From eastward.—Give the northeast shore of Greening Island a berth of over 300 yards and pass midway between the island and the spindle on Gilpatrick Ledge. Then steer 320° true (**NNW** mag.) for Middle Rock buoy. Leave this buoy 50 yards on the port hand and steer 352° true (**N** ⅞ **E** mag.) for the point at Robinson Mountain, on the western shore 1¾ miles above the entrance. When through The Narrows give the eastern shore a berth of 400 yards for a distance of 1 mile, and then keep near mid-channel. Approaching the entrance of Somes Harbor, give the western shore a berth of over 200 yards and pass 100 yards westward of Myrtle Ledge buoy (spar, red, No. 8). Then steer 342° true (**N** mag.) and leave Bar Ledge buoy (No. 9) close-to, and Mason Ledge buoy (No. 11) about 50 yards on the port hand. Anchor just above buoy No. 11, in 3½ fathoms, soft bottom, taking care to give the western side of Sheep Island a berth of 150 yards.

From Southwest Harbor.—Pass about 200 yards westward of Greening Ledge buoy (spar, red, No. 8) and steer 5° true (**NNE** mag.); leave Clarke Point buoy (No. 5) about 25 yards and Middle Rock buoy (No. 7) about 50 yards on the port hand, and enter as directed in the preceding paragraph.

Dangers.—**Gilpatrick Ledge**, barely covered at high water, extends 300 yards southward from the eastern side of the entrance to Gilpatrick Cove, and is marked by a red spindle, which should be given a berth of over 150 yards.

Greening Island has shoals making out about 200 yards from its northern shore. The extreme northern point is marked by a buoy (spar, black, No. 5).

Middle Rock, with 9 feet over it, lies on the western side of the entrance to Somes Sound and ⅝ mile northward from the north point of Greening Island. It is marked on its eastern side by a buoy (spar, black, No. 7) and can be avoided by favoring Manchester Point, giving the latter a berth of 100 to 200 yards.

Myrtle Ledge, with 5 feet over it, is the end of a ledge which extends ¼ mile southward from Bar Island, on the eastern side of the entrance of Somes Harbor. It is marked at its southern end by a buoy (spar, red, No. 8).

Greening Ledge, on the southwest side of Greening Island, is marked by red spar buoy No. 8.

A **1-foot rock** on the western side of the channel near the bar between Greening Island and Clarke Point is marked by a buoy (spar, black, No. 5), which should be left close-to on the port hand leaving Southwest Harbor.

BLUE HILL BAY [1]

lies west of Mount Desert Island; it is about 14 miles long and contains several large and some small islands, between which are good channels with deep water. The dangers are comparatively few, and the most prominent are marked by buoys. There are numerous coves on both sides of the bay, and its head is divided into several large arms, the most important of which is **Union River Bay**, the approach to the city of Ellsworth and the town of Surry.

Blue Hill Bay is approached from eastward across Bass Harbor Bar, from southward between Black Island and Swan Island, and from westward through Jericho Bay, which is entered through Merchants Row, Deer Island Thoroughfare, or Eggemoggin Reach. The channels between Blue Hill and Jericho Bays are Casco Passage, York Narrows, and the passage northward of Pond Island. These approaches are more or less obstructed by islands and ledges, but are sufficiently marked to be safely navigated in clear weather.

Mackerel Cove is a good anchorage on the north side of Swan Island, at the eastern entrance of Casco Passage. **Atlantic**, a post office and wharf, is on its southern side. There are islets and numerous ledges in the cove, but the entrance from northward is easy of access in the daytime. There is a narrow channel into Mackerel Cove from York Narrows which follows closely the shore of Swan Island, passing southward of Orono and Round Islands. On account of numerous unmarked dangers it should not be used by vessels except with local knowledge.

The Triangles is a bare ledge from which a reef covered at half tide extends ¼ mile northward. A buoy (spar, red, No. 2) marks the eastern side of a rock bare at low water, lying 400 yards southeastward of **Crow Island** (has two trees). A black bell buoy marks a rock with 6 feet on it, lying 300 yards northwestward of North Point of Swan Island. Enter Mackerel Cove between the bell buoy and buoy No. 2, and steer about 181° true (**S** by **W** ⅝ **W** mag.) so as to pass westward of buoy No. 3, which marks a 11-foot spot. Anchorage can be selected between buoys 2 and 3, in 4 to 5 fathoms, taking care to give the eastern shore a berth of 300 yards; there is also a good berth about midway between buoy No. 3 and the bare ledge, lying ¼ mile northwestward of the wharf, in 4 fathoms. A rock with 4 feet over it lies ¼ mile northwestward of the bare ledge.

[1] Shown on charts **103**, scale $\frac{1}{80,000}$, price $0.50; **307**, scale $\frac{1}{40,000}$, price $0.25. The entrance is shown on chart **308**, scale $\frac{1}{40,000}$, price $0.25.

Herrick Bay is a large, shallow, and unimportant bight on the western side of Blue Hill Bay northwestward from Blue Hill Bay lighthouse. It is dry at low water for a distance of nearly 1 mile from its head. There is good anchorage in the approach to the bay ¼ to ¾ mile from the western shore northward of Naskeag Point, in 4 to 7 fathoms. On the eastern side of this anchorage ledges extend ⅜ mile westward and southward of Blue Hill Bay lighthouse, and from these ledges **Flye Point Ledge,** a series of lumps with 7 to 13 feet, extends ⅞ mile southward. The range of the western ends of Flye and Long Islands leads westward of these dangers, and the range of Lamp Islet and West Barge leads southward of them.

Allen Cove, rarely used as an anchorage, is on the west side of Herriman Point, 3½ miles northward of Blue Hill Bay lighthouse. The shores of the cove are foul. The anchorage is in the middle of the cove, in 2 to 5 fathoms, and is open northward.

Bass Harbor is at the south end of Mount Desert Island northwestward of Bass Harbor Head, and is frequently used by vessels bound through the inland passages. A fish factory (**McKinley** post office) is on the eastern side at the entrance of the inner harbor. The depth at the end of the stone wharf is about 12 feet. Ice seldom prevents vessels entering the outer harbor.

Vessels generally anchor between Weaver Ledge and the entrance of the inner harbor, in 5 to 7½ fathoms, bottom soft in places. This anchorage is exposed in southerly winds. The inner harbor is a crooked channel 100 yards wide with depths of 2 to 4 fathoms, and is a secure anchorage for small craft.

Weaver Ledge is bare at low water only and about 200 yards in diameter, and lies westward of the middle of the entrance of Bass Harbor. It is marked on its eastern and western sides, respectively, by a black and a red spar buoy.

The approach from eastward is across Bass Harbor Bar, which has 12½ feet over it at a point about 350 yards southward of Bass Harbor Head lighthouse, where it is marked by a buoy (spar, black and white perpendicular stripes). Bass Harbor can be entered on either side of Weaver Ledge, the shores being fairly bold. Black spar buoys Nos. 3 and 5 mark ledges which extend about 200 yards from the northern shore of Bass Harbor; buoy No. 5 is at the entrance of the inner harbor.

Mitchell Cove and **Duck Cove** are shallow and foul.

Goose Cove, 2 miles northward of Lopau Point, is ½ mile long and ¼ mile wide, and is a sheltered anchorage for small vessels except with southwest winds. The depths range from 5 fathoms at the entrance to 12 feet ¼ mile from the head, above which the cove is shoal. There is a landing on the western side of the cove. The points at the entrance should be given a berth of over 200 yards.

Seal Cove, 4 miles northward of Lopau Point, is a sheltered anchorage for small vessels except with westerly winds. A rock awash at high water lies 300 yards off the north side just inside the entrance, and a ledge partly showing at high water lies off the shoal bight on the south side. Entering midway between the rock and ledge, anchor near the middle of the cove, in 3 to 6 fathoms.

Sawyer Cove, on the eastern shore of Blue Hill Bay eastward from the north end of Hardwood Island, is an anchorage for small craft. On the northeast side at the entrance is a ledge awash at high water.

Pretty Marsh Harbor makes into the eastern shore of the bay northeastward from Hardwood Island. There is good anchorage for vessels 300 to 500 yards from the eastern shore eastward of Folly Island, in 5 to 6 fathoms. The northern and western sides of the cove inside West Point are shoal, and a shoal extends 350 yards southeastward from the point. A shoal extends 150 yards southeastward from **Folly Island,** and a ledge with 3 feet over it lies 200 to 300 yards eastward from the island; otherwise there are no dangers away from the shores.

Bartlett Narrows leads between Mount Desert Island and Bartlett Island. The channel is narrow, but has deep water, with few dangers, and is not difficult. The mid-channel westward of Folly and John Islands is clear. If passing eastward of Folly Island give it a berth of about ¼ mile, and give the south end of John Island a berth of over 100 yards. The eastern shore of the Narrows from West Point to its northern end is bold and should be favored. In the narrowest part keep the eastern shore aboard distant 100 yards to avoid a ledge which extends 200 yards southward from a group of bare rocks.

A ledge with 2 to 3 feet over it lies 400 to 600 yards from the eastern shore ⅜ mile northward of Bartlett Narrows. It will be avoided by keeping westward of a line from the north end of the Narrows to the north end of Black Island.

WESTERN BAY

is northeastward from Bartlett Island and is a part of the waters which separate Mount Desert Island from the mainland. Mount Desert Narrows, previously described, is at the head of Western Bay. Vessels of any size can select anchorage in the bay below Alley Island, in 10 to 12 fathoms, but the broken ground with 5½ to 6 fathoms extending ⅜ mile off the southeast side of Oak Point should be avoided. With the aid of the chart, good anchorage can also be selected in 3½ to 6 fathoms, southeastward and eastward of Alley Island. The range of the summit of

Bartlett Island over the middle of Black Island clears the shoal which extends ¼ mile southeastward from Alley Island.

Foul ground extends about ¼ mile from the south shore between Green Island and Indian Point. **Clark Cove**, eastward of Indian Point, has anchorage in 12 to 18 feet, but a ledge with little water over it extends ¼ mile from its southeast shore ¼ mile eastward from Indian Point.

Goose Cove is a large shallow bight on the north side of Western Bay above Alley Island, and at its head is the village of **West Trenton**. The head of the cove is dry at low water for a distance of ½ mile, and thence it deepens gradually to 7 feet ½ mile farther down.

BLUE HILL HARBOR

is in the northwestern part of Blue Hill Bay, northwest from Long Island. It consists of a large bight, called the outer harbor, and a small arm extending northwestward to the village of **Blue Hill**, called the inner harbor. Ledges extend 200 to 400 yards from the western shore of the outer harbor, and at a point 1 mile southward of the entrance of the inner harbor they extend ½ mile from shore. Anchorage, sheltered from northerly and westerly winds, will be found in the outer harbor in 4 to 8 fathoms.

The channel in the inner harbor is narrow and crooked. The entrance has a depth of about 18 feet, but it is so narrow that a stranger should not depend on carrying a greater depth than 8 feet at low water. There is secure anchorage for small vessels just inside the entrance, in 3 to 4 fathoms. The steamer landing for Blue Hill is on the north side ⅝ mile above the entrance, and has a depth of about 12 feet at its end. A small quantity of anthracite coal is generally kept on hand. Ice closes the harbor from December to April.

Many of the rocks show except at high water, and the principal dangers are buoyed. **The Triangles** are three rocks, bare at low water only. The entrance is 50 yards wide between **Sculpin Ledge** (bare at one-quarter ebb and marked by buoy No. 2) and a ledge southward of it which has 8 feet on its northern end and extends to the shore southwestward. Eastward of the entrance is a detached shoal 350 yards long, with 4 feet over it, the eastern end of which is marked by a buoy (spar, black, No. 1). Vessels can enter on either side of the shoal.

To enter northward of it, pass 50 yards eastward and 100 yards northward of buoy No. 1, and steer 279° true (**NW** by **W** ⅝ **W** mag.) for Sculpin Ledge buoy (spar, red, No. 2). Leave it about 20 yards on the starboard hand and steer 320° true (**NNW** mag.). Select anchorage near mid-channel 200 to 500 yards above Sculpin Ledge, in 3 to 4 fathoms, bottom soft in places. If going to the wharf, be guided by the chart and buoys.

To enter westward of the shoal, steer 323° true (**N** by **W** ¾ **W** mag.) with a rock awash at high water, lying in the entrance of the eastern cove on the north side of the inner harbor, in range with the arch in the culvert at the head of the cove. Keep the range until about 250 yards from Sculpin Ledge, and then keep a little eastward of it to allow room for making the turn westward. Pass about 20 yards southward of Sculpin Ledge buoy (spar, red, No. 2), steer 320° true (**NNW** mag.), and anchor as directed in the preceding paragraph.

MORGAN BAY,

lying northward of Long Island and on the west side of Newbury Neck, is about 3 miles long, but is little used. The entrance is obstructed by Jed Islands and the surrounding ledges, leaving a deep narrow channel close to the western shore on either side of Conarys Nub.

To enter, pass in mid-channel westward of Conarys Nub on a 38° true (**NE** by **E** mag.) course, and keep the western shore aboard distant 200 yards until abreast Seal Ledge. Or pass 125 yards eastward of Conarys Nub on a 2° true (**N** by **E** ¾ **E** mag.) course, and pass midway between Seal Ledge and the western shore. Good anchorage can be selected in the bay, in 2 to 6 fathoms, for which the chart is the guide.

Conarys Nub is a rock with a clump of scrub. **Seal Ledge** is awash at high water. **Black Rock** is on a shoal with 7 to 10 feet which extends ⅜ mile northeastward of Seal Ledge. **Bird Rock**, westward of Jed Islands, is about 3 feet high. **South Ledge**, ¼ mile southwestward of Jed Islands, is covered at half flood. A rock with 4 feet over it lies ¼ mile southwestward of South Ledge. Danger will be avoided by keeping westward of a line from Conarys Nub to the southwest end of Newbury Neck.

Darling Ledge, the top of which shows at low water, extends ¼ mile southward from Darling Island. The latter lies ¼ mile from shore with foul ground between.

UNION RIVER BAY

is a large bay extending about 5½ miles in a north (true) direction between Oak Point on the east and Newbury Neck on the west. It is free from dangers, except near its northern end. The head of the bay is separated into two arms, Union River the eastern, leading to the city of Ellsworth, and Patten Bay, the western, leading to the town of Surry.

Patten Bay is a long, narrow arm making northwestward from Union River Bay. The town of **Surry** is at its head. The deepest draft entering is 10 feet, but the depth in the channel up to the town is only 2 feet at low water, and the wharves run dry. The steamboat wharf is on the north shore at the entrance to the bay 1⅜ miles northwestward of Weymouth Point. There is good anchorage at the entrance near mid-channel as far as ¼ mile above the wharf, in 4 to 5 fathoms. Small craft can anchor in the channel for a distance of ¾ mile above the wharf, in 3 to 4 fathoms. A ledge, partly bare at half tide, extends 400 yards from the northern shore midway between Weymouth Point and the wharf, and is marked by a buoy (spar, red, No. 2). Between the buoy and the wharf the northern shore is fairly bold, while the opposite side should be given a berth of 300 yards. Ice closes the upper end of the bay during January, February, and March.

UNION RIVER,

emptying into the northeastern part of Union River Bay, is about ½ mile wide for 1 mile; then it becomes narrow and has a crooked channel up to the city of Ellsworth, about 4 miles above its mouth. There are several rocks and ledges off the entrance; the most prominent are buoyed. The entrance above Weymouth Point is full of sawdust shoals. A channel has been dredged up the river, 6 feet deep, except near Ellsworth, where it is 4 feet.

Whitmore Cove is small and shallow, and is on the eastern side southeastward from Weymouth Point. There is a sawmill and wharf on the cove, where vessels load lumber.

The city of **Ellsworth**, at the head of navigation, is on the line of the Maine Central Railroad. The deepest draft entering is 12 feet on very high tides; the usual draft is 10 feet. The least depth in the channel is 4 feet, and at the wharves 5 feet, at low water. Vessels bound to Ellsworth generally anchor off Weymouth Point and take a towboat or pilot; either will respond to signal.

Supplies.—Anthracite coal in limited quantity can be had alongside the wharf; provisions and some ship-chandler's stores can be obtained. Fresh water can be taken from the river at low water.

Repairs.—Light repairs to vessels can be made; there is a small marine railway; for extensive repairs the nearest place is Bangor or Rockland.

Marine hospital.—Relief is furnished as for stations of Class III of the United States Public Health and Marine-Hospital Service. Patients requiring hospital treatment are sent to the Marine Hospital at Portland, Me.

Freshets occasionally occur in the spring.

Ice closes the river from December to April.

SAILING DIRECTIONS, BLUE HILL BAY.

Directions for the principally used routes from Bass Harbor Bar through Casco Passage and from Bass Harbor Bar to Eggemoggin Reach by the passage northward of Pond Island are given on pages 30 and 75.

Vessels of too deep draft, or when there is too much easterly or southeasterly swell, to cross Bass Harbor Bar, can enter the bay southward of the Gott and Placentia Islands and northward of Black Island, as directed in section 1 A following.

Vessels of the deepest draft should enter the bay from southward eastward of Long Island as directed in section 1 B. This passage has been covered sufficiently by means of a wire drag to insure a clear channel as indicated on the chart.

1. ***From Bass Harbor Bar.***—From the fairway buoy lying about 350 yards southward of Bass Harbor Head lighthouse, steer 280° true (**NW** by **W** ½ **W** mag.) and pass ¼ mile southward of Lopau Point. When ½ mile westward of the point, steer 311° true (**NNW** ¾ **W** mag.) for 4 miles to a position ⅜ mile eastward of Bar Island buoy.

Bound to Union River.—From a position ⅜ mile eastward of Bar Island buoy, steer 332° true (**N** by **W** mag.) for 2 miles to a position ¼ mile westward of buoy No. 6, lying nearly ⅜ mile southwestward of Hardwood Island. Then steer 4° true (**N** by **E** ⅞ **E** mag.) for 3 miles heading for High Head to a position ¼ mile off the western end of Bartlett Island. Then steer 16° true (**NE** by **N** mag.) for 2½ miles to a position ½ mile eastward of High Head. From this position a 4° true (**N** by **E** ⅞ **E** mag.) course for 5¼ miles will lead up Union River Bay to Tupper Ledge buoys. Pass between Tupper Ledge buoy No. 7 and Lord Rock buoy No. 10, and anchor southeastward of Weymouth Point (the western point at the entrance to Union River), in 3½ to 4½ fathoms.

Bound to Blue Hill Harbor.—From a position ⅜ mile eastward of Bar Island buoy, steer 311° 30′ true (**NNW** ¾ **W** mag.) for 5½ miles to a position ¼ mile westward of buoy No. 6, near the southwest point of Long Island. Then steer 2° true (**N** by **E** ¾ **E** mag.) for 1⅝ miles to a position ¼ mile eastward of Sand Point. From this position a 347° true (**N** ⅜ **E** mag.) course for 2¾ miles will lead to buoy No. 1, off the entrance of Blue Hill Harbor.

Remarks and dangers.—A rock with 16 feet over it lies 1⅜ miles above Lopau Point and 600 yards south-southwesterly from Dix Point, on the eastern shore.

Ship, Trumpet, Bar, and **Tinker Islands** are a chain 4 miles long in the middle of Blue Hill Bay. The islands are joined by shoals, and should not in general be approached closer than ⅜ mile. There is a depth of 17 feet, marked by a buoy (spar, black and white perpendicular stripes), on the bar ¼ mile northward of Trumpet Island. Ship and Bar Islands are high and grassy, and Trumpet Island is low. Tinker Island is large high and wooded, except its south end. The shoal extending 600 yards northeastward from Bar Island is marked by Bar Island buoy (spar, black, No. 0).

West Barge is a flat, grass-covered rock, 600 yards westward of Ship Island, with deep water around it. **East Barge** is a round grassy islet on the end of the shoal extending 200 yards southward from Ship Island.

Ship and Barges Ledge, lying ⅝ mile south-southeastward from Ship Island, is 350 yards long and bare at half tide. It is marked at its southern end by a black tripod beacon, upper half slatted, and at its northern end by a black spindle. A black bell buoy is placed about 250 yards eastward of the ledge.

Cow and Calf Ledge has little water in places and extends ¼ mile westward and northward from the north end of Tinker Island. It is marked on its western side by a buoy (spar, red, No. 2). On the ledge ¼ mile northward from Tinker Island is a rock bare at half tide, and 250 yards northward of the rock is a buoy (spar, red, No. 4).

Herriman Ledge is a rock with 10 feet over it lying nearly ⅝ mile eastward from Herriman Point, on the western shore northwestward from Tinker Island. The ledge is marked on its eastern side by a buoy (spar, black, No. 3).

A shoal extends ⅜ mile southwestward from the southwest end of **Hardwood Island**, and is marked at its end by a buoy (spar, red, No. 6).

A shoal extends nearly ¼ mile off the southeast end of **Long Island**, and is marked at its end by a buoy (spar, black, No. 3). The shores above this to Tupper Ledge are fairly bold, and danger will be avoided by giving them a berth of ¼ mile.

Tupper Ledge, partly bare at low water, lies ½ to ⅝ mile south-southwesterly from Weymouth Point, and there are depths of 17 and 18 feet between. The ledge is marked off its southern side by a buoy (spar, black, No. 7), and on its northwest side by a buoy (spar, black, No. 9).

Lord Rock, with 9 feet on it, lies ⅜ mile east-southeasterly from Tupper Ledge and 350 yards from the eastern shore, and is marked on its northwest side by a buoy (spar, red, No. 10).

1 A. ***From eastward, entering between Black and Placentia Islands.***—From the whistling buoy 1⅛ miles south-southeastward from Baker Island lighthouse, steer 251° true (**W** ⅛ **S** mag.) for 6 miles to a position ¼ mile southward of the southeast end of Great Gott Island. Continue the course about 1 mile, giving the south side of Little Gott Island a berth of about 300 yards, pass midway between the latter and Black Island, and round the north end of Black Island at a distance of 200 yards. Then steer 230° true (**WSW** mag.), and round the southern end of Placentia Island, at a distance of 400 to 500 yards. For courses up the bay see section 1 B following.

To Casco Passage.—From a position 400 to 500 yards westward of Placentia Island, steer 309° true (**NW** by **N** mag.) to a position ¼ mile northeastward of Staple Ledge buoy (spar, red and black horizontal stripes). A 283° true (**NW** by **W** ¼ **W** mag.) course will then lead ¼ mile northward of North Point of Swan Island, and Black Island on the north side at the easterly entrance of Casco Passage will be ahead. Directions through the passage are given on page 30

1 B. ***From southward.***—Pass ¾ mile eastward of Long Island Head and steer 334° true (**N** ¾ **W** mag.) for the western end of Green Islands. Or, passing ⅜ mile or more southward of Great Duck Island lighthouse, bring it astern on a 282° true (**NW** by **W** ⅜ **W** mag.) course, heading for the western end of Green Islands, and pass about ⅜ mile northward of The Drums.

Pass 400 to 500 yards westward of Green Islands and steer 315° true (**NNW** ½ **W** mag.) for 2¼ miles to a position ¼ mile westward of Placentia Island.

Bound up the bay.—From a position ¼ mile westward of Placentia Island, steer 332° true (**N** by **W** mag.) for 5¾ miles, heading for the summit of Long Island, to a position ⅜ mile

eastward of Bar Island buoy. Then follow the directions in the second or third paragraph of section 1 preceding.

To Bass Harbor.—From a position ¼ mile westward of Placentia Island, a 22° true (**NE** ½ **N** mag.) course for 2¾ miles will lead into Bass Harbor between Lopau Point and the red buoy marking the western end of Weaver Ledge.

Remarks and dangers.—A ledge extends ¼ mile southeastward from **Great Duck Island** lighthouse.

Northeast Ledge is a rock with 16 feet over it lying ½ mile northeastward from Northeast Point of Long Island.

Otter Island Ledge, bare at half tide, lies nearly ⅜ mile eastward from the north end of Sister Islands. **Beaumond Ledge,** with 9 feet over it, lies ¼ mile southeastward of Otter Island Ledge. A rock with 3¾ fathoms over it lies ⅜ mile eastward of Otter Island Ledge and nearly ¾ mile 225° true (**SW** by **W** ½ **W** mag.) from the western end of Green Islands.

The Drums is a dangerous ledge, bare at low water, lying 1⅜ miles southeastward from the western end of Green Islands; it is marked off its southeast end by a buoy (spar, black, No. 1). The range of the western end of Green Islands and the western end of Placentia Island leads well westward of it.

Green Islands are two rocky islets, the western one high and grassy, lying ¾ mile southward of Black Island. **Drum Islet** is a large bare rock 400 yards eastward of Green Islands. A rock with 4½ fathoms over it lies ⅞ mile 90° true (**ESE** ½ **E** mag.) from the southwest end of Green Islands. There is broken ground with a least depth of 14 feet between these islets and Black Island.

Horse Shoe Ledge, bare at low water, lies ⅝ mile eastward of Drum Islet, and is marked by a black spindle and cask.

Staple Ledge is a rock, bare at low water only, lying over ½ mile from Swan Island and ⅞ mile 278° true (**NW** by **W** ¾ **W** mag.) from the western end of Placentia Island. It is marked on its southeast side by a buoy (spar, red and black horizontal stripes), which should be given a berth of over 300 yards.

1 C. ***From southwestward.***—From a position 1 mile westward of Southwest Point of Long Island steer 3° true (**N** by **E** ⅞ **E** mag.), heading for Ram Islet, and pass about midway between Long Island and John Island, and between the Sister Islands and Swan Island. Pass midway between Ram Islet and Sister Islands and steer 45° true (**NE** by **E** ½ **E** mag.) until about ⅜ mile eastward of East Point of Swan Island. Then steer 345° true (**N** ¼ **E** mag.) with the eastern side of Sister Islands astern to a position ¼ mile westward of Placentia Island. For courses up the bay, see section 1 B preceding.

Remarks and dangers.—**John Island** is nearly ⅜ mile long and wooded. **John Island Dry Ledge,** lying ½ mile southwestward of the island, is about ¼ mile in diameter, and its higher parts show above high water. **John Island Sunken Ledge,** with 6 feet over it, lies ¼ mile southeastward from the Dry Ledge, and is marked on its southwest side by a buoy (nun, red, No. 2).

Beach Ledge, with 14 feet over it, lies ⅜ mile from Long Island and ¾ mile 311° true (**NNW** ¾ **W** mag.) from Southwest Point of the island.

A ledge bare at low water extends 300 yards southwestward from the southern end of the western **Sister Island.**

Ram Islet has two trees and lies ¼ mile from Swan Island in the bight westward of East Point, and ½ mile northward from the western Sister Island.

A rock with 16 feet over it lies ¼ mile northeastward from **East Point** of Swan Island.

1 D. ***From Eggemoggin Reach.***—Having come from Eggemoggin Reach by the passage northward of Pond Island, pass about 50 yards northward of black can buoy No. 1, northward of Pond Island, and steer about 33° true (**NE** ½ **E** mag.) until Channel Rock bears 275° true (*WNW* mag.) distant nearly ⅝ mile. Then steer 331° true (**N** by **W** mag.) for 2¾ miles, passing ¼ mile westward of Tinker Island and buoy No. 2 which lies northwestward from its northern end. Then,

Bound to Union River.—Steer 28° true (**NE** mag.) for the southeast side of Long Island in range with the northwest side of Bartlett Island until ¼ mile northward of buoy No. 4 northward of Tinker Island. Then steer 36° true (**NE** ¾ **E** mag.) for 1¼ miles to a position 100 yards eastward of buoy No. 3 lying nearly ¼ mile off the southeast end of Long Island. From this position a 16° true (**NE** by **N** mag.) course for 4¼ miles will lead ¼ mile westward of Bartlett Island and to a position ½ mile eastward of High Head as in the second paragraph of section 1 preceding.

Bound to Blue Hill Harbor.—Steer the 331° true (**N** by **W** mag.) course of the first paragraph above for 5¾ miles, passing 250 yards eastward of Herriman Ledge buoy (No. 3), and to a position ¼ mile westward of buoy No. 6 near the southwest point of Long Island, as in the third paragraph of section 1 preceding.

BURNT COAT HARBOR [1]

is a small, well-sheltered anchorage on the southwestern side of Swan Island, much used by fishermen as a harbor of refuge, but seldom by other vessels. The anchorage eastward of the lighthouse is about 500 yards wide, with a depth of 3½ to 6 fathoms, soft bottom. There is also good anchorage in the channel north of the lighthouse for small craft in 13 to 24 feet. The western point at the entrance is marked by **Burnt Coat Harbor lighthouse.** The approach from eastward is south of the islands and ledges lying between Long and Swan Islands; from westward it is south of the islands and ledges lying southward and southeastward of Isle au Haut and Marshall Island. The harbor is entered from Jericho Bay through the passage between Marshall Island and Hat Island.

The village and landing of **Swans Island** is on the shore of the harbor. There is 12 feet of water alongside the landing. Supplies for fishermen can be obtained here.

SAILING DIRECTIONS, BURNT COAT HARBOR.

From southward.—Follow the directions for entering Jericho Bay until between Green and Brimstone Islands, and then steer for the fairway bell buoy.

Or, from the whistling buoy lying 1¾ miles southeastward from Heron Island steer 342° true (**N** mag.) for 2¾ miles, passing 350 yards westward of Green Island, to the fairway bell buoy. Then steer 35° true (**NE** ⅝ **E** mag.) for Burnt Coat Harbor lighthouse until about ¼ mile from it.

Then steer 56° true (**ENE** ½ **E** mag.) through the entrance, passing 150 yards southward of the lighthouse and midway between it and Harbor Island Ledge spindle. Anchor eastward or northeastward of the lighthouse but not more than ¼ mile from it.

From Jericho Bay.—Pass about midway between Hat Island Ledge buoy (spar, red, No. 2) and Marshall Island buoy (spar, black, No. 1), and steer 110° true (**SE** ⅝ **E** mag.) to the fairway bell buoy. Or, steer this course until High Sheriff is ¼ mile on the port beam, and then steer about 84° true (**E** by **S** mag.) to a position 100 yards southeastward of Gooseberry Island Ledge buoy (spar, black, No. 3). Then steer 56° true (**ENE** ½ **E** mag.) through the entrance as directed in the preceding paragraph.

Remarks and dangers.—The dangers in the approaches are described on page 73.

High Sheriff is a bare rock about 15 feet high and lies ¼ mile westward of Gooseberry Island, which is grass-covered. **Sheriff Ledge**, bare at low water, lies between them, and extends 150 yards southward of a line joining their southern ends.

Gooseberry Island Ledge, bare at low water only, lies 400 yards southeastward from Gooseberry Islands. It is marked at its southern end by a buoy (spar, black, No. 3), which lies nearly ½ mile 230° true (**WSW** mag.) from Burnt Coat Harbor lighthouse.

Harbor Island Ledge is a rock bare at low water lying 150 yards from the southern side in the entrance of Burnt Coat Harbor, and is marked by a red spindle with wheel. The channel is northward of the spindle, which should be given a berth of 75 yards when northward or northeastward of it.

CASCO PASSAGE, YORK NARROWS, AND JERICHO BAY [1]

Northward of Swan Island, between it and Black Island, there is a narrow passage which separates into two branches in its western part. The eastern end and northern branch is known as **Casco Passage**, the southern branch as **York Narrows.** North of Pond Island there is a deeper and wider passage (see sailing directions, p. 75) connecting Blue Hill and Jericho Bays. They all form a part of the different inland passages from Mount Desert to Whitehead. Casco Passage and York Narrows are well marked by buoys, and at the eastern entrance, on the north end of Orono Island, there is a large black tripod.

Casco Passage is the straighter and better channel, and has a depth of 15 feet and a width of 150 yards. Vessels of 16 feet draft have been taken through. Directions for the passage are given on page 30.

York Narrows has a width of but little over 100 yards, and has dangerous ledges on both sides. It is not recommended for vessels of a greater draft than 9 feet at low water, except with local knowledge. The following directions will lead through the Narrows:

Pass about 50 yards northwestward of black can buoy No. 1 northward of Orono Island tripod, and steer 222° true (**SW** by **W** ¼ **W** mag.) for the western edge of the trees on Buckle Island, with the eastern edge of the trees on Black

[1] Shown on charts **103**, scale $\frac{1}{80,000}$, price $0.50; **308**, scale $\frac{1}{40,000}$, price $0.25.

Island astern. On this course pass 15 to 25 yards southeastward of red spar buoys Nos. 2 and 4, and pass about 50 yards northward of black spar buoy No. 3. Then steer 243° true (**W** ⅞ **S** mag.) with the northern end of the trees on Orono Island astern, pass about 25 yards southward of a nun buoy (red and black horizontal stripes), and give the edge of the bare ledge on the north side of Buckle Island a berth of 150 yards.

Jericho Bay is the body of water westward of Marshall and Swan Islands and is the approach from eastward to Eggemoggin Reach, Deer Island Thoroughfare, and Merchants Row. It has deep water, but there are many ledges, rocks, and small islands. Approaching Jericho Bay from southward it is advisable to pass between Marshall and Swan Islands, where the dangers are well marked. The entrance between Marshall Island and Isle au Haut is obstructed by a number of unmarked sunken ledges, and is little used.

Tidal currents.—The flood sets eastward and the ebb westward through Casco Passage. The velocity of the currents is influenced greatly by strong winds.

SAILING DIRECTIONS, JERICHO BAY.

Directions for entering the bay through Casco Passage are given on page 30, and through the passage northward of Pond Island on page 75. The following directions lead in a least depth of over 5 fathoms, except in Deer Island Thoroughfare:

Pass ½ to ¾ mile southward of Southwest Point of Long Island, and steer 275° true (**WNW** mag.) for the south end of Marshall Island until John Island Sunken Ledge buoy (nun, red, No. 2) is about ⅜ mile on the starboard beam. Then steer 303° true (**NW** ½ **N** mag.), pass midway between Green and Brimstone Islands, 400 yards northeastward of Ringtown Island, and 300 yards northeastward of Marshall Island buoy (spar, black, No. 1). Then follow the directions in the numbered paragraphs following, according to destination.

Or, from the whistling buoy lying 1¾ miles southeastward of Heron Island a 337° true (**N** ½ **W** mag.) course for 2 miles will lead to a position midway between Green and Brimstone Islands.

If farther westward, steer for Burnt Coat Harbor lighthouse in range with the west end of Harbor Island, course 11° true (**NNE** ½ **E** mag.), passing ⅝ mile eastward of Seal Ledge buoy and Heron Island. Then pass midway between Green and Brimstone Islands.

Remarks and dangers.—John Island Dry and Sunken Ledges are described on page 71.

Sally Prude Ledge, with 9 feet over it, lies ⅝ mile northwestward of John Island Dry Ledge, in line between it and Green Island.

Seal Ledge, with 12 feet over it, lies ½ mile eastward from Black Ledge (a low bare islet). It is marked by a buoy (spar, black, No. 1) placed ¼ mile eastward of the ledge.

Heron Island is low and wooded in the middle. **Brimstone Island** is bare and about 10 feet high. **Green Island** is about 30 feet high and grassy on top.

A rock with 21 feet over it lies ½ mile 191° true (**SSW** ½ **W** mag.) from High Sheriff. The 303° true (**NW** ½ **N** mag.) course leads ¼ mile southwestward of it.

Ringtown Island, close to the northeast side of Marshall Island, is wooded and prominent. **Yellow Ledge**, lying 600 yards southeastward of Ringtown Island, has a rock awash at high water at its south end, and the balance of it is partly bare at low water only.

A ledge with 10 to 14 feet over it extends ⅜ mile northward from the north end of **Marshall Island**, and is marked at its north end by a buoy (spar, black, No. 1).

Hat Island Ledge, the top of which is a rock covered at high water, extends 600 yards westward from Hat Island, and is marked near its end by a buoy (spar, red, No. 2). Rocks with 14 feet over them lie nearly ¼ mile southwestward from Hat Island.

I. To Merchants Row.—Pass 300 yards northward of Marshall Island buoy (spar, black, No. 1), steer 272° true (**WNW** ¼ **W** mag.) for the summit of Spruce Island, pass 100 yards northward of the black bell buoy lying 300 yards northward of Halibut Rocks tripod beacon, and pass ¼ mile northward of West Halibut Rock buoy. When Southern Mark Island bears 224° true (*S W* by *W* ½ *W* mag.), steer 233° true (**WSW** ¼ **W** mag.) and pass 300 to 500 yards northwestward of it. For directions through Merchants Row see section 5, page 30.

Dangers.—**West Halibut Rock** has 2 feet over it, and lies 1 mile westward from Halibut Rocks tripod. It is marked by a buoy (spar, red and black horizontal stripes); about 400 yards east-northeastward from the buoy is a rock with 9 feet over it. A local magnetic attraction is reported on the broken ground ½ mile east-northeastward from Southern Mark Island.

II. To Deer Island Thoroughfare.—From a position ¼ mile southwestward of Hat Island Ledge buoy (spar, red, No. 2) steer 308° true (**NW** by **N** mag.) and pass 600 yards northeastward of Whaleback Ledge buoy (spar, red, No. 2) and 200 yards southwestward of *Shabby*

Island (small and has a few trees). Give the northwest side of Shabby Island a berth of over 300 yards, and then bring it astern on a 293° true (**NW** ⅜ **W** mag.) course, with Sheep Island a little on the port bow. On this course pass 250 yards northeastward of black spar buoy No. 1, lying 200 yards northeastward of Eastern Mark Island, and pass 100 yards northeastward of black spar buoy No. 3, lying nearly ¼ mile northward of Eastern Mark Island. Then follow a part of the directions for Deer Island Thoroughfare on page 78.

Dangers.—**Whaleback Ledge**, a rock bare at low water, lies ⅝ mile southward of Shabby Island, and is marked on its southeast side by a buoy (spar, red, No. 2).

A ledge, bare at half tide, lies ¼ mile eastward of Shabby Island. It is the highest part of a sunken ledge over ½ mile long, the northern end of which is known as **Potato Ledge**, and is marked by a buoy (spar, black, No. 0), an aid for Deer Island Thoroughfare.

A dangerous unmarked rock with 2 feet over it lies ⅝ mile northwestward of Shabby Island and ¼ mile eastward of **Eastern Mark Island**, which is wooded. The 293° true (**NW** ⅜ **W** mag.) course leads 200 yards northeastward of the rock.

III. To Eggemoggin Reach.—From a position ¼ mile southwestward of Hat Island Ledge buoy (spar, red, No. 2) steer 0° true (**N** by **E** ½ **E** mag.) for the fairway bell buoy lying ⅜ mile westward of Egg Rock tripod beacon, and pass ¼ mile eastward of the Woodbury buoy, nearly ½ mile westward of Hanus Ledge buoy and ¼ mile westward of Sunken Egg Rock buoy. From the bell buoy steer 331° true (**N** by **W** mag.) for Devils Head to a position 300 yards southwestward of Hay Island Ledge buoy (spar, red and black horizontal stripes). Then steer 311° true (**NNW** ⅞ **W** mag.) for Torry Castle beacon, pass about 300 yards southwestward of Devils Head, and proceed as directed in section 2, page 76.

Dangers.—**The Woodbury** is a rock with 10 feet over it and marked by a buoy (spar, red and black horizontal stripes). It lies ⅞ mile northwestward from West Point of Swan Island and 1¾ miles southwestward from Egg Rock beacon.

Hanus Ledge is a rock with 9 feet over it and marked on its northwest side by a buoy (spar, black, No. 1). It lies ⅜ mile from the western shore of Swan Island and 1¼ miles southward from Egg Rock beacon.

Sunken Egg Rock is a cluster of rocks with 8 to 18 feet over them, lying ⅜ mile southwestward from Egg Rock beacon. The ledge is marked by a buoy (spar, red and black horizontal stripes), which should be given a berth of 300 yards.

A ledge, about 200 yards long, with 11 feet over it, lies ⅝ mile eastward of Long Ledge beacon, just northward of a line from it to Egg Rock beacon.

Green Island Ledge is an extensive reef lying between ½ and 1 mile northward and northeastward of Long Ledge beacon; portions of the reef show at all times, and a large part of it is bare at low water. Its eastern end is marked by a buoy (spar, black, No. 1), lying 1 mile northeastward from Long Ledge beacon and ¾ mile southeastward from Crow Island.

Broken ground, about ¼ mile in diameter and with a least depth of 15 feet, lies southwestward of the buoy off the south end of Mahoney Island Ledge; the 331° true (**N** by **W** mag.) course for Devils Head leads about 300 yards westward of it.

Hay Island Ledge, Devils Head Ledge, and Channel Rock, at the entrance of Eggemoggin Reach, are described on page 76.

EGGEMOGGIN REACH.[1]

This passage between the Deer Isles and the mainland is about 11 miles long, and has a least width of ⅜ mile at Byard Point. Its depth is sufficient for deep draft vessels, but the channel is narrow and the bottom irregular in places, and the passage is not recommended for a greater draft than 18 feet at low water, except with local knowledge. The principal dangers for vessels of this draft are buoyed, and they can be easily avoided in the daytime and clear weather. The eastern entrance is well marked by **Devils Head**, a prominent, high, rocky bluff on the southern end of Hog Island, and the western entrance by **Pumpkin Island lighthouse** and Cape Rosier.

Greenlaw Cove, on the southwest side of the eastern entrance to Eggemoggin Reach, has a narrow channel, with shoals on both sides, and is suitable only for small vessels with local knowledge. The post village of **Mountainville** is on the south shore of the cove.

Center Harbor, a small cove on the eastern side of the Reach northeastward of Torry Islands, is an anchorage for small craft only. The town of **Brooklin** is at the head of the harbor. A rock marked by a black spindle with cage lies in the middle of the entrance northward of Chatto Island; the channel is close southward of the rock. Between the spindle and the fish factory on the north side the cove has depths of 8 to 10 feet, and above this is mostly dry at

[1] Shown on charts 104, scale $\frac{1}{80,000}$, price $0.50; 309, scale $\frac{1}{40,000}$, price $0.25.

low water. The steamer landing is on the north side at the entrance. There is good anchorage off the entrance in 4 fathoms, bottom soft in places.

Benjamin River, the approach to the town of Sedgwick, makes into the eastern shore 2 miles northward of Center Harbor. The channel at the entrance, northward of Cape Carter, has a least depth of 19 feet, but is much obstructed by ledges on both sides, leaving a passage only 100 yards wide at its narrowest part. The town of **Sedgwick** can only be reached at high water, as the river runs dry some distance below. Steamers passing through the Reach in summer land at the wharf at the entrance.

North Deer Isle is a post village on the northern end of Deer Isle; it has a steamboat landing at which steamers of several lines touch on their way through the Reach.

Billings Cove, on the northern shore of the Reach, lies east of Byard Point. It affords anchorage in the middle just inside the entrance, in about 5 fathoms. **Sargentville**, a post village on the eastern shore of the cove, is one of the landings for steamers passing through the Reach in summer. Fresh water can be obtained alongside the steamboat wharf.

Eggemoggin is a summer resort at the north end of Little Deer Isle southeastward of Pumpkin Island lighthouse.

Buck Harbor is a small harbor on the north side of the Reach, lying north-northeastward from Pumpkin Island lighthouse; it affords excellent anchorage, and is often used by small vessels. **Harbor Island**, in the middle of the harbor, has a good channel around it, which forms the anchorage. Shoals extend 250 yards off the northeast side of Harbor Island, and the channel is narrow between them and the shore northeastward. **Harbor Rock**, at the north end of the shoals, is marked by a buoy (spar, red and black horizontal stripes). The channel between the rock and the north end of Harbor Island has a depth of 12 feet. Small craft can anchor in the bight on the northeast side of Harbor Island. The best anchorage for vessels is westward and northwestward of Harbor Island, in 5 to 6 fathoms. The post village and landing of **South Brooksville** is at the head of the harbor.

Orcutt Harbor lies just westward of Buck Harbor and northward from Pumpkin Island lighthouse. It is about 1¼ miles long and ¼ mile wide. It has good anchorage in 3½ to 8½ fathoms in the middle of the harbor just above a small wooded islet. A reef, bare at low water, extends 300 yards southward from **Condon Point**, on the east side at the entrance. When inside this reef, favor, if anything, the eastern side of the entrance to avoid a sunken rock lying nearly 200 yards from the western shore and the same distance southward of the wooded islet. In the slight expansion ½ mile above the islet care must be taken to avoid two sunken rocks, one lying 200 yards from the western shore and the other 150 yards from the southeast side of the expansion.

Horseshoe Cove is a long, narrow cove, the entrance to which lies northwestward from Pumpkin Island lighthouse; it is navigable only for small craft with local knowledge.

Anchorages.—Vessels can anchor anywhere in the Reach where the water is not too deep and where the bottom is soft, making a lee of either shore, according to the direction of the wind.

Tides.—The mean rise and fall of tides is about 10 feet (see table, page 24).

SAILING DIRECTIONS, BLUE HILL BAY AND EGGEMOGGIN REACH.

Directions to Eggemoggin Reach through Casco Passage are given on page 30, and from southward in Jericho Bay on page 74.

Bass Harbor Bar has a depth of 12½ feet at low water. The least depth in the channel northward of Pond Island is 19 feet, and between Smutty Nose and Mahoney Islands, 16 feet. The latter depth can be avoided by passing southward of Mahoney Island, as indicated, and by this route a draft of 18 feet can be taken through Eggemoggin Reach at low water.

1. ***Bass Harbor Bar to Devils Head by the passage northward of Pond Island.***—From the fairway buoy lying about 350 yards southward of Bass Harbor Head lighthouse, steer 271° true (**WNW** ⅜ **W** mag.) for 4 miles, heading for the summit near the southern end of Pond Island, to a position ¼ mile southwestward of the tripod on Ship and Barges Ledge. Then steer 300° true (**NW** ¼ **N** mag.) for Blue Hill Bay lighthouse for 2 miles, passing 400 yards southwestward of West Barge. Pass about 200 yards eastward and 100 yards northward of Pond Island Point buoy (can, black, No. 1); steer 249° true (**W** ⅜ **S** mag.) for the summit of Harbor Island, and pass 50 yards southward of buoy No. 2 and the same distance northward of buoy No. 3.

Then steer 230° true (**WSW** mag.) for the western end of Crow Island (flat and wooded) and keep Smutty Nose Island best aboard, distant about 250 yards, when passing between it and Mahoney Island. When Smutty Nose is abeam, steer 260° true (**W** ⅝ **N** mag.) and

pass 200 yards northward of Hay Island Ledge buoy and 50 yards southward of Devils Head Ledge buoy (nun, red, No. 4). Pass about 300 yards southwestward of Devils Head and proceed as directed in section 2.

To pass southward of Mahoney Island.—Pass 50 yards northward of buoy No. 3, steer 204° true (**SW** ⅜ **S** mag.), pass ¼ mile southeastward of Mahoney Island, and continue the course ⅜ mile past the island. Then steer 280° true (**NW** by **W** ⅝ **W** mag.) for the summit of White Island, and pass 50 yards southward of Mahoney Island Ledge buoy (spar, red, No. 2) and 300 yards southward of Hay Island Ledge buoy (spar, red and black horizontal stripes). When the latter buoy is abeam, steer 311° true (**NNW** ⅞ **W** mag.) for Torry Castle beacon, pass about 300 yards southwestward of Devils Head, and proceed as directed in section 2.

Remarks and dangers.—Ship and Barges Ledge and West Barge are described on page 70.

Pond Island Point makes off shoal ½ mile northward of Pond Island, and for over half this distance shows bare at half tide. **Lamp Islet**, small and bare, lies nearly ¼ mile northward of the island. There are rocks with 12 to 15 feet over them in the passage northward and northwestward of this shoal, through which is a channel with a depth of 19 feet marked by three buoys, black buoys (can, No. 1 and spar, No. 3) and red spar buoy No. 2.

Channel Rock is a pinnacle about 5 feet high lying ½ mile southeastward of Blue Hill Bay lighthouse. A ledge with a least depth of 3 feet extends 700 yards east-southeasterly from Channel Rock, also 250 yards southwestward.

Mahoney Island has some scattered trees and bushes, and its northern side should be given a berth of over 250 yards. **Smutty Nose Island** is the small, grass-covered, rocky island, lying ⅜ mile northwestward of Mahoney Island, and its southeast end should be given a berth of over 100 yards. A rock, with 16 feet over it, lies in the fairway 250 yards southward of Smutty Nose Island.

Mahoney Island Ledge, partly bare at low water, lies ¼ to ½ mile westward of Mahoney Island. A 17-foot spot lying 300 yards south of the ledge is marked by a buoy (spar, red, No. 2).

Hay Island Ledge, Devils Head Ledge, and Channel Rock, at the entrance of Eggemoggin Reach, are described under section 2 following.

2. ***Eggemoggin Reach, Devils Head to Penobscot Bay.***—Pass 300 yards southwestward of Devils Head and steer 311° true (**NNW** ⅞ **W** mag.) for Torry Castle tripod beacon, passing ¼ mile northeastward of Conary Island. Pass 300 yards northeastward of Conary Ledge buoy (spar, black, No. 5) and steer 298° true (**NW** mag.) to a position 100 yards southwestward of red spar buoy No. 0. Then steer 315° true (**NNW** ½ **W** mag.) for 3¾ miles, heading for the wharf at Sargentville, and pass about 300 yards eastward of the outer black spar buoy off North Deer Isle. From a position ¼ mile northward of this buoy, steer 291° true (**NW** ⅝ **W** mag.) for 1½ miles and pass midway between Byard Point and Little Sally.

Give the shore of Byard Point a berth of 300 yards and steer 307° 30′ true (**NW** ⅞ **N** mag.) for 2¼ miles, passing 300 yards northeastward of Howard Ledges buoy and 400 yards northeastward of buoy No. 11 on The Triangles. When Pumpkin Island lighthouse is abeam, steer 257° true (**W** ⅜ **N** mag.) for Blake Point, the south end of Cape Rosier, until Pumpkin Island lighthouse bears 140° true (*SSE* mag.). Then steer 233° true (**WSW** ¼ **W** mag.) to a position 200 yards southeastward of Spectacle Island Ledge buoy (spar, red, No. 14). Then steer 258° 30′ true (**W** ½ **N** mag.) with Pumpkin Island lighthouse astern, and pass 250 yards southward of Spectacle Island and ¼ mile northward of Western Island.

Bound to Rockland.—Pass ½ mile northwestward of *Green Ledge*, the grassy islet westward of Western Island, and steer 219° true (**SW** by **W** mag.) for 2½ miles to a position ½ mile northwestward of Mark Island. Then steer 207° 30′ true (**SW** mag.) for 7½ miles to a position ½ mile southeastward of McIntosh Ledge buoy (nun, red and black horizontal stripes). A 242° true (**W** by **S** mag.) course for 6 miles will then lead to Rockland Breakwater lighthouse.

Dangers.—**Hay Island Ledge**, with 7 feet over it, lies ½ mile southeastward from Devils Head, and is marked by a buoy (spar, red and black horizontal stripes).

Devils Head Ledge, partly bare at high water, extends ¼ mile southeastward from Devils Head, and is marked by a buoy (nun, red, No. 4), placed 200 yards southward of it.

Channel Rock, bare at lowest tides, is marked on its northeast side by a buoy (spar, black, No. 3). The rock lies over ⅜ mile south-southwestward from Devils Head. **The Boulders**, bare at low water, lie 400 yards northwestward from Channel Rock.

A rock with 20 feet over it lies 450 yards eastward from the eastern end of Conary Island.

A ledge with 12 feet at its end extends 300 yards southward from **Little Babson Island.**

Conary Ledge, bare at lowest tides, lies 700 yards northward from the northern end of Conary Island. It is marked on its northeast side by a buoy (spar, black, No. 5).

A rock with 12 feet over it lies 350 yards southward from Torry Castle beacon, and is marked on its southwest side by a buoy (spar, red, No. 0).

Torry Castle is a bare rock with a large red tripod beacon. The channel is westward of the rock, which should be given a berth of at least 75 yards.

Torry Ledge is the northernmost of the rocky shoals making 650 yards northward from Torry Island. It has 2 feet over it and is marked by a buoy (spar, red, No. 4½). A rocky shoal, with 15 feet over it, lies ½ mile northwestward from the buoy.

Bridges Point Shoal, a 10-foot rocky shoal and the outermost of the shoals making off from the point, lies nearly ½ mile southwestward from Bridges Point, 1⅜ miles northward from Torry Castle tripod, and is marked by a buoy (spar, red, No. 6) on its western end.

Stump Cove Ledge, with 3 feet over it, extends ⅜ mile westward from the northern side of the entrance to Benjamin River. It is marked on its southwestern end by a buoy (nun, red, No. 8).

Closson Ledge and **Tinker Ledge** extend ¼ to ⅜ mile from the shore of Deer Isle for a distance of nearly 1 mile southeastward from the landing at North Deer Isle. They have spots bare at half tide, and are marked on their northeast side by a buoy (spar, black, No. 7½). Broken ground with depths of 13 to 15 feet lies outside the ledges, and is marked on its northeast side by a buoy (spar, black, No. 7). On the north end of this broken ground is a depth of 18 feet, lying nearly ½ mile east-northeastward from the wharf at North Deer Isle.

A red spar buoy No. 10 marks the edge of the shoal which extends about 250 yards from the northeast shore southeastward from the landing at Sargentville.

A red spar buoy No. 12 marks the southeast end of the shoal which extends 200 yards southward from the southeast end of **Byard Point**.

Little Sally is a grass-covered rock, surrounded on all sides by ledges which make off 300 yards from the shore of Little Deer Isle, opposite Byard Point. The rock should be given a berth of at least 125 yards passing northeastward of it.

Howard Ledges is ⅜ mile long and lies 400 to 600 yards from the shore of Little Deer Isle about 1¼ miles above Byard Point; it has 1 to 3 feet on it and is marked on its northern end by a buoy (spar, black, No. 9).

The Triangles are three ledges forming a triangle off the northern end of Little Deer Isle, with from 2 to 8 feet on them. They are marked by two buoys (spars, black, Nos. 11 and 13) lying 900 and 600 yards northeastward from Pumpkin Island lighthouse.

Pumpkin Island Ledge, a small detached rock with 12 feet on it, lies ⅜ mile northwestward from Pumpkin Island lighthouse, and is marked on its western side by black spar buoy No. 15.

Thrumbcap Ledge, partly bare at high water, lies ¾ mile northwestward from Pumpkin Island lighthouse.

Merriman Ledge, bare at low water only, lies ⅜ mile westward from Pumpkin Island lighthouse, and is marked on its northwest side by a buoy (spar, black, No. 17).

An unmarked ledge with 13 feet over it lies ¾ mile westward from Pumpkin Island lighthouse, and 600 yards eastward from Spectacle Island Ledge.

Spectacle Island Ledge is a small ledge with 6 feet over it, lying ⅜ mile eastward from Spectacle Island, and is marked on its southwest end by a buoy (spar, red, No. 14). **Spectacle Island** is grass-covered and about 40 feet high.

Two Bush Ledge, bare at lowest tides, lies ⅜ mile southeastward from Spectacle Island Ledge, and is marked on its western side by a buoy (spar, red and black horizontal stripes).

DEER ISLAND THOROUGHFARE.[1]

This thoroughfare, leading from Jericho Bay into East Penobscot Bay, passes between the southern shore of Deer Isle and the numerous islands southward. It is one of the chain of inland passages, and is used by vessels bound across Penobscot Bay. The eastern entrance is south of Long Ledge, which is marked by a large red tripod. The western entrance can be distinguished by Mark Island with Deer Island Thoroughfare lighthouse on its western end.

The channel through this thoroughfare can be easily followed in the daytime, when the buoys can be readily distinguished, and with a leading wind, although it is very narrow—in places not over 75 yards wide. Most of the dangers are buoyed. The least depth is 9 to 14 feet on the bar between Moose Island and Crotch Island, and it is not safe to pass this point at low water drawing more than 9 feet except with local knowledge. Vessels of 16 feet draft have been taken through at high water.

There is a buoyed channel with a depth of about 14 feet into Deer Island Thoroughfare from southward leading eastward of Crotch Island. Directions for this passage from Isle au Haut Bay are given on page 84.

Southeast Harbor lies northwestward of the eastern end of the thoroughfare, between Stinson Neck on the east and Whitmore Neck on the west. It is an excellent anchorage for vessels using the thoroughfare. The entrance is easily distinguished and the dangers are marked by buoys. **Oceanville** is a village on the western shore. Pilots for the thoroughfare can be found here.

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[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **309**, scale $\frac{1}{40,000}$, price $0.25.

Boat Rock, with 6 feet over it and marked by a buoy (spar, red and black horizontal stripes), lies in the middle of the entrance eastward of Sheep Island. A rock, covered at half tide, lies 150 yards from the shore of Stinson Neck northwestward from Deep Cove, and another with 16 feet over it lies 200 yards outside of it. A rock, covered at half tide and marked by a buoy (spar, black, No. 1), lies 400 yards southeastward of **Whaleback**; the latter shows at high water. A rock with 11 feet over it lies near midharbor, ½ mile northeastward of Whaleback.

To enter Southeast Harbor, enter Deer Island Thoroughfare southward of Long Ledge tripod between red buoy No. 2 and black buoy No. 0, steer 264° true (**W** by **N** mag.), and pass 100 yards southward of Lazygut Ledge buoy (spar, red, No. 4). When 400 yards westward of this buoy, steer 298° true (**NW** mag.), and pass about 350 yards northeastward of Boat Rock buoy and buoy No. 1; select anchorage northeastward of Whaleback, taking care to avoid the rock with 11 feet over it.

From westward in Deer Island Thoroughfare, pass between Haycock Rock spindle and Sheldrake Rock, and from a position 250 yards eastward of the latter a 328° true (**N** by **W** ¼ **W** mag.) course leads into the harbor.

Stonington is a small town at the head of a shallow cove in the south shore of Deer Isle, near the western entrance of the thoroughfare. It has steamboat communication with Rockland and is the headquarters for the large granite quarries on the adjacent islands. Provisions, water, some ship chandlery, and a limited supply of coal can be obtained. There is a depth of about 10 feet at the wharf, but there is a dangerous ledge just southeastward of it.

Anchorages.—The best anchorage for vessels bound through the thoroughfare and overtaken by night or bad weather is Southeast Harbor. When overtaken by fog they may anchor anywhere near the channel where they find soft bottom and a suitable depth of water. There is a limited anchorage on the northern edge of the channel abreast Stonington, which is frequently used.

Ice closes the thoroughfare and Southeast Harbor for about one month each winter.

For **tides** see table, page 24.

Currents.—The tidal currents follow the general direction of the channel and are not strong. The direction of the currents is influenced by the wind; with strong easterly winds both the flood and ebb set westward, and with westerly winds they set eastward. When not influenced by the wind the flood sets eastward and the ebb westward, and continues to run about ¾ hour after high and low waters.

SAILING DIRECTIONS, DEER ISLAND THOROUGHFARE.

These directions are good for a draft of 9 feet at low water and 15 feet at high water in the daytime with clear weather, when the buoys and other guides can be seen. Vessels of greater draft can be taken through with local knowledge.

From the fairway bell buoy in Jericho Bay, lying ⅜ mile westward of Egg Rock tripod, steer 252° true (**W** ⅛ **S** mag.), which leads 200 yards southward of an unmarked ledge with 11 feet over it lying ⅝ mile eastward from Long Ledge tripod beacon. Continue the course to a position 50 to 75 yards southward of Long Ledge buoy (spar, red, No. 2), lying 250 yards southward of Long Ledge tripod.

Then steer 263° true (**W** ⅞ **N** mag.), pass northward of Potato Ledge buoy (spar, black, No. 0), southward of Lazygut Ledge buoy (spar, red, No. 4), and to a position 100 yards northward of black spar buoy No. 3, which marks a rock with 7 feet over it lying 400 yards northward of Eastern Mark Island.

Then steer about 230° true (**WSW** mag.) and pass between Haycock Rock spindle and *Sheldrake Rock*, the bare rock 400 yards northward of the spindle. Then steer 251° true (**W** ⅛ **S** mag.) for the south end of Grog Island, and pass southward of red spar buoys Nos. 6 and 8 and well northward of black spar buoys Nos. 5 and 7. When about ¼ mile from Grog Island steer 237° true (**WSW** ⅝ **W** mag.) for the summit of Russ Island and pass 100 to 150 yards southward of Grog Island.

When *Humpkins Islet*, the bare rock ½ mile westward of Grog Island, bears 0° true (*N* by *E* ½ *E* mag.) steer 260° true (**W** ⅝ **N** mag.) with the north side of Bold Island astern, and pass 50 yards northward of black spar buoy No. 9, off the north side of Russ Island, and pass about 100 yards southward of red spar buoys Nos. 12 and 14, the latter buoy lying southeastward from the wharf at Stonington with Staples Ledge between. Give the north side of *Two Bush Islands* (largest has a clump of scrub) a berth of over 150 yards, and keep the north shore aboard distant about 100 yards when entering the narrow passage northward of Crotch Island.

Pass 20 to 30 yards northward of Thurlow Knob Ledge buoy (spar, black, No. 11), steer 242° true (**W** by **S** mag.), and pass midway between black spar buoy No. 13 and the red and

black horizontally striped spar buoy opposite. Buoy No. 13 lies close to the northwest side of a stone beacon, the latter being on the western end of a ledge bare at low water. The two buoys mark the channel over the bar between Moose and Crotch Islands, which has depths of 9 to 14 feet between the buoys, the former depth being found on bowlders in the north half of the channel between and westward of the buoys. With local knowledge vessels can avoid the bowlders by keeping in the southern half of the channel. Care must be taken, however, not to keep too close to the south side of the channel just eastward of buoy No. 13.

Continue the 242° true (**W** by **S** mag.) course, pass 150 to 200 yards southward of Yellow Rock (which shows at high water), 100 yards northward of black spar buoy No. 15, 250 to 300 yards southward of Western Deer Island Ledge (a large bare rock), and 200 to 300 yards northward of Mark Island. Then bring Deer Island Thoroughfare lighthouse astern on a 265° true (**WNW** ⅞ **W** mag.) course, passing about 400 yards southward of Western Mark Island Ledge buoy (nun, red, No. 2), which lies ⅝ mile northwestward of the lighthouse. This course made good for 4½ miles from the lighthouse will lead to a position 100 yards southward from Channel Rock bell buoy, lying 125 yards southward of Channel Rock tripod. Directions through Fox Islands Thoroughfare are given in section 6, page 31.

MERCHANTS ROW.[1]

This passage, leading from Jericho Bay to East Penobscot Bay and passing between the islands and ledges lying between Deer Island and Isle au Haut, is used by vessels in the winter, when Deer Island Thoroughfare is closed by ice, and by deep-draft vessels at all times. It is not quite so direct as Deer Island Thoroughfare, but the channel is wider, and is good for a depth of 26 feet. There are numerous ledges and rocks on both sides of this passage, but the principal ones are marked by buoys or spindles, and the channel can be readily followed in clear weather and daylight.

Sailing directions for Merchants Row from eastward are given on page 30. Deep-draft vessels can enter through the passage between Marshall and Swan Islands and Jericho Bay, as directed on page 73. Directions for entering Merchants Row from southwestward in Isle au Haut Bay are given on page 84.

FOX ISLANDS THOROUGHFARE.[2]

This thoroughfare, leading from East Penobscot Bay to West Penobscot Bay, between North Haven and Vinal Haven Islands, is one of the chain of inshore passages commencing at Bass Harbor and ending at Whitehead. It is about 7 miles long, and the channel, with a depth of 18 feet or more, has a least width of about 150 yards in several places; the principal dangers are marked by buoys and spindles, which can be easily followed in the daytime with clear weather. The least depth in the channel is 19 feet, but the thoroughfare is seldom used by vessels of over 14 feet draft at low water.

Carver Cove, in the south shore of the thoroughfare, near its eastern end, is a secure anchorage, easy of access, and convenient for vessels windbound in East Penobscot Bay or passing through the thoroughfares. The anchorage is about ½ mile from the head of the cove and 197° true (**SW** by **S** mag.) from the hospital on Widows Island, in 16 to 20 feet, good holding ground. The entrance on either side of Widows Island is clear, if the shores be given a berth of about 200 yards, but the point on the south side, at the eastern entrance of the cove, must be given a berth of over 300 yards.

Kent Cove, in the north shore of the thoroughfare, north of Widows Island, is a secure anchorage, with 15 to 24 feet, good holding ground. Goose Rocks lighthouse is the prominent guide for entering either in the daytime or at night, the entrance being westward of the lighthouse. **Kent Ledge**, the only outlying danger, has 5 feet over it and lies ¼ mile northeastward from Fish Point Ledge buoy (spar, red, No. 4) and the same distance from the northwest shore of the cove.

Waterman Cove makes into the north shore west of Kent Cove; it is a good anchorage for small vessels, the water shoaling gradually from 18 feet at the entrance to 5 feet near its head, where a narrow channel leads into a shallow cove called the **Cubby Hole**. **Waterman Ledge**, with 4 feet over it and marked by a buoy (spar, red, No. 6), lies in

[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **309**, scale $\frac{1}{40,000}$, price $0.25.

[2] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **311a**, scale $\frac{1}{20,000}$, price $0.20; and in parts on charts **309, 310**, scale $\frac{1}{40,000}$, price of each, $0.25.

the mouth of the cove ¼ mile from the western shore. The better entrance is between buoy No. 6 and the bare rock ¼ mile northeastward of it. **Fish Point Ledge**, partly bare at half tide and marked at its southeast end by a buoy (spar, red, No. 4), lies 400 to 600 yards southeastward from Fish Point, with foul ground between.

Seal Cove is a large arm extending 1½ miles southward from Fox Islands Thoroughfare southeastward from the village of North Haven. Large areas in the cove have depths of 8 to 12 feet, bottom soft in places. Good anchorage can be selected in the channel of the thoroughfare between the entrance of Seal Cove and the western end of the village of North Haven, in 4 to 6 fathoms, soft bottom.

Perry Cove is a long, narrow arm making westward on the west shore of Seal Cove; it is of no importance as an anchorage and should be avoided by strangers.

Southern Harbor makes northeastward between the Dumpling Islands and Amesbury Point, near the western end of the thoroughfare. It has good anchorage in 19 to 22 feet, soft bottom, in the middle of the harbor; the water shoals gradually toward its head.

In the western entrance of Fox Islands Thoroughfare there is good anchorage for vessels of any draft westward or northward of Sugar Loaves, and between Crabtree Point Ledge and Amesbury Point, in 5 to 7 fathoms, soft bottom.

The village of **North Haven**, on the north shore of the thoroughfare, is a summer resort with several wharves, but is of no commercial importance; it has steamboat communication with Rockland.

Prominent objects.—Channel Rock tripod, at the eastern entrance, is a prominent mark. **Widows Island** is marked by a large brick hospital and is easily distinguished. **Goose Rocks lighthouse** is on the north side of the channel, north of Widows Island; it is the guide for the eastern entrance of the thoroughfare and for the anchorage in Kent Cove. **Browns Head lighthouse** marks the entrance to the thoroughfare from westward. **Sugar Loaves** are a ledge of prominent high rocks lying 600 yards northwestward of Browns Head lighthouse. **Fiddler Ledge** beacon (large, gray stone), lying 1⅜ miles westward from Browns Head lighthouse, is a prominent mark when approaching from westward.

Tidal currents.—The currents are not strong; they meet at Iron Point, in the middle of the thoroughfare, the flood setting in from both ends and the ebb setting out. The mean rise and fall of tides is 9.5 feet (see table, page 24).

Sailing directions for Fox Islands Thoroughfare are given on page 31.

PENOBSCOT BAY.[1]

This is the largest and most important of the many indentations on the coast of Maine. It is about 20 miles wide from Isle au Haut on the east to Whitehead on the west, and is 28 miles long from its entrance to the mouth of the Penobscot River. A chain of large and small islands divides it into two parts known as East and West Penobscot Bays; the southern part of East Penobscot Bay is known as **Isle au Haut Bay**. Numerous harbors indent its shores, those of the most importance being Rockland, Rockport, Camden, and Belfast on the western shore, and Castine on the eastern. The towns and numerous villages on the islands have frequent water communication with some one of the above ports.

The sea approaches to the bay are well marked by the lighthouses on Monhegan Island and Matinicus Rock, and the entrances by Saddleback Ledge lighthouse on the east and Whitehead and Two Bush Island lighthouses on the west sides of the bay. The harbors are well lighted and the more important dangers are indicated by buoys or beacons. A large number of coasting and some foreign vessels enter the bay, especially in summer. In winter many of the harbors are obstructed by ice, and the Penobscot River is sometimes entirely closed by it. The thoroughfares are only occasionally obstructed by ice and are much used by vessels bound along the coast.

Pilots for Penobscot Bay can be found eastward at Southwest and Bass Harbors. Vessels bound through the inside passages sometimes take a pilot at Eastport. Vessels from westward if bound into Penobscot Bay take a pilot at Monhegan; if bound through the inside passages, at Whitehead or Seal Harbor. Persons who are reliable pilots can frequently be found on fishing craft and small coasters, but there are no regular licensed pilots for these waters except captains of towboats.

EAST PENOBSCOT BAY

is the part of Penobscot Bay lying eastward of Vinal Haven, North Haven, and North and South Islesboro; its southern end, between Isle au Haut and Vinal Haven Island, is called **Isle au Haut Bay**. The islands in East Penobscot Bay have numerous coves and small harbors, but few of these are available anchorages, some on account of their depth and others on account of the numerous dangers which obstruct their entrances. East Penobscot Bay is entered from eastward through Eggemoggin Reach, Deer Island Thoroughfare, and Merchants Row, and from southward between

[1] Shown in parts on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **309, 310, 311**, scale of each $\frac{1}{40,000}$, price of each $0.25.

Isle au Haut and Vinal Haven Island. **Saddleback Ledge lighthouse** is the guide to this entrance. Numerous unmarked ledges lie westward of Isle au Haut and off the western entrance to Merchants Row and Deer Island Thoroughfare. Northeastward of North Haven Island there are numerous islands and ledges.

The channel to the head of Penobscot Bay leads eastward of **Eagle Island,** marked by a lighthouse, and passes between the islands in a north-northwesterly direction to Cape Rosier. A depth of over 5 fathoms can be taken up the bay by closely following the directions.

Head Harbor is a small bight in the south shore of Isle au Haut, just west of Eastern Head; it is exposed to southerly winds and only used by fishermen. The bottom is rocky, except in the northwestern part, where the depth is from 4¾ to 9 fathoms.

Moore Harbor is a cove on the western side of Isle au Haut, about 2½ miles above Western Ear. This harbor has many outlying ledges off the entrance and in the harbor, and is an unsafe anchorage.

Isle au Haut Thoroughfare is on the western side of Isle au Haut, between it and Kimball Island; though called a thoroughfare it has a bar near its eastern entrance, dry at low water, extending from Isle au Haut to Kimball Island. It has a greatest width of ¼ mile at its western end, and is a secure anchorage for small craft or very small vessels in 5 fathoms. A buoy and spindle mark the two principal dangers. **Lookout** is a post village on Isle au Haut at the eastern end of the thoroughfare. The landing is on Point Lookout, eastward of Kimball Island, and there is a buoyed channel to it from Merchants Row, passing between Merchant and Hardwood Islands.

Enter Isle au Haut Thoroughfare between Isle au Haut lighthouse (on Robinson Point) and Sawyer Ledge buoy (spar, black, No. 1), and pass southward of Inner Ledge spindle giving it a berth of over 50 yards. Then keep in mid-channel except in the choke at the entrance of the anchorage where the northern side should be favored slightly. Avoid a rock, bare at low water only, which lies 90 yards from the northwest side of the anchorage.

Winter Harbor, Seal Bay, and **Smith Cove** make into the northeastern part of Vinal Haven Island, south of the eastern entrance to Fox Islands Thoroughfare; they are of no commercial importance, and not safe for a stranger to enter.

Fox Islands Thoroughfare is described on page 79. Carver Cove and Kent Cove are two excellent anchorages, easily entered by strangers, in Fox Islands Thoroughfare near its eastern entrance.

Little Thoroughfare is a passage into Fox Islands Thoroughfare north of the main entrance. It is not buoyed, and strangers should not attempt to use it.

Merchants Row, north of Isle au Haut, is described on page 79.

There is a passage northward of North Haven Island which is used in winter when Fox Islands Thoroughfare is closed by ice. To go through this passage, pass about 300 yards southward of Eagle Island and steer 275° true (**WNW** mag.) for **Spoon Ledge** (high, with grass on top). On this course pass 400 yards northward of **Grass Ledge** (high and grass-covered) and the same distance northward of **Oak Island,** the grassy island southeastward from Spoon Ledge. Pass midway between Oak Island and Spoon Ledge and steer 242° true (**W** by **S** mag.) for 12¼ miles to Rockland Breakwater lighthouse.

Deer Island Thoroughfare, south of Deer Isle, is described on page 77.

Burnt Cove and **Crockett Cove** are two small coves lying between Fifield Point and Barred Island, on the southwestern side of Deer Isle. They are of no importance as anchorages, and are foul, especially Burnt Cove.

Southwest Harbor is on the western side of Deer Isle, about 4 miles north of Deer Island Thoroughfare lighthouse. It is about ½ mile wide at the entrance and 1 mile long, with anchorage in 3 to 5 fathoms, but is not much used, as it is open southward. The village of **Sunset** is on the eastern shore of the harbor.

Northwest Harbor, on the northwestern side of Deer Isle, is about ⅜ mile wide and 1¼ miles long. A large part of its upper half is bare at low water, but in mid-harbor below the small wharf on the northeast side good anchorage will be found for small vessels in 13 to 17 feet, soft bottom. The harbor is sheltered from all but northwesterly winds. There is also good anchorage off the entrance of the harbor between Gull Ledge and Heart Island, in 3½ to 5 fathoms. The village of **Deer Isle** is near the head of the harbor; the steamboat landing is at North Deer Isle on Eggemoggin Reach. During January and February the harbor is closed by ice.

Approaching Northwest Harbor from southward, pass 300 to 400 yards westward of the bare ledge off the north side of **Dunham Point,** steer 33° true (**NE ½ E** mag.) for the eastern end of Little Deer Isle, and pass 300 to 400 yards northwestward of a buoy (spar, red, No. 4) which marks the southwest end of a ledge bare at half tide. When well past the buoy steer 67° true (**E ½ N** mag.) for **Heart Island** (high, grassy, partly wooded knoll near Deer Isle), and pass 300 to 400 yards northward of **Gull Ledge** (partly bare at high water). When past Gull Ledge steer 124° true (**SE ½ S** mag.) for the middle of the entrance of Northwest Harbor.

Approaching Northwest Harbor from northwestward, pass 150 to not over 250 yards southwestward from the southwest point of **Pickering Island** (high and wooded), and from this position a 124° true (**SE ½ S** mag.) course for 2¾ miles will lead to the middle of the entrance.

Eggemoggin Reach enters the bay from eastward north of Little Deer Isle. (See p. 74.)

Islesboro Harbor is an open bight in the northeastern side of South Isleboro, 270° true (**WNW ½ W** mag.) from the south side of Cape Rosier. It affords good shelter in westerly winds, and has a depth of 7 fathoms. Off the southern point at the entrance is a ledge partly bare at half tide and marked by two buoys. Vessels can pass on either side of the ledge, being guided by the buoys. Foul ground extends nearly ¼ mile from the western shore, and will be avoided by keeping the knoll northward of the harbor open from the north point of the harbor.

Sabbath Day Harbor is a small cove in the southeastern side of North Islesboro, and a little over 2 miles northward of **Hewes Point**, the high point on the south side at the entrance to Islesboro Harbor. It is open southward and affords anchorage for small vessels in 6 to 18 feet. There are several summer houses on its shores.

Parker Cove, on the east side of North Islesboro, is a shallow cove, only used as an anchorage by small local craft.

Castine Harbor and **Bagaduce River** are described on page 97.

SAILING DIRECTIONS, EAST PENOBSCOT BAY.

These directions are good for vessels of the deepest draft, and lead in a depth of over 5 fathoms at low water to the entrance of Penobscot River.

1. ***Approaching from eastward or southward.***—Approaching from eastward or southeastward, shape the course for Roaring Bull Ledge gas and whistling buoy, lying 1¾ miles southward of Isle au Haut, and from the buoy steer 295° true (**NW ¼ W** mag.) for Saddleback Ledge lighthouse.

Or, steer for Saddleback Ledge lighthouse on any bearing between 295° true (**NW ¼ W** mag.) and 343° true (**N** mag.); the latter bearing leads 1 mile eastward of Three Fathom Ledge.

When northward of Seal, Wooden Ball, and Matinicus Islands, steer for Saddleback Ledge lighthouse on any bearing northward of 59° true (**ENE ¾ E** mag.). This bearing leads ½ mile southeastward of Bay Ledge bell buoy.

Pass ¼ to ½ mile eastward of Saddleback Ledge lighthouse and proceed as directed in section 2 or 2 A.

Dangers.—Approaching East Penobscot Bay from eastward, the small islands eastward of Isle au Haut should not be approached closer than 1 mile while southward of them.

Eastern Ear Ledge, bare at low water, lies ¾ mile southeastward from Eastern Head, the south end of Isle au Haut, and is marked on its southern side by a buoy (nun, red, No. 2).

Roaring Bull Ledge, bare at half tide and marked by a red spindle with cage, lies 1 mile southeastward from **Western Ear**, the island close to the southwest end of Isle au Haut. The ledge is small and has deep water around it. A gas and whistling buoy is moored ¾ mile southward of the ledge.

Western Ear Ledge, bare at half tide, lies nearly ¼ mile southward of Western Ear. **The Washers, Black Ledges, Big Brewster**, and **Keeler Rock** are an irregular cluster of rocks and islets extending ⅝ mile northwestward from Western Ear.

The Brandies are three small, bare rocks, the westernmost of the ledges making westward from Isle au Haut. These rocks lie 2 miles eastward from Saddleback Ledge lighthouse and about 1⅛ miles off the western shore of Isle au Haut. **Brandy Shoal** is a rock with 5¼ fathoms over it lying ⅝ mile southwestward from the Brandies.

Saddleback Ledge is a rocky islet in the middle of the entrance to East Penobsoct Bay, and is marked by Saddleback Ledge lighthouse, which should be given a berth of at least 350 yards when passing. There is broken ground between the ledge and Vinalhaven Island, and deep-draft vessels should preferably pass eastward of the lighthouse.

1 A. ***Approaching from southwestward.***—The passages between the islands eastward and westward of Matinicus Island may be used with the assistance of the chart. (See the description of the islands on page 88.) One of the best is as follows:

Steer for Matinicus Rock lighthouses, passing southward of South Breaker buoy, pass ½ mile northwestward of the lighthouses, and steer 17° true (**NE by N** mag.) for 4½ miles to a position ½ mile off the northwest side of Wooden Ball Island. Then steer 26° true (**NE ⅛ N** mag.) for Saddleback Ledge lighthouse, the distance to which is 10½ miles. The last course leads about ¼ mile westward of *Snippershan* which has a least depth of 6 fathoms, as determined by means of a wire drag, and lies 4¼ miles 202° 30′ true (*SW ½ S* mag.) from Saddleback Ledge lighthouse, in line between the latter and Wooden Ball Island.

Or, pass 1½ to 2 miles southward of Monhegan Island, and steer 64° true (**E ¾ N** mag.) for 17½ miles, heading for the north end of Matinicus Island. When about 1½ miles from

the island, and its southwest end is closed on the northeast end of Ragged Island, the position should be ½ mile southward from Foster Ledges buoy (spar, red and black horizontal stripes). Then steer 45° true (**NE** by **E** ½ **E** mag.) for 13 miles, and pass ½ mile northward of Matinicus Island and ¼ to ½ mile southward and eastward of Saddleback Ledge lighthouse. Then follow the directions in section 2 or 2 A.

From May to October, while Green Island Seal Ledges whistling buoy is maintained in position, the following course may be used:

Pass 1½ to 2 miles southward of Monhegan Island and steer 55° true (**ENE** ⅜ **E** mag.) for 16 miles to the black whistling buoy between Pigeon Ground and Green Island Seal Ledges. From this buoy the course continued for 13½ miles will lead 1 mile southeastward of Bay Ledge bell buoy and to Saddleback Ledge lighthouse. The lighthouse will be made in line with the summit of Isle au Haut ahead.

Dangers.—The dangers eastward of Monhegan Island are described on page 104. Between Metinic and Matinicus Islands the nearest dangers to the sailing lines are Haddock Ledge, Green Island Seal Ledges, Pigeon Ground, Foster Ledges, and Bantam Ledge, and are described on page 89. Bay Ledge and South Breaker are described on pages 86, 89.

2. ***Saddleback Ledge to Fort Point.***—From a position ⅜ mile eastward of Saddleback Ledge lighthouse steer 351° true (**N** ¾ **E** mag.) for 12¼ miles, passing ⅝ mile westward of The Brown Cow, to a position ¼ mile eastward from Eagle Island lighthouse. Then steer 321° 30′ true (**N** by **W** ⅞ **W** mag.) for 5¼ miles to a position ½ mile westward of *Green Ledge*, the grassy islet westward of Western Island. Then steer 2° true (**N** by **E** ¾ **E** mag.), pass about ⅜ mile westward of Cape Rosier, and then follow the eastern shore at a distance of about ½ mile. When Fort Point lighthouse bears 19° true (**NE** ¾ **N** mag.) steer for it. Pass over 200 yards westward of Fort Point Ledge beacon and midway between the beacon and the lighthouse. Pass ¼ mile eastward of Fort Point and follow the directions for Penobscot River on page 101.

Dangers.—**Isle au Haut Bay** has been examined by means of a wire drag, and the dangers are shown on the chart. The area between Saddleback Ledge lighthouse and Vinalhaven Island is very broken and has numerous dangers, and deep draft vessels should preferably pass eastward of the lighthouse. **Saddleback Ledge Shoal** is a rock with 2 feet over it, lying ⅞ mile north-northwestward from Saddleback Ledge lighthouse, and is marked on its southwest side by a buoy (spar, red and black horizontal stripes). A rock with 14 feet over it lies 1½ miles north-northwestward from Saddleback Ledge lighthouse.

Broken ground, which should be avoided by deep draft vessels, extends 2¾ miles westward from Isle au Haut lighthouse to a 5½-fathom spot, which lies 2½ miles 13° 30′ true (**NNE** ¾ **E** mag.) from Saddleback Ledge lighthouse.

Outer Scrag Ledge is a large ledge, partly bare at high water, lying at the southwest end of the islands and ledges on the southern side of Merchants Row. There is a 14-foot spot nearly ⅜ mile southwestward from this ledge.

The Brown Cow is a small ledge, awash at high water, with shoal water extending about 200 yards northward and southward from it. It is the westernmost rock westward of Merchants Row, and lies nearly 1 mile north-northwestward from Outer Scrag Ledge and 1¼ miles 233° true (**WSW** ¼ **W** mag.) from Deer Island Thoroughfare lighthouse.

West Mark Island Ledge, lying ⅝ mile 288° true (**NW** ⅞ **W** mag.) from Deer Island Thoroughfare lighthouse, has 4 feet over it and is marked by a buoy (nun, red, No. 2).

Seller Rock, bare at low water, lies 2⅝ miles northward from Deer Island Thoroughfare lighthouse and 700 yards from the eastern shore . A small ledge with 6 feet over it lies 200 yards southward from the rock. A buoy (spar, red and black horizontal stripes) is placed between them. A ledge with a least depth of 18 feet lies ⅜ mile westward from Seller Rock.

Porcupine Ledge, with 12 feet over it, lies nearly ¾ mile 167° true (**S** ⅜ **W** mag.) from Eagle Island lighthouse, and is marked by a buoy (spar, red and black horizontal stripes). A rock with a least depth of 33 feet lies 650 yards east-northeastward from Porcupine Ledge and ⅝ mile 137° 30′ true (**SSE** ¼ **E** mag.) from Eagle Island lighthouse.

Middle Rock, with 10 feet over it, lies nearly ¾ mile 17° true (**NE** by **N** mag.) from Eagle Island lighthouse, and is marked on its northerly side by a buoy (spar, red and black horizontal stripes). A rock with 15 feet over it lies 200 yards east-southeasterly from Middle Rock.

Long Island Ledge, with 8 feet over it, lies nearly ½ mile east-southeastward from Hutchinson Island, off Parker Cove, eastern shore of North Islesboro, and is marked on its eastern side by a buoy (spar, black, No. 9).

A ledge, partly bare at low water, extends nearly ½ mile from the eastern shore in the bight 2 miles southward from Fort Point, and is marked at its end by a buoy (spar, red, No. 2).

Fort Point Ledge lies ⅜ to ⅝ mile southward from Fort Point lighthouse. The northern end of the ledge is covered at half tide and is marked by a square stone beacon with mast and keg. There is a depth of 6 feet on the southeasterly end of the ledge, lying ¼ mile south-southeasterly from the beacon.

2 A. ***Saddleback Ledge to Merchants Row or Stonington.***—The directions of this section are good for a depth of 28 feet to Merchants Row, and are good for vessels of 12 feet or less draft through the passage eastward of Crotch Island to Deer Island Thoroughfare.

Bring Saddleback Ledge lighthouse astern on a 15° true (**NNE** ⅞ **E** mag.) course, heading for the prominent standpipe at Stonington. *Farrel Island* (wooded) will be made ahead, and Scraggy Ledge a little on the starboard bow. When ½ mile or more southward of Scraggy Ledge, stand eastward until the standpipe is in line with the eastern end of Farrel Island, and then steer this range, course 11° true (**NNE** ½ **E** mag.), which will lead nearly 200 yards eastward of the sunken rock lying 400 yards southward of Scraggy Ledge, and pass midway between Scraggy Ledge and Channel Rock tripod.

From a position 300 yards northwestward of Channel Rock tripod, steer 31° true (**NE** ¼ **E** mag.) for the summit of Green Island, and pass 300 to 400 yards southeastward of *John Island*, the low, grassy island with some scrubby trees lying ⅜ mile southward of Crotch Island. Pass 150 to 200 yards eastward of *Sand Island*, the rocky, wooded island close to the southeast end of Crotch Island, and steer 348° true (**N** ½ **E** mag.), following the shore of Crotch Island at a distance of 250 to 300 yards. When red spar buoy No. 2 is abaft the starboard beam, steer 45° true (**NE** by **E** ½ **E** mag.), with the entrance of Mill Cove astern, and pass about 100 yards eastward of black spar buoy No. 0 into Deer Island Thoroughfare. Select anchorage in the channel off Stonington.

Bound eastward through Merchants Row.—Steer the 31° true (**NE** ¼ **E** mag.) course of the preceding paragraph until *Harbor Island*, the grassy island with a few trees lying on the northeast side of Merchant Island, opens northward of Ewe Island. Then stand eastward, pass about 400 yards northward of Ewe Island and 100 yards southward of Mid-Channel Ledge buoy (spar, red and black horizontal stripes). Then steer 95° true (**ESE** mag.) and reverse the directions for Merchants Row on page 30.

Dangers.—**Kimball Rock**, small and awash at high water, lies ⅝ mile westward of Kimball Head. A rock with 14 feet over it lies 250 yards eastward of Kimball Rock, and otherwise there is deep water around it. Two ledges with a least depth of 18 feet, lie nearly ½ and ¾ mile southwestward from Kimball Rock, on the range of the rock and Hardwood Island. A ledge with a least depth of 23 feet lies 1⅜ miles 211° true (**SW** ¼ **W** mag.) from Kimball Rock. These are the least depths on the broken ground lying southwestward of Kimball Rock.

Hardwood Island is round and heavily wooded. **Ram Island**, ¼ mile southwestward from Hardwood Island, has a clump of trees on its north side. **Channel Rock**, nearly ½ mile westward of Ram Island, is covered at high water and is marked by a large white tripod beacon, upper half slatted. **Ram Island Ledge**, bare at low water, lies 400 yards southeastward from Channel Rock tripod. **Scraggy Ledge** is a bare ledge ⅜ mile westward of Channel Rock tripod. There is foul ground between it and West Halibut Ledges; the latter are bare.

A rock with 11 feet over it lies 400 yards southward from Scraggy Ledge. The range of the standpipe at Stonington over the eastern end of Farrel Island leads nearly 200 yards eastward of it.

A ledge with 8 feet over it lies 600 yards westward from **Ewe Island**. Kimball Head open westward of Ram Island leads westward of the ledge, and Harbor Island open northward from Ewe Island leads northward of it.

Rock Island, low and grassy, lies ⅜ mile eastward from Thurlow Head, the southeast end of Crotch Island. Ledges, partly bare at low water, extend ⅜ mile northward from Rock Island and are marked on their western side by red spar buoys Nos. 2 and 4.

A rock with 15 feet over it lies 125 yards off the eastern side of **Thurlow Head**.

Two Bush Islets are the highest parts of a ledge that extends ¼ mile eastward from the northeast end of Crotch Island. The eastern end of the ledge is marked by a buoy (spar, black, No. 0).

WEST PENOBSCOT BAY.[1]

This is the part of Penobscot Bay lying west of Vinal Haven, North Haven, and North and South Islesboro Islands. Heron Neck lighthouse marks the eastern point at the entrance from seaward and Two Bush Island lighthouse the western. Matinicus Rock and Monhegan Island lighthouses are the offshore guides to the entrance. From eastward the approach is between Seal Island on the south and Saddleback Ledge lighthouse and Vinal Haven Island on the north. From westward the bay is entered either through Muscle Ridge Channel or through Two Bush Channel.

[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price **$0.50**; **310**, **311**, scale $\frac{1}{40,000}$, price of each **$0.25**. The entrance from westward is shown on chart **312**, scale $\frac{1}{40,000}$, price **$0.25**.

The best harbor of refuge and the one most readily entered by strangers is Rockland Harbor. Rockport Harbor affords shelter from all but southerly winds. Gilkey Harbor affords shelter against winds from any direction. Seal Harbor, in the southern entrance of Muscle Ridge Channel, is well sheltered and much used by vessels passing in and out of the bay through Muscle Ridge Channel.

Rockland Harbor is on the west shore of the bay. (See p. 93).

Carvers Harbor and the south and west coasts of Vinal Haven Island are described on page 90.

Crockett Cove is just eastward of Crockett Point, the southeastern point at the western entrance to Fox Islands Thoroughfare. The cove is 1 mile long and 200 yards wide at the entrance, which is obstructed by ledges, and is suitable only for small craft with local knowledge.

Bartlett Harbor is a small cove with deep water and good anchorage, sheltered from all but westerly and northerly winds. It is about 2 miles above Stand-in Point on the western shore of North Haven Island. There is a rock with 9 feet over it in the middle of the entrance; it has deep water close-to around it.

Pulpit Harbor is on the northwest side of North Haven Island, 4 miles northeastward from Stand-in Point and 2⅜ miles southwestward from **Webster Head**, the high, partly wooded head at the north end of the island. The entrance has a clear width of 150 yards, and the harbor is a secure anchorage for small vessels of about 13 feet or less draft. **Pulpit Rock**, high and pointed, is near the end of the reef, which extends 250 yards northeastward from the western point at the entrance, and is a good mark. To enter, give the north side of Pulpit Rock and the eastern shore just northward of the entrance a berth of over 100 yards, and enter in mid-channel eastward of Pulpit Rock on a 191° true (**SSW ½ W** mag.) course. Keep in mid-harbor and anchor in its broad part in 4 to 5½ fathoms. The post village of **Pulpit Harbor** is on the northeast side of the harbor.

Clam Cove is a shallow cove making into the west shore of the bay, about 1½ miles north of Rockland Harbor entrance; it is not a good anchorage.

Rockport Harbor and Camden Harbor are described on pages 94 to 96.

Duck Trap Harbor is a broad open bight in the west shore of the bay, opposite Grindel Point lighthouse. The town of **Lincolnville** is on its western shore. Good anchorage, sheltered from all northerly and westerly winds, will be found about ¼ mile from the north shore of the harbor, in 6 to 8 fathoms, bottom soft in places. **Haddock Ledge**, the only outlying danger, is a rock with 4 feet over it lying a little over ½ mile from the western shore and the same distance southwestward from Spruce Head, the northeast point of the harbor; the rock is marked on its southwest side by a buoy (nun, red, No. 2). With this exception, danger will be avoided by giving the shore of the harbor a berth of about ¼ mile.

Gilkey Harbor is described on page 96.

Seal Harbor, at the southwestern end of North Islesboro and about 3 miles north of Grindel Point lighthouse, is a good anchorage, sheltered from all but southwest winds. This harbor is used by vessels bound up or down the bay as an anchorage for the night, and is easy of access. Vessels of any size can anchor with ample swinging room about ½ mile eastward of Flat Island, in 9 to 11 fathoms. Anchorage can be had nearer the head of the harbor, keeping the southern shore aboard distant about ¼ mile, in 8 to 10 fathoms. The northern side of the harbor is foul. The entrance from northward is 400 yards wide, with depths of 18 to 28 feet, between Seal Island and a shelving ledge, which extends ¼ mile northward from **Flat Island**. The latter is grassy, and **Seal Island** is wooded and has a large summer residence. **Crow Cove** is an anchorage for small craft only.

Approaching Seal Harbor from southward, give the eastern shore a berth of ½ mile for a distance of 1 mile northward of Grindel Point lighthouse, and then steer about 50° true (**ENE** mag.) and pass about midway between Flat Island and the southern shore. Approaching from northward, pass 300 yards southwestward of Seal Island, heading about 129° true (**SE** by **S** mag.).

Saturday Cove is a small shallow cove in the west shore of the bay, northwestward from Seal Island. Near the cove is the village of **Northport**, and northward of it is a steamboat landing.

Turtle Head Cove is a broad bight in the north end of North Islesboro. It is sheltered from southerly and easterly winds, and has good anchorage in 18 to 40 feet, soft bottom. The anchorage has a clear width of about ⅜ mile and is in the eastern part of the cove. The eastern shore must be given a berth of 250 yards, and the south end of the cove 500 yards. In the western half of the cove a shoal, bare in one spot at low water and with 9 feet near its north edge, extends ⅜ mile from shore. The north end of Turtle Head bearing anything eastward of 62° true (**E** by **N** mag.) clears the shoal. **Turtle Head**, the north end of North Islesboro, is a prominent wooded head joined to North Islesboro by a low narrow neck. A shoal with 13 feet over it extends nearly ¼ mile northward from the head.

Belfast Harbor, in the northwestern part of West Penobscot Bay, is described on page 98.

Searsport Harbor, Long Cove, and Stockton Harbor are described on page 99.

Penobscot River is described on page 99.

SAILING DIRECTIONS, WEST PENOBSCOT BAY.

Muscle Ridge Channel, Two Bush Channel, and the entrance of West Penobscot Bay northward of the parallel of 43° 56.5′ N. and eastward to Saddleback Ledge lighthouse have been examined by means of a wire drag, and the dangers are shown on the charts.

Entering from eastward, vessels of the deepest draft should pass southward of Bay Ledge as directed in section 1.

Entering from westward, Two Bush Channel is used by large vessels and tows, and also by all vessels at night. This channel is good for vessels of the deepest draft.

Muscle Ridge Channel is good for a depth of 4 fathoms, but it is narrow in places and is not recommended for a greater draft than 15 feet at low water, except with local knowledge. Directions through the channel from northeastward are given on page 32.

The directions of sections 2 and 2 A for standing up the bay are good for vessels of the deepest draft.

1. ***Entering from eastward.***—From Roaring Bull Ledge gas and whistling buoy, lying 1¾ miles southward of Isle au Haut, steer 260° true (**W** ⅝ **N** mag.) for 10 miles to a position 1 mile southward of Bay Ledge bell buoy. When the buoy is in range with Heron Neck lighthouse, bearing 0° true (*N* by *E* ½ *E* mag.), steer 275° true (**WNW** mag.) for 3 miles, heading for Two Bush Island lighthouse until Heron Neck lighthouse bears 33° true (*NE* ½ *E* mag.). Then bring *No Mans Land*, the partly wooded island ¾ mile northeastward from Matinicus Island, astern on a 329° true (**N** by **W** ¼ **W** mag.) course heading for the eastern end of *Monroe Island* (high and thickly wooded). Keep this course for about 6½ miles, and then steer about 343° true (**N** mag.) for 2 miles to a position ¼ mile eastward of the black bell buoy lying ¼ mile eastward of Monroe Island. Then follow the directions in section 2 or 2 A.

Dangers.—Roaring Bull Ledge and the dangers near Isle au Haut are described on page 82.

Snippershan is a ledge with a least depth of 6 fathoms, as determined by means of a wire drag, and lies 4¼ miles 202° 30′ true (**SW** ½ **S** mag.) from Saddleback Ledge lighthouse.

Bay Ledge lies 3½ miles 180° true (**S** by **W** ½ **W** mag.) from Heron Neck lighthouse and 6½ miles 244° true (**W** ¾ **S** mag.) from Saddleback Ledge lighthouse. The ledge is ¼ mile long and is bare at lowest tides at its north end, where it is marked by a red bell buoy. A rock with 26 feet over it lies ⅝ mile west-southwestward from the ledge.

Perry Ledge has a least depth of 23 feet and lies nearly 3¼ miles 251° true (**W** ¼ **S** mag.) from Heron Neck lighthouse. There are spots with 5¼ fathoms ⅜ mile westward and ¾ mile southwestward of Perry Ledge.

From **Hurricane Island** to the entrance of Fox Islands Thoroughfare there are many unmarked outlying dangers, which extend about 1¾ miles westward from the islands. **White Islands Ground**, at the southern end of the area, has depths of 10 to 20 feet. **Inner Bay Ledges**, at the northern end of the area, are a cluster of ledges over ½ mile long, some bare at low water, which lie about 2 miles southwestward from **Stand-in Point**, the southwest point of North Haven Island. Inner Bay Ledges are marked by two red buoys, a nun, No. 4, at the southern end, and a spar, No. 6, at the northern end.

Junken Ledge has a least depth of 18 feet and lies 3⅞ miles 64° true (**E** ¾ **N** mag.) from Two Bush Island lighthouse and 2⅜ miles 110° true (**SE** ¾ **E** mag.) from the north end of Andrew Island.

The dangers on the western side of the bay from Two Bush Island to Fisherman Island are described under section 1 B following.

1 A. ***Entering from eastward, passing northward of Bay Ledge.***—The directions of this section are good for vessels of 18 feet or less draft.

From Roaring Bull Ledge gas and whistling buoy, lying 1¾ miles southward of Isle au Haut, steer 274° true (**WNW** ⅛ **W** mag.) for 10¼ miles, passing 1¾ miles southward of Saddleback Ledge lighthouse and 1 mile southward of the islands and rocks westward. When Heron Neck lighthouse bears on the starboard beam distant 2 miles, steer 298° true (**NW** mag.) for 1¼ miles to Heron Neck whistling buoy. Continue the course, which leads ⅜ mile northeastward of Perry Ledge and ⅝ mile southwestward of White Islands Ground; the southern end of *Sheep Island* (high and heavily wooded) should be made ahead. Having stood 5 miles on the course from the whistling buoy, and Owls Head lighthouse is in range with the eastern side of Monroe Island, steer 335° true (**N** ¾ **W** mag.) for 2¾ miles to a position ¼ mile eastward of the black bell buoy lying ¼ mile eastward of Monroe Island. Then follow the directions in section 2 or 2 A.

The dangers are described in section 1 preceding.

1 B. ***Entering from westward through Two Bush Channel.***—From a position ½ mile southward of Bantam Rock gas and whistling buoy steer 59° true (**ENE** ¾ **E** mag.) for 16 miles to a position about ⅜ mile southward of Old Man Ledge gas and whistling buoy. Then steer 51° true (**ENE** mag.) for 7 miles to Marshall Point whistling buoy. This course leads ⅝ mile southward of Burnt Island and Old Cilley Ledge bell buoy.

Or, from Manana Island whistling buoy steer 41° true (**NE** by **E** ⅛ **E** mag.) for 12 miles to Marshall Point whistling buoy, passing ⅜ mile northwestward of Duck Rocks bell buoy.

From Marshall Point whistling buoy steer 62° 30′ true (**E** by **N** mag.) for 5¼ miles to a position about 300 yards southeastward from a red and black horizontally-striped nun buoy. Two Bush Island lighthouse will then bear 13° true (*NNE* ⅝ *E* mag.). Then steer 39° true (**NE** by **E** mag.) for 5 miles, passing ½ mile southeastward from Two Bush Island lighthouse and 1 mile southeastward from Andrew Island. When *Crescent Island*, a large bare rock 1 mile northeastward from Andrew Island, bears 298° true (*NW* mag.), steer 351° 30′ true (**N** ¾ **E** mag.) for 4¼ miles to a position ¼ mile eastward of the black bell buoy lying ¼ mile eastward of Monroe Island. Then follow the directions in section 2 or 2 A.

Dangers.—**Duck Rocks** are several detached rocks about 1 mile north of Monhegan Island lighthouse. A black tripod beacon marks one of these rocks, a black spar buoy marks another, and a black bell buoy is placed ¼ mile northwestward of all. Manana Island whistling buoy (No. 14 M) is moored 2⅛ miles 257° true (**W** ⅜ **N** mag.) from Manana Island fog signal, in range with the latter and Monhegan Island lighthouse.

Old Man Ledge, marked by a spindle, lies nearly 1 mile south of Allen Island, and a 12-foot spot and **Old Woman Ledge**, bare at half tide, lie between them. A red, gas and whistling buoy is moored nearly ¼ mile southwestward from Old Man. **Burnt Island**, eastward of Allen Island, is 150 feet high, and is marked on its summit by a prominent, high wooden tower.

Old Cilley Ledge is described on page 103.

Marshall Point whistling buoy (black, No. 1 M P) lies 3¼ miles 103° true (**SE** by **E** ⅜ **E** mag.) from Marshall Point lighthouse and 3⅜ miles 183° true (**S** by **W** ¾ **W** mag.) from Tennant Harbor lighthouse. An obstruction, probably the mast of a wreck, with 28 feet over it, lies ½ mile 201° true (**SW** ⅝ **S** mag.) from the buoy.

The principal dangers southward of the sailing lines and on the south side of Two Bush Channel are Roaring Bull, Metinic Island Ledge, Alden Rock, and the broken ground west-northwestward from it, and the ledge with 15 feet over it, lying 2 miles southeastward from Two Bush Island lighthouse and 1 mile northward of Northern Triangles, which is marked by a buoy (can, red and black horizontal stripes). These dangers are described on page 89.

A rock with 28 feet over it lies 1⅛ miles 200° true (**SW** ¾ **S** mag.) from Two Bush Island lighthouse, and is marked by a buoy (nun, red and black horizontal stripes).

Crow Island Ledges, several detached rocks with 8 to 15 feet over them, extend 1¼ miles 242° true (**W** by **S** mag.) from Two Bush Island lighthouse, and are marked at their western end by a buoy (spar, red, No. 2). Spots with 14 and 23 feet lie 600 yards and ⅝ mile, respectively, southwestward from Two Bush Island lighthouse.

Two Bush Reef, partly bare and with deep water near it, extends ¾ mile northeastward from Two Bush Island.

Halibut Rock is a small rock, bare at half tide, lying 1⅝ miles 38° true (**NE** ⅞ **E** mag.) from Two Bush Island lighthouse. **False Halibut Ledge**, a rock with 9 feet over it, lies 600 yards east-northeastward from Halibut Rock.

A ledge with 5¼ fathoms over it lies 2⅜ miles 71° true (**E** ⅛ **N** mag.) from Two Bush Island lighthouse.

Junken Ledge is described under section 1 preceding.

Northeast Pond Ledge, bare at half tide, lies ⅝ mile northeastward from the northeast end of Andrew Island and ½ mile southward (true) from Crescent Island. **Sunken Pond Ledge**, with 6 feet over it, lies 400 yards southward from Northeast Pond Ledge.

A dangerous rock, with 15 feet over it, lies ⅞ mile northeastward from **Crescent Island** and nearly ¾ mile southeastward from **Fisherman Island.** The latter is grassy and 300 yards long. **Marblehead Islet**, over ¼ mile southwestward from Fisherman Island, is a prominent, high, grassy knoll.

2. ***Monroe Island to Fort Point.***—From a position ¼ mile eastward of the black bell buoy lying ¼ mile eastward of Monroe Island steer 10° true (**NNE** ⅜ **E** mag.) for 11 miles, passing ⅝ mile westward of Mark Island and to a position ½ mile westward from the knoll near the middle of the northwest side of Seven Hundred Acre Island. Then steer 18° true (**NE** ⅞ **N** mag.) for 7¼ miles, passing the western shore at Great Spruce Head at a distance of about ¼ mile. When Turtle Head bears 61° 30′ true (*E* by *N* mag.), steer 42° true (**NE** by **E** ¼ **E** mag.) for 7 miles, pass ⅝ mile northwestward of Turtle Head, ¼ mile southeastward of the black gas buoy lying ⅜ mile southeastward of Sears Island, and midway between Fort Point lighthouse and Fort Point Ledge beacon. Pass about ¼ mile eastward of Fort Point and follow the directions for Penobscot River on page 101.

Dangers.—**The Graves** is a ledge about 300 yards long and 100 yards wide, showing bare, rocky heads at high water and a large part bare at low water. It is marked by a spindle and lies about 7/8 mile from the western shore of the bay, midway between Indian Island and Negro Island lighthouses.

Mory Reef has 3½ fathoms over it, and lies nearly 5/8 mile from the western shore and 1¼ miles northeastward from Negro Island lighthouse.

Dillingham Ledge is about 350 yards in diameter and has a least depth of 9 feet over it. It lies ½ mile from the western shore and 1¾ miles northeastward from Negro Island lighthouse. It is marked by a buoy (spar, black, No. 1) off its southeastern side.

Flat and Seal Islands are described under Seal Harbor, page 85. **Hog Island** is wooded and lies ¼ mile north-northeastward from Seal Island, with ledges between. A ledge, with three rocks bare at half tide, extends 600 yards north-northeastward from Hog Island.

Sprague Ledge, with 2 feet over it, and Barley Ledge, bare at low water, lie 5/8 and 7/8 mile north-northeastward from Hog Island. **Barley Ledge** is marked by a red spindle with cask. They are avoided by giving the eastern shore a berth of 5/8 mile until 1 mile above Hog Island.

A **shoal** makes out 3/8 mile north-northeastward from Marshall Point, the northwestern point of North Islesboro, on the western side of Turtle Head Cove.

A **shoal** makes out nearly ¼ mile north from Turtle Head. It has 13 feet over it at its northern end.

The dangers at the entrance to Stockton Harbor are described on page 99.

Fort Point Ledge is described on page 83.

2 A. ***Monroe Island to Cape Rosier.***—From a position ¼ mile eastward of the black bell buoy lying ¼ mile eastward of Monroe Island steer 35° true (**NE** 5/8 **E** mag.) for 5 miles to a position ½ mile southeastward from McIntosh Ledge buoy. Then steer 27° 30′ true (**NE** mag.) for 10¾ miles, passing ½ mile westward of Mark Island to a position 3/8 to ½ mile westward of Cape Rosier. Then if bound up Penobscot River, steer 2° true (**N** by **E** ¾ **E** mag.) and follow a part of the directions in section 2, page 83.

Bound to Eggemoggin Reach.—Follow the preceding directions to a position ½ mile northwestward of Mark Island. Then steer 39° true (**NE** by **E** mag.) for 2½ miles to a position ½ mile northwestward of Green Ledge, the grassy islet westward of Western Island. Then steer 78° 30′ true (**E** ½ **S** mag.) for Pumpkin Island lighthouse and reverse the directions in section 2, page 76.

Dangers.—**Inner Bay Ledges** are described on page 86.

Drunkard Ledge is bare at half tide, and marked by a red spindle with cage; it lies 5/8 mile west-northwestward from Fiddler Ledge beacon. The spindle should be given a berth of 250 yards. A rock with 3½ fathoms over it lies 251° true (**W** ⅛ **S** mag.) from the spindle. Ledges with 15 feet over them lie between Drunkard and Fiddler Ledges; there is a depth of 19 feet on the south end of these ledges, lying 3/8 mile southeastward of the spindle and 237° true (**WSW** 5/8 **W** mag.) from Fiddler Ledge beacon.

McIntosh Ledge is awash at low water and about 100 yards in diameter; it lies about ¾ mile 109° true (**SE** ¾ **E** mag.) from Robinson Rock, and is marked by a buoy (nun, red and black horizontal stripes) placed southwest from it. There is good water all around the ledge.

Robinson Rock is a large, grassy rock, with several smaller detached bare rocks, lying ¾ mile southward from Mark Island. Ledges make out over ¼ mile northeastward and southward from it. A sunken ledge with least depths of 3½ and 4 fathoms extends 5/8 mile 197° true (**SW** by **S** mag.) from Robinson Rock.

Goose Island is a grassy, rocky islet westward of the sailing line, about 1⅞ miles northeastward from Robinson Rock. The eastern side of this islet should be given a berth of at least 3/8 mile on account of some rocks which show partly bare near high water.

Mouse Island is a small, rocky islet 7/8 mile northeastward from Goose Island. Between these islands lie several ledges showing bare before low water. A ledge extends 300 yards northeastward from Mouse Island, and is marked near its end by a black spindle with cask.

Egg Rock is a small, high, dark rock lying 1⅜ miles off the north side of North Haven Island 5⅜ miles northeastward from Stand-in Point. **Egg Rock Ledge**, with 2 feet over it, lies south-southwestward from Egg Rock, and is marked by a buoy (spar, red and black horizontal stripes) placed off its northeastern side.

ISLANDS AND ROCKS OFF PENOBSCOT BAY.[1]

The area including these islands and rocks has an extreme length of 21½ miles from Three Fathom Ledge, eastward of Seal Island, to Roaring Bull, westward of Metinic Island. There is no secure harbor for vessels at any of the islands, but the small craft of local fishermen moor in the cove on the eastern side of Matinicus Island northward of Wheaton Island. The waters of this area are well surveyed, and there are deep passages between the islands, as shown on the chart. On account of the broken nature of the bottom, however, vessels, particularly deep-draft ones, should avoid all broken ground, especially with depths less than 10 or 12 fathoms.

[1] Shown in parts on charts **104, 105**, scale $\frac{1}{80,000}$, price of each $0.50; and in part on chart **312**, scale $\frac{1}{40,000}$, price $0.25.

Seal Island is bare, rocky, about 60 feet high, and 1 mile long. There are several small houses near its eastern end. **Eastern Ledge**, on which the sea generally breaks, extends 350 yards off the east end of the island. **Three Fathom Ledge** lies 1½ miles eastward from Seal Island.

Malcolm Ledges, lying midway between Seal Island and Wooden Ball Island, are ⅜ mile long. The north end of the ledges is awash at high water; the south end is bare at half tide.

Wooden Ball Island is bare, rocky, about 60 feet high, and 1 mile long. The eastern point of the island is a prominent knob about 80 feet high, and there are a few small houses at the low place in the western part of the island.

Matinicus Rock, the southernmost islet, is about 40 feet high, and is marked near its south end by Matinicus Rock lighthouses.

No Man's Land, Matinicus Island, Ten Pound Island, and **Ragged Island** are partly wooded, and are the principal ones of a group of islands and rocks about 5 miles long. There are numerous, high, bare rocks, including **Green** and **Brig Ledges**, on the east and south sides of Ragged Island, and broken ground extends ¾ mile southward from it to **Inner Breaker**, which has a depth of 3 feet over it. **South Breaker** is on a small rock, awash at lowest tides and marked by a buoy (spar, red and black horizontal stripes), lying 1¾ miles southward from Ragged Island and 1⅝ miles 289° true (**NW** ¾ **W** mag.) from Matinicus Rock lighthouses. **The Hogshead** is a prominent, bare rock, lying 400 yards northward from the high, bare rock close to the northeast point of Ragged Island. Near the northern side of Ragged Island is a partly wooded islet.

Western and **Eastern Black Ledges** are bare rocks eastward of Matinicus Island. **Tuckanuck Ledge**, 200 yards eastward of Eastern Black Ledge, is covered at high water. A rock with 10 feet over it lies ¼ mile south-southwestward from Western Black Ledge. **Mackerel Ledge**, bare at half tide, lies 700 yards north-northeastward from Eastern Black Ledge.

Matinicus Harbor is a cove on the east side of Matinicus Island between Wheaton Island and a small islet northward called **Indian Ledge**. Very small vessels can anchor in the middle south-southwestward of Indian Ledge, in 4 fathoms, exposed to easterly and northeasterly winds and sea. Small local craft usually moor at the south end of the harbor. The northern part of the harbor has depths of 6 to 8 feet, and is entered through a narrow channel on either side of **Dexter Ledge**, which lies westward of Indian Ledge; local knowledge is necessary for its navigation. It is proposed to build a breakwater from Indian Ledge to the point northward.

Harbor Ledge is a rock with 4 feet on it, lying 300 yards northeastward from the entrance of Matinicus Harbor, and is marked on its south side by a buoy (spar, red and black horizontal stripes). **The Barrel**, lying 300 yards northeastward from Harbor Rock, is a rock bare at half tide at the south end of a sunken ledge 300 yards long.

Two Bush Islet is grassy on top and is joined to the northeast end of Matinicus Island by a sunken ledge. **Two Bush Ledge**, high and bare, lies southeastward from the islet; sunken rocks extend 350 yards eastward and northeastward from the ledge. **Beach Ledges** are two rocks bare at low water between Two Bush Ledge and Matinicus Island. **Whaleback** is a rock bare at low water, lying ¼ mile westward from No Man's Land, and is marked on its northwest side by a buoy (spar, black, No. 3). **Zephyr Ledges** are two rocks bare at low water, lying ¼ mile northeastward from No Man's Land. **Zephyr Rock**, the northeast end of the group, is a rock with 5 feet over it, lying ⅝ mile northeastward from No Man's Land, and is marked on its northerly side by a buoy (spar, black, No. 1). Strangers should not attempt any of the channels between Zephyr Rock and Matinicus Island.

Black Rocks are three bare rocks ¼ mile westward from Matinicus Island.

Bantam Ledge is a rock bare at half tide, with deep water around it, lying 2⅜ miles 283° true (**NW** by **W** ¼ **W** mag.) from the south end of Ragged Island. It is marked by a buoy (spar, red and black horizontal stripes), placed 100 yards south of the ledge.

Foster Ledges are two rocks with 6 and 13 feet over them; the southwestern and shoaler rock is marked on its south side by a buoy (spar, red and black horizontal stripes). The ledges lie 1¾ miles westward from the north end of Matinicus Island.

Pigeon Ground is broken ground about 2 miles long in an east-northeasterly direction, lying 2 miles southward of Large Green Island. There are depths of 3½ and 3¾ fathoms on its eastern and western parts, respectively, with deep water between.

Green Island Seal Ledges lie ⅝ to ⅞ mile south-southeastward from Large Green Island, with broken ground between. The southern part of the ledge is awash at high water; its north end is covered at half tide. A black whistling buoy is moored about ⅜ mile southeastward from the ledge.

Large Green Island is low and grassy, and has some houses on its northern part. **Herring Ledge**, partly bare at low water, extends ⅜ mile southward from the island.

Little Green Island is low and grassy, and has one house near its eastern end. **Collins Rock**, with 5 feet over it, lies 1⅛ miles eastward of the island.

Northern Triangles is a reef about 1 mile long in an east-southeasterly direction lying 1 mile northward of Little Green Island. In the western half of the reef are some ledges bare at low water. Northern Triangles buoy (can, black,

No. 1) is placed about ½ mile northward from the eastern end of the reef. A ledge with 15 feet over it lies 2 miles northward (true) from Little Green Island and 2 miles 116° true (**SE ⅛ E** mag.) from Two Bush Island lighthouse, and is marked by a buoy (can, red and black horizontal stripes).

Alden Rock, with 4 feet over it and marked by a buoy (spar, red and black horizontal stripes), lies 1⅜ miles northwestward from Little Green Island. A rock with 14 feet over it lies ¾ mile west-northwestward from Alden Rock. The 14-foot rock is at the eastern end of broken ground nearly 1 mile long, with least depths of 25 to 28 feet.

Southern Triangles are three rocks awash at low water lying midway between Little Green and Metinic Islands. The southwestern rock lies ⅝ mile from the other two. A buoy (spar, black, No. 1 T.) lies ⅝ mile southeastward from the easternmost rock.

Metinic Island is nearly 2 miles long, 70 feet high near its northern end, and partly wooded. **Metinic Green Island**, low and grassy, lies ⅜ mile southwestward from Metinic Island, with foul ground between. A rock awash at low water lies 300 yards southwestward from Metinic Green Island. **Wheeler Rock**, with 5 feet over it, lies ⅜ mile north-northeastward, and **Wheeler Big Rock**, awash at high water, lies 300 yards northward from the northeast point of Metinic Island. **Green Point Shoal**, with 21 feet over it, lies ⅞ mile eastward from the middle of Metinic Island.

Broken ground extends 2 to 3 miles westward and southwestward from Metinic Island. The following are the shoaler places determined by the survey:

Black Rock, covered at high water, lies ⅝ mile westward from the middle of Metinic Island. A rock, with 14 feet over it, lies ⅜ mile southwestward from Black Rock.

Metinic Island Ledge, with 8 feet over it and marked at its southwest end by a buoy (spar, red and black horizontal stripes), lies 1¾ miles westward from Metinic Island, on the range of the north end of the latter and the middle of Large Green Island. A rock with 26 feet over it lies ⅝ mile northeastward from it. **Hooper Shoal**, with 17 feet over it, lies ⅝ mile southwestward from Metinic Island Ledge.

Roaring Bull, awash at low water and generally marked by breakers, lies 2¾ miles westward from Metinic Green Island. It is marked on its northwest side by a buoy (can, black, No. 3). A ledge, with a least depth of 4½ fathoms, lies ⅝ mile north-northwestward from Roaring Bull.

Southeast Breaker is on a ledge about ½ mile long in a northeast direction, the higher part of which is bare at half tide. It lies 2 miles southwestward from Metinic Green Island, on the range of the south end of the latter and the north end of Large Green Island.

Haddock Ledge, with 13 feet over it, lies 1¼ miles southward from Southeast Breaker and 2½ miles southwestward from Metinic Green Island.

SOUTH AND WEST COASTS OF VINALHAVEN ISLAND.[1]

The south and west coasts of Vinalhaven Island are fringed by numerous islands and rocks to a distance of about 2 miles. Between them are channels which are used principally by small local vessels and vessels loading granite at some of the quarries. Carvers Harbor is the best anchorage, and the only one of any importance. The channels are well marked by buoys, and are generally not difficult in the daytime and clear weather for vessels of 12 feet or less draft.

Brimstone and **Otter Islands** are the largest and most prominent of the eastern islands, and **Saddleback Ledge lighthouse**, in the entrance of East Penobscot Bay, is a guide for approaching from eastward. **Diamond Rock**, ⅜ mile northeastward of Brimstone Island, is a round rock about 20 feet high, and is a good mark. The large **standpipe** at Vinalhaven is prominent for many miles. **Green Island**, the large, wooded island westward of Vinalhaven, is marked at its south end by **Heron Neck lighthouse**. **Hurricane Island** is the most prominent westward of Vinalhaven. Its southeast end is marked by a village and the large buildings of a quarry.

Arey Cove and **Robert Harbor**, on the southeast side of Vinalhaven Island, are much obstructed by rocks and ledges, and are unsafe for strangers.

Carvers Harbor is a secure anchorage for small vessels on the southwest side of Vinalhaven Island. The anchorage is about 500 yards long and 250 yards wide, and has been dredged to a depth of 16 feet. The village of **Vinalhaven**, at the head of the harbor, is of some importance for its shipment of granite and fish. There is communication by telephone and steamer with Rockland. The deepest draft of vessels entering is 12 feet; the depth at the wharves is 6 to 15 feet. Water, provisions, and a limited amount of coal may be obtained. There are marine railways with a capacity of about 10 tons. Ice closes the harbor during January and February, but a channel is kept open to the steamboat wharf. Storm warnings are displayed at the village.

The Reach is a narrow, much-obstructed channel, leading from the entrance of Carvers Harbor northwestward inside of Green Island. The principal dangers are marked, but care is required, as this is the most difficult part of the passage between Carvers Harbor and Rockland.

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[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **309**, **310**, scale $\frac{1}{40,000}$, price of each $0.25.

Old Harbor is a small cove at the northern end of The Reach and northeast from the northern end of Green Island. It affords good anchorage for small craft in 9 to 17 feet, soft bottom, and small vessels can anchor in or off the entrance in 3 to 6 fathoms.

Hurricane Sound lies between Vinalhaven and Green Islands on the east and Hurricane Island and White Islands on the west. It has deep water, but is little used except by local vessels and vessels loading granite at Hurricane Island. Several passages lead into the sound, but there are no good anchorages.

The Basin is a large irregular bight in the west side of Vinalhaven Island about 2½ miles north of Heron Neck lighthouse. Barton Island lies in the middle of the entrance, leaving a narrow, crooked, and shallow channel north and south of it. The depth of water in the basin varies from 1½ to 18 fathoms.

Lairey Narrows leads between Leadbetter Island on the north and Lairey Island on the south. This passage is a part of the route between Carvers Harbor and Rockland, and the principal dangers are buoyed.

Leadbetter Narrows is a narrow passage between the Vinalhaven shore on the north and Leadbetter Island on the south; passing south on the eastern side of Leadbetter Island, it leads into the northern end of Hurricane Sound. This passage should not be attempted without a pilot.

Pilots can be had at Rockland and Carvers Harbor, and fishermen can sometimes be found on the outer ledges who are competent to pilot a vessel into Carvers Harbor.

SAILING DIRECTIONS, CARVERS HARBOR.

These directions are good for vessels of 12 feet or less draft in the daytime and with clear weather.

From Merchants Row.—Pass between Channel Rock tripod and Scraggy Ledge, and southward of the 11-foot rock 400 yards southward of Scraggy Ledge. Then bring the tripod a little on the starboard quarter on a 226° true (**SW** by **W** ⅝ **W** mag.) course, passing well southeastward of black spar buoys Nos. 5 and 7 marking the *Triangle Ledges* (bare at low water), and 150 yards southeastward from black spar buoy No. 3 marking *Halibut Ledge* (bare at low water). Make good this course for 5¾ miles to a position 250 yards southeastward from Crosby Ledge buoy (spar, red, No. 0). Then steer 241° true (**W** by **S** mag.), pass 250 yards southward from Sheep Island and 50 to 100 yards southward from red spar buoys Nos. 2½ and 4. A ledge with a least depth of 10 feet lies 250 yards southward from buoy No. 2½.

Passing southward of red spar buoy No. 4, steer 279° true (**NW** by **W** ¾ **W** mag.) with either Saddleback Ledge lighthouse or Diamond Rock in range with the south extreme of Carver Island astern until Point Ledge spindle is about 300 yards on the starboard beam. Then steer 298° true (**NW** mag.) and pass between *Folly Ledge* (bare at high water) and *Green Ledge* (grassy top), slightly favoring the latter. Pass about midway between Green Ledge and *Green Island Knob* (awash at high water) and steer about 33° true (**NE** ½ **E** mag.) for the entrance of Carvers Harbor. Pass between red spar buoy No. 4 and black spar buoy No. 3 (the latter marks the eastern end of a reef bare at low water only); pass about 75 yards westward of Potato Island, and enter the harbor in mid-channel. Anchor about 150 yards from the western shore, abreast or a little above the steamboat wharf, in 16 feet.

From eastward.—Give Saddleback Ledge lighthouse a berth of about ¼ mile and then bring it astern on a 285° true (**NW** by **W** ⅛ **W** mag.) course, heading for the flagpole on the knoll on the west side at the entrance of Indian Creek. On this course pass 300 yards northward from Diamond Rock, about ¼ mile southward of black spar buoy No. 1 marking the north end of *Diamond Rock Ledge* (bare at low water), and pass between Carver Island and red spar buoy No. 2 marking the south end of *Sheep Island Ledge* (partly bare at low water). From a position 250 yards northward of Carver Island, steer 256° true (**W** ¼ **N** mag.) and pass 100 yards southward of red spar buoy No. 4. Then follow the directions in the preceding paragraph.

From southward.—Steer for the standpipe at Vinalhaven on a 4° true (**N** by **E** ⅞ **E** mag.) course, pass westward of red spar buoy No. 2, marking the southwest end of Colt Ledge, and pass between black spar buoy No. 1, marking the eastern end of *Breaker Ledge* (bare at low water), and red spar buoy No. 4, marking the southwest end of Arey Ledges (higher parts are bare rocks). Continue the course for the standpipe until about ¾ mile past buoy No. 4 and Folly Ledge is about ¼ mile on the port beam. Then steer about 320° true (**NNW** mag.)

and pass about 200 yards southwestward of *Green Ledge* (grassy top). Pass about midway between Green Ledge and Green Island Knob, steer about 33° true (**NE** ½ **E** mag.) for the entrance of Carvers Harbor, and enter as directed in a preceding paragraph.

Or, from Heron Neck whistling buoy steer 41° true (**NE** by **E** ⅛ **E** mag.) for Heron Neck lighthouse until about ⅜ mile from the lighthouse. Then steer 70° true (**E** ¼ **N** mag.) and pass midway between Heron Neck and *Heron Neck Ledge* (a bare rock). Continue the course and pass about 300 yards southward of the southeast point of Green Island. Then haul northward between Green Island and Folly Ledge and follow a mid-channel course westward and northward of the ledge. Then steer 24° true (**NE** ⅜ **N** mag.) for the standpipe at Vinalhaven and pass about 200 yards westward of Green Ledge. Then steer 33° true (**NE** ½ **E** mag.) for the entrance of Carvers Harbor and enter as directed in a preceding paragraph.

From Rockland through Lairey Narrows and The Reach.—Passing 200 yards southward of Rockland Breakwater lighthouse, steer 99° true (**SE** by **E** ¾ **E** mag.) for 5¼ miles to Fox Islands Thoroughfare bell buoy (red and black horizontal stripes). Then steer 125° true (**SE** ⅝ **S** mag.) for the fairway bell buoy westward of Green Islet, and pass northward of black spar buoys Nos. 5 and 3. From the fairway bell buoy steer 107° true (**SE** by **E** mag.) for the north end of Lairey Island to a position 25 to 50 yards southward from a red spar buoy. Then steer about 101° true (**SE** by **E** ½ **E** mag.), pass midway between the north end of Lairey Island and the south end of the bare rocks northward, and pass about 100 yards northward and eastward of a red and black horizontally striped spar buoy. Then stand southward to a mid-channel position between the eastern side of *Cedar Island* (wooded) and the grassy islet opposite. The islands here called *Lairey* and Cedar were formerly called Pole and Lairey, respectively, on the charts.

Then steer 135° true (**SSE** ½ **E** mag.) for 1⅛ miles to a position 50 yards southwestward from Dog Point Ledge buoy (spar, red, No. 6). Then steer 118° true (**SE** mag.), pass midway between the northeast point of Green Island and the rock awash at high water lying southward of the island in the entrance of Old Harbor, and pass in mid-channel eastward of the island close to the northeast end of Green Island. Pass close westward and about 50 yards southward of buoy No. 4 and steer 113° true (**SE** ½ **E** mag.) to a position about 50 yards northeastward of black spar buoy No. ½. Then steer 152° true (**S** by **E** mag.), and pass 100 feet eastward of the black spindle on the end of the ledge extending eastward from a grassy island. A rock with 3 feet over it lies 200 feet northeastward of the spindle, and the channel has a width of but little over 100 feet between the rock and the edge of the ledge just northward of the spindle. Great care is required in passing this point.

Pass about 100 yards southwestward of red spar buoy No. 2 at the south end of The Reach and steer 92° true (**ESE** ¼ **E** mag.), heading a little northward of red spar buoy No. 4. When nearly up with the latter buoy, steer about 33° true (**NE** ½ **E** mag.), pass eastward of black spar buoy No. 3 and about 75 yards westward of Potato Island, and enter Carvers Harbor in mid-channel. Anchor about 150 yards from the western shore, abreast or a little above the steamboat wharf, in 16 feet.

MUSCLE RIDGE CHANNEL.[1]

This passage leads into West Penobscot Bay from westward and is much used by vessels in daylight and clear weather on account of its being sheltered and affording anchorage in case of bad weather. The channel has been examined by means of a wire drag, and is good for a depth of 4 fathoms, but it is narrow in places, especially at the southwest end of Owls Head Bay, and is not recommended for a greater draft than 15 feet at low water, except with local knowledge. From its entrance at Whitehead it extends in a northeasterly direction about 6 miles to Sheep Island, and the channel passes between numerous rocks and ledges. These dangers are well marked and in daylight and clear weather with a fair wind no difficulty will be experienced by sailing vessels.

On the eastern side of Muscle Ridge Channel is a large group of islands and ledges which separates it from Penobscot Bay. These islands are of no importance except for their granite quarries; the larger ones are wooded. **Dix Island** is distinguished by the large buildings on it, and **High Island** is marked by a quarry and iron stack. **Two Bush Island**, the southernmost of these islands, is marked by Two Bush Island lighthouse, a guide for Two Bush Channel

[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **312**, scale $\frac{1}{40,000}$, price $0.25.

and West Penobscot Bay. Southward of these islands **Two Bush Channel** leads into West Penobscot Bay; this channel has been surveyed by means of a wire drag and is used in preference to Muscle Ridge Channel by large vessels and tows, and also by all vessels at night.

Seal Harbor is an anchorage much used by coasters on the western side of Muscle Ridge Channel between Whitehead and Sprucehead Islands; it has 18 to 23 feet of water, with soft bottom. The post village of **Sprucehead** and a large granite quarry are on the north side of Seal Harbor. The principal dangers are buoyed, and the harbor is easy of access in the daytime. **Long Ledge** shows in two places at high water.

Enter Seal Harbor between the two black spar buoys (Nos. 3 and 0), which lie about 250 yards southward from Burnt Island and nearly ¼ mile northwestward from Lower Gangway Ledge buoy (can, red and black horizontal stripes), and steer 304° true (**NW ½ N** mag.). Pass between red spar buoy No. 2 and Long Ledge buoy (spar, black, No. 1), and anchor in 3 to 4 fathoms 300 to 400 yards westward of buoy No. 2.

Dix Island Harbor is an anchorage between Andrew, Birch, and Dix Islands; it is reached from southwestward through a narrow and crooked channel leading between the ledges north of Hewell Island; it is unsafe for strangers to enter.

Weskeag River empties into the western side of Muscle Ridge Channel at the head of the bight westward of Ash Island. This river has a narrow and crooked channel, unsafe for strangers. The village of **South Thomaston** is at the head of navigation, 2 miles above its mouth; the greatest draft taken to the village is 10 feet; 4 feet can be taken into the entrance at low water. Strangers generally take a pilot, anchoring off the mouth of the river with signal set until boarded by one. South Thomaston is about 3 miles overland from the city of Rockland and the same distance from Thomaston.

Fisherman Island Passage leads from Muscle Ridge Channel to Penobscot Bay, between Fisherman Island and Sheep Island. Several dangers lie in this passage, but the principal ones are marked by buoys and can be easily avoided in the daytime in clear weather. Directions through the passage are given on page 31.

Owls Head Bay lies between Sheep and Monroe Islands on the east and the mainland on the west, and is a continuation of Muscle Ridge Channel northward of Fisherman Island Passage. The channel through Owls Head Bay is very narrow on the western side of Sheep Island, where it is marked by two buoys. Vessels can anchor in the middle of the bay abreast Monroe Island, in 8 to 10 fathoms, and small vessels can anchor in the entrance of the cove between Dodge Point and the bare ledge southwestward, in 2 to 4 fathoms.

Storm warning displays of the United States Weather Bureau are made at Whitehead lighthouse.

Sailing directions through Muscle Ridge Channel from Owls Head are given on page 32.

ROCKLAND HARBOR.[1]

This harbor, one of the most important in Penobscot Bay, is on the west shore between Owls Head on the south and Jameson Point on the north. It affords anchorage for the largest vessels, but is somewhat exposed to easterly winds. Northeasterly winds raise a heavy sea in the southwestern part, but shelter may be found behind the breakwater, which extends ¾ mile in a southerly direction from Jameson Point, and is about 4 feet above high water. Rockland Breakwater lighthouse marks the end of the breakwater. The principal dangers are marked, and the harbor is easy of access both day and night.

The city of **Rockland**, on the western shore of the harbor, has a large trade in lime. Several lines of steamers touch here, and a number of small steamers ply to the islands in the bay. The usual draft of vessels entering Rockland for cargoes is about 12 feet. Some of the wharves are dry, or nearly so, at low water, but there is from 6 to 15 feet alongside the principal ones, according to location. The bottom is soft mud, and some vessels lie aground at low water while loading and unloading. Rockland is the terminus of a branch of the Maine Central Railroad which connects with the main line at Bath.

Prominent objects.—**Owls Head**, marked by **Owls Head lighthouse**, is on the southeastern side of the entrance to the harbor. A little over ¼ mile northwestward from Owls Head lighthouse there is a large black tripod called **Shag Rock beacon**. **Jameson Point**, on the northern side of the entrance, is low and grassy, with a large hotel a short distance back from its end; the breakwater and lighthouse on its end, making off from the point, are conspicuous. **Tillsons Wharf** is a large stone pier with buildings lying 272° true (**WNW ¼ W** mag.) from Rockland Breakwater lighthouse.

Anchorages.—Vessels anchor anywhere in the harbor where the depth and bottom are suitable, taking care to keep 300 yards from the end of Tillsons Wharf, and leaving a clear channel for the steamboats landing at this wharf. Deep-draft vessels entering for the night usually anchor just inside the breakwater and ½ mile from the south shore of the harbor. Standing westward in the harbor the water shoals gradually toward the wharves. There are depths

[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **310**, scale $\frac{1}{40,000}$, price $0.25; **320**, scale $\frac{1}{20,000}$, price $0.20.

of 12 to 14 feet in the harbor eastward of Tillsons Wharf and northward of South Ledge, and less water in the bight in the northern part of the harbor between Tillsons Wharf and Jameson Point; only small vessels or small craft anchor in this part of the harbor. For harbor regulations see Appendix II.

Pilots are not necessary to enter or leave the harbor, but if desired they can be found off Monhegan or Matinicus or on any of the fishing vessels off the mouth of the bay. There are no regularly licensed pilots for the port.

Towboats can be had at Rockland.

Supplies.—Anthracite and bituminous coal can be obtained alongside the wharves. Fresh water can be obtained at the principal wharves and from a water boat. Provisions and some ship-chandler's stores can be had in the city.

Repairs.—There are two marine railways, one capable of hauling out vessels of 600 tons and the other 400 tons; there are excellent facilities for repairs to wooden sailing vessels and hulls of steamers. Ordinary repairs to machinery can be made here, but Bath is the nearest place affording facilities for extensive repairs.

There are no quarantine regulations for the port. (See quarantine laws for the State in Appendix II.)

Marine hospital.—Medical attendance is furnished by an acting assistant surgeon of the United States Public Health and Marine-Hospital Service, as for stations of Class III (see Appendix IV). Patients requiring hospital treatment are sent to the United States marine hospital at Portland.

For **tides** see table, page 24.

SAILING DIRECTIONS, ROCKLAND HARBOR.

Directions from Eggemoggin Reach to Rockland Harbor are given on page 76, and from Fox Islands Thorofare on page 31.

Approaching Rockland Harbor, Rockland Breakwater lighthouse may be steered for on any course between 287° true (**NW** by **W** mag.), through west to 205° true (**SW** ¼ **S** mag.). The first course leads ¼ mile northward of Owls Head lighthouse and the second leads about ⅜ mile eastward from The Graves spindle. Enter the harbor southward of the lighthouse, giving it a berth of 100 yards or more.

Dangers.—**Shag Rock** is a cluster of bare rocks lying ¼ mile northwestward from Owls Head lighthouse and 150 yards from shore. The rocks are marked by a black tripod beacon, which should be given a berth of 150 yards.

Spear Rock, with 3 feet over it, lies about 400 yards from the south shore of the harbor, southward from Rockland Breakwater lighthouse, and 1⅜ miles westward of Owls Head. A buoy (spar, black, No. 1) is placed northward of the rock; vessels should not pass southward of the buoy.

Lowell Ledge, bare at low water, is a small cluster of rocks southwestward of Spear Rock and a little closer inshore.

South Ledge lies in the middle of the harbor, ⅜ mile westward from Rockland Breakwater lighthouse; it has been removed to a depth of 22 feet.

Railway Ledge is a small rock, with 5 feet over it, lying about 200 yards southeastward from the marine railway pier, near the southern end of the city; it is marked on its easterly side by a buoy (spar, black, No. 3), and on its south side by a buoy (spar, red, No. 2).

Seal Ledge, southward of Railway Ledge, is marked by a black spindle with cask, and is near the edge of the flat which fills the southwest end of Rockland Harbor.

ROCKPORT HARBOR [1]

is a small harbor on the west shore of West Penobscot Bay about 4 miles northward of Rockland Harbor; Indian Island lighthouse is on the northern side of the entrance. It is easy of access and is a good anchorage for vessels of any size, sheltered from all but southerly winds. The anchorage is southward of Harbor Ledge beacon, in 7 to 10 fathoms, soft bottom. Very small vessels can anchor inside Harbor Ledge beacon, but there is little swinging room. For a distance of 200 yards northward of Harbor Ledge beacon the western half of the harbor is shoal; otherwise the head of the harbor, except the coves at the extreme head, has been dredged to a depth of 12 feet, and this depth can be taken to the principal wharves. The head of the harbor is frozen in very cold weather.

Rockport, the town at the head of the harbor, ships considerable lime. Water, provisions, and some ship-chandler's stores can be obtained.

SAILING DIRECTIONS, ROCKPORT HARBOR.

From southward.—Steer for Indian Island lighthouse, passing eastward of the black buoys marking the end of the ledges off Brewster Point. Pass on either side of Porterfield Ledge beacon, giving it a berth of 200 yards, and then stand northward in the harbor, giving the shores

[1] Shown on chart **104**, scale $\frac{1}{80,000}$, price $0.50; **310**, scale $\frac{1}{40,000}$, price $0.25; **321**, scale $\frac{1}{20,000}$, price $0.20.

a berth of 200 yards. Or, a 346° true (**N** ¼ **E** mag.) course, with Porterfield Ledge beacon astern, can be steered, heading to pass in mid-channel eastward of Harbor Ledge beacon. Keep the wharves on the eastern side aboard, distant about 75 yards, until halfway from Harbor Ledge beacon to the head of the harbor, above which the harbor is clear.

From northward.—Pass on either side of The Graves, and pass preferably eastward of the red and black horizontally striped nun buoy above Deadman Point. Pass southeastward and southward of Lowell Rock, giving it a berth of about 300 yards in rounding it, and then stand northward in the harbor.

Dangers.—**Brewster Point Ledge**, the highest part covered at high water, extends ⅜ mile southeastward from Brewster Point, and is marked at its southeast end by a buoy (spar, black, No. 1). **Ram Islet** is the grass-covered rock 400 yards northeastward from Brewster Point; the end of the ledge extending 300 yards northeastward from the islet is marked by a buoy (spar, black, No. 3).

Porterfield Ledge, small and covered at high water, is marked by a stone beacon lying ⅝ mile 182° true (**S** by **W** ¾ **W** mag.) from Indian Island lighthouse.

Lowell Rock is small and bare, with ledges joining it to Indian Island. There is a red spindle, with cage and ball, on the ledge at the south end of the rock, and lies 300 yards southward of the lighthouse. A rock with 3 feet over it lies 50 yards southward of the spindle.

The Graves is described on page 88.

A rock with 14 feet over it and marked by a buoy (nun, red and black horizontal stripes) lies ¼ mile from the western shore above **Deadman Point** and ⅞ mile northeastward from Indian Island lighthouse.

Seal Ledge, bare at half tide, lies 200 yards from the eastern shore of Rockport Harbor, ⅝ mile northward of Indian Island lighthouse, and is marked by a red spindle with cage.

Harbor Ledge lies in the middle of Rockport Harbor, nearly ¼ mile from its head, and is marked by a stone beacon. The channel is eastward of it.

CAMDEN HARBOR [1]

is a small harbor on the west shore of West Penobscot Bay 7 miles northward of Owls Head; Negro Island lighthouse is on the southern side at the entrance. The outer harbor is easy of access, and affords good anchorage in 14 to 30 feet, soft bottom. The anchorage is eastward of a line from the steamboat wharf to the black spar buoy (No. 3) northward of Negro Island. The depths in the outer harbor shoal gradually northward to 12 feet about ¼ mile from the head of **Sherman Cove**, above which the cove is shoal.

The greater part of the inner harbor has been dredged to depths of 7 to 10 feet, and is occupied as an anchorage by small pleasure craft in summer; the entrance is through a dredged channel 80 yards wide and 10 feet deep. A shoal extends 80 yards from the north shore between the steamboat wharf and the shipyard at the entrance of the inner harbor.

Camden, the town on the inner harbor, has several marine railways, the largest 199 feet long with a capacity of 1,000 tons, a manufactory for anchors, and several limekilns. The greatest draft of vessels loading here is 15 feet. The steamboat wharf has a depth of 14 feet at its end, the other wharves from 2 to 9 feet.

Pilots are not necessary to enter the outer harbor. Vessels bound up to the wharves and that require a pilot are generally taken up free of charge by stevedores.

Supplies.—Anthracite and bituminous coal, in limited quantity, and fresh water can be obtained at the wharves; provisions and some ship-chandler's stores in the town.

Ice sometimes forms in the harbor during January, February, and March, but is not dangerous to vessels in the outer harbor. Westerly winds clear the harbor of ice.

SAILING DIRECTIONS, CAMDEN HARBOR.

From southward or eastward.—Steer for Negro Island lighthouse on any bearing between 354° true (**N** by **E** mag.) and 264° true (**W** by **N** mag.), taking care, however, to avoid The Graves, which is marked by a spindle and lies 1 mile 154° true (*S* ¾ *E* mag.) from the lighthouse. Pass 200 to 300 yards eastward of Negro Island and steer 320° true (**NNW** mag.). Anchor near mid-harbor off or above the steamboat wharf, in 4 to 5 fathoms, or anchor a little eastward of a line from the steamboat wharf to the black spar buoy (No. 3) northward of Negro Island, in 14 to 20 feet.

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[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **310**, scale $\frac{1}{40,000}$, price $0.25; **321**, scale $\frac{1}{20,000}$, price $0.20.

From northward.—Give the western shore of the bay a berth of ¾ mile or more, and when Negro Island lighthouse bears 264° true (**W** by **N** mag.) steer for it and pass southward of red spar buoy No. 2. Then pass 200 to 300 yards eastward of Negro Island and steer 320° true (**NNW** mag.) into the harbor.

Vessels of 12 feet or less draft to enter through Northeast Passage.—Pass about 200 yards eastward of Dillingham Ledge buoy (spar, black, No. 1) and steer 204° true (**SW** ⅜ **S** mag.) for a black bell buoy. From the bell buoy steer 230° true (**WSW** mag.) for the north end of Negro Island until up with the black spar buoy (No. 1) at the northerly end of Outer Ledges. Pass northward of this buoy and steer westward midway between the two spindles, favoring if anything the one on the north side of the passage.

Dangers.—The rock off Deadman Point is described in the sailing directions for Rockport Harbor preceding, and The Graves is described on page 88.

Negro Island is marked near its south end by a lighthouse. The passage westward of the island is shoal. A buoy (spar, black, No. 3) marks the north end of a shoal which extends 200 yards northward from the island. The south and east sides of the island should be given a berth of over 100 yards.

Northeast Ledges (inner and outer) lie southward from Northeast Point, and contract the main entrance to Camden Harbor to about 400 yards. The higher parts of both ledges are bare at half tide. A buoy (spar, red, No. 2) is placed about 300 yards south-southeastward from the south end of Outer Ledge, and the southwest end of Inner Ledge is marked by a buoy (spar, red, No. 4).

Northeast Passage is a narrow channel with depths of 12 to 18 feet leading into the harbor between Northeast Point and Inner Ledge. It is marked by two spindles, a red one with cylinder and ball on the end of the ledge extending 50 yards southward from Northeast Point, and a black one with cylinder on Inner Ledge; the deeper water favors the red spindle. At the eastern end of Northeast Passage, a black spar buoy is placed to mark the north end of Outer Ledges, and a black bell buoy is placed nearly ⅜ mile northeastward from the spar buoy.

Moxy Reef and Dillingham Ledge are described on page 88.

GILKEY HARBOR [1]

is a secure anchorage, frequented by yachts in summer, lying on the western side of the south half of South Islesboro, between it and Seven Hundred Acre, Warren, and Spruce Islands. The entrance from southward is easy of access, and through it a least depth of about 5 fathoms can be carried to the anchorage eastward of Seven Hundred Acre Island. The northern entrance is marked on its northern side by Grindel Point lighthouse. This entrance is narrow and is not recommended for a greater draft than 12 feet at low water. The harbor is frequently closed by ice during the winter.

Dark Harbor, a post village and summer resort, is on the southern peninsula of South Islesboro, the anchorage being ¼ to ⅜ mile eastward from the eastern end of Seven Hundred Acre Island, in 5 to 7 fathoms.

The northern end of Gilkey Harbor is of no commercial importance but is sometimes used as an anchorage for the night. A good berth is about ¼ mile eastward from red spar buoy No. 2, the buoy in range with the north end of Warren Island, and the eastern side of Spruce Island bearing 174° true (**S** by **W** mag.), in 4 to 6 fathoms.

SAILING DIRECTIONS, GILKEY HARBOR.

From southward.—Pass about ⅜ mile westward of Mark Island and steer 26° 30′ true (**NE** ⅛ **N** mag.) for the eastern end of Seven Hundred Acre Island, passing about ⅜ mile westward of Job Island and ¼ mile eastward of Ensign Islands. Continue the course about 1 mile past Ensign Islands to a position 100 yards northwestward of Minot Ledge buoy (spar, black, No. 3). Then steer 39° true (**NE** by **E** mag.) to a position 300 yards southeastward from the eastern end of Seven Hundred Acre Island.

Then steer 8° true (**NNE** ¼ **E** mag.), and pass 100 yards westward of Thrumbcap Ledge buoy (spar, black, No. 1) and 300 yards eastward of Spruce Island. When the north end of Warren Island opens northward of Spruce Island, steer 306° true (**NW** ¾ **N** mag.) for Grindel Point lighthouse and pass the northeast point of Spruce Island at a distance of 250 yards. When this point is a little abaft the beam, bearing about 197° true (*S W* by *S* mag.), steer 287° true (**NW** by **W** mag.) and pass about 25 yards northward of red spar buoy No. 2, 250 yards southward of Grindel Point lighthouse, and nearly 300 yards northward from the north end of Warren Island.

[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **310**, scale $\frac{1}{40,000}$, price $0.25.

Remarks and dangers.—**Mark Island** is high, rounded, thickly wooded, and prominent. **Robinson Rock** is described on page 88. **Goose Rock**, grass-covered and about 15 feet high, lies nearly ½ mile north-northeastward from Mark Island; there is foul ground between the rock and **Lasell Island.** The latter is high and wooded, except its north end. **Lime Island**, low and wooded, is joined to the north end of Lasell Island by a reef. There is a low, grassy islet on the reef which extends from Lime Island to Job Island.

Job Island and **Middle Island**, high and wooded, are joined by a bare spit and have a combined length of 1½ miles. A reef extends a greatest distance of 350 yards off the western side of Job Island.

Ensign Islands are two in number and lie ¾ mile southward from Seven Hundred Acre Island, with rocks and ledges between. A rock, with 8 feet over it and marked by a buoy (spar, red and black horizontal stripes), lies ¼ mile northwestward from the southwest Ensign Island.

Minot Ledge, the top of which shows a little grass at high water, extends 400 yards westward from Minot Island, and is marked on its northwest side by a buoy (spar, black, No. 3). Ledges, the outer part bare at half tide, extend 600 yards northeastward from Minot Island.

The shores of Gilkey Harbor are generally foul, as shown on the charts, and numerous small buoys are maintained by local interests in summer. These buoys are generally located in shallow water for the use of small craft.

Thrumbcap is an islet, about 15 feet high and marked by a small stone monument, on the eastern side of Gilkey Harbor, and should be given a berth of over 200 yards. A buoy (spar, black, No. 1) is placed about 200 yards southwestward from the islet.

There is foul ground in the northern end of Gilkey Harbor, the southern edge of which lies 600 yards northeastward from Spruce Island. Near the edge of this foul ground are **Long Ledge**, the top of which is awash at high water, and **Lobster Rock**, bare at half tide. A shoal extends nearly 200 yards southward from the south end of **Grindel Point** eastward of the lighthouse.

A shoal extends nearly 200 yards off the northeast side of **Spruce Island.** A ledge with 5 feet near its end extends 250 yards northward from the north end of Spruce Island, and is marked at its end by a buoy (spar, red, No. 2); the channel is narrow abreast the buoy. The north end of **Warren Island** should be given a berth of 200 yards and Grindel Point lighthouse 150 yards.

BAGADUCE RIVER AND CASTINE HARBOR.[1]

Bagaduce River empties into the eastern side of East Penobscot Bay 23 miles from Saddleback Ledge lighthouse and 4½ miles northward of Cape Rosier. The entrance abreast the town of Castine is known as **Castine Harbor.** On the northern side of the entrance is **Dice Head lighthouse.** This river is about 14½ miles long, with a narrow, crooked channel and several large bays and coves, the principal being **South Bay, Northern Bay,** and **Smith Cove**; the latter is a good anchorage southeastward of Castine. About 3 miles above its mouth, a short distance above West Brooksville, the river is narrow, full of ledges, and the tidal current so strong that it is not navigable except near slack water. Local knowledge is necessary for the navigation of the river, and strangers should not attempt to go above Castine without a pilot. The river is usually free from ice at Castine and for some distance above, but in very severe winters it is entirely closed.

Castine, a town on the north bank about 1 mile east of Dice Head, has little commerce. Vessels of the deepest draft can enter Castine Harbor and find anchorage sheltered from all winds, but the bottom is irregular; there is 16 to 18 feet alongside some of the wharves at low water. Castine has steamboat communication with some of the islands and with several harbors on the bay. Pilots are not necessary for entering the harbor, but one may be obtained by signaling off the entrance. Vessels desiring pilots for the river above Castine can get one at the town. Tugs are not used by vessels entering the river, but may be had from Bangor.

The best anchorage is in **Smith Cove**, in 4 to 11 fathoms, soft bottom, sheltered from all winds. The holding ground abreast the town is not good, and the general depth of water is about 12 fathoms.

Supplies.—Anthracite coal in limited quantity and fresh water can be had at the wharf at Castine; provisions can be obtained in the town.

Marine hospital.—Relief is furnished under the provisions of the regulations of the United States Public Health and Marine-Hospital Service as for stations of Class IV. (See Appendix IV.)

SAILING DIRECTIONS, CASTINE HARBOR.

The eastern shore northward and southward of the entrance is bold and can be followed at a distance of ¼ mile. Pass about 100 yards southward of Otter Rock Shoal buoy and steer 57° true (**ENE** ⅝ **E** mag.) until abreast the wharves at Castine. Then steer 101° true (**SE by E** ½ **E** mag.) for Henry Point. Anchor in 5 to 11 fathoms from 200 to 500 yards westward or southwestward of the point.

[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **311**, scale $\frac{1}{40,000}$, price $0.25.

Dangers.—**Otter Rock Shoal**, making southeastward nearly ¼ mile from Dice Head, is marked at its southern edge by a buoy (spar, black, No. 1).

Shoals make northward and eastward from **Nautilus Island**, connecting it with the mainland. They may be avoided by giving the island a berth of 200 to 300 yards.

Hosmer Ledge, bare at half tide, and marked by a stone monument with cask on top, lies on the south side of the channel ⅞ mile east-southeastward from Dice Head lighthouse.

Middle Ground shows partly bare at low water and lies off the upper end of the town. It is about ¼ mile long and is marked by a buoy (spar, red, No. 2) off its western end.

A small unmarked 15-foot shoal lies at the entrance of **Smith Cove**, 800 yards eastward from Hosmer Ledge monument. It may be avoided by giving Hospital Island a berth of ¼ mile.

There are several unmarked shoal spots ¼ mile off the western side of Smith Cove, ⅜ to ½ mile southward from Henry Point.

BELFAST HARBOR [1]

is formed by the mouth of the Belfast River at the head of Belfast Bay, in the northwestern part of West Penobscot Bay. It affords good anchorage, exposed to southeasterly winds, and is easy of access. The city of **Belfast** is on its southwest side, there is from 10 to 12 feet alongside the principal wharves.

Good anchorage can be had in the entrance westward of Steel Ledge, in 3 to 5 fathoms; also in the river below the steamboat wharf, in mid-channel or favoring the western shore, in 12 to 16 feet, soft bottom. Above the steamboat wharf shoals extend halfway across the harbor from the northeast side, and for a short distance below the bridge extend two-thirds of the distance across. Small vessels can anchor about 75 yards off the upper wharves of the city, in 10 to 20 feet.

Citypoint is a village about 2 miles above Belfast, at the head of navigation on Belfast River; a few vessels of 6 to 10 feet draft go up at high water, passing through two draw bridges; the lower one crosses the river at Belfast, and the upper bridge crosses about ¾ mile farther up the river; the width of the draws is about 32 feet. The river is narrow and shallow and requires local knowledge for its navigation to Citypoint. Belfast and Citypoint are on a branch of the Maine Central Railroad. Steamers touch at Belfast on their way to and from Bangor.

Towboats are seldom used, but may be had from Rockland, Bangor, or Bucksport by telegraphing.

Supplies.—Anthracite and bituminous coal in limited quantity, and fresh water, can be obtained alongside the wharves. Provisions and ship-chandler's stores in limited quantity can be had.

Repairs.—There is one marine railway capable of hauling out vessels of 400 tons; also good facilities for repairs to hulls of wooden vessels. Ordinary repairs to machinery can be made, but Bangor is the nearest place where extensive repairs to machinery of steamers can be made.

Marine hospital.—Relief is furnished by the United States Public Health and Marine-Hospital Service as for stations of Class IV. (See Appendix IV.)

Ice obstructs navigation during severe winters; the bay has been frozen across to Islesboro.

SAILING DIRECTIONS, BELFAST HARBOR.

From southward.—In the approach to the bay follow the western shore, giving it a berth of about ¼ mile, course about 333° true (**N ⅞ W** mag.). When in the entrance of the harbor, keep near mid-channel or slightly favor the western shore. To go above the steamboat wharf, pass about 100 yards off its end, steer about 303° true (**NW ½ N** mag.), and follow the wharves at a distance of about 75 yards.

From eastward.—Pass about ⅜ mile southward of Sears Island and steer 264° true (**W** by **N** mag.) for 4 miles to a position 250 yards southwestward of the bell buoy at the south end of Steel Ledge. A 303° true (**NW ½ N** mag.) course will then lead into the harbor to a position 100 yards off the steamboat wharf.

Or, having come from southward in East Penobscot Bay, pass about ⅜ mile northeastward of Turtle Head and steer 284° true (**NW** by **W ¼ W** mag.) for 4¼ miles to a position 250 yards southwestward of the bell buoy at the south end of Steel Ledge.

Dangers.—**Steel Ledge**, with 3 feet over it, is on the northern side of Belfast Bay, and is marked near its southern end by a large stone beacon. The south end of the ledge is marked by a red bell buoy, which lies 300 yards southward from the beacon and over ½ mile from the north shore. The north end of the ledge is marked by a buoy (spar, red, No. 4). There is no safe passage for vessels between the ledge and the northern shore.

[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **311**, scale $\frac{1}{40,000}$, price $0.25; **319**, scale $\frac{1}{20,000}$, price $0.20.

SEARSPORT HARBOR, LONG COVE, AND STOCKTON HARBOR.[1]

Searsport Harbor is about 3½ miles east of Belfast. It is a broad bight, open southward, but it affords good anchorage in 18 to 30 feet, soft bottom, sheltered from northerly winds, and is used by all classes of vessels. The town of **Searsport** is at the head of the harbor; there is a depth of 10 feet at the steamboat wharf at low water. Fresh water can be obtained alongside the wharf; provisions and some ship-chandler's stores in the town.

Long Cove is eastward of Searsport Harbor, between the northwestern shore of Sears Island and Mack Point. The greater part of the cove is shoal, but good anchorage can be selected just inside the entrance in 2 to 4 fathoms, sheltered from all but southwesterly winds. On the south side of **Mack Point** is one of the termini of the Bangor & Aroostook Railroad. There are three wharves; the eastern one is the railroad coal-receiving wharf, which has a depth of 22 feet at its end. The approach is between Sears Island and the black can buoy off the southeast end of Long Cove Ledge. From the western shore of the south half of Sears Island ledges make off ¼ mile, one of which, **Sears Island Ledge**, is bare at low water. The south end of the ledges is marked by a buoy (can, black, No. 1), which lies ½ mile southwestward from Sears Island.

Long Cove Ledge, awash at lowest tides near its south end, lies 400 to 800 yards southward from the western end of Mack Point, and is marked on its southwest side by a buoy (spar, red, No. 2) and off its southeast end by a buoy (can, black, No. 1).

Stockton Harbor is between Cape Jellison and Sears Island, westward of the entrance to Penobscot River. It is a secure harbor for vessels of about 22 feet or less draft and is easy of access. The depths shoal gradually from about 4 fathoms at its southern end to 12 feet about ¼ mile above the wharves on the east side, above which the harbor is shoal. The lead is a good guide.

Stockton Springs is a village at the head of the harbor, and this name is also applied to the terminus of the Bangor & Aroostook Railroad on the harbor.

On Cape Jellison, on the eastern side of the harbor, is a large wharf, with good facilities for handling cargo, from which farm produce, lumber, and other commodities are shipped. There is a depth of 24 feet at the principal wharf, but there is a depth of only 16 feet in the approach. It is proposed to dredge a channel 300 feet wide and 25 feet deep from the southern end of the harbor to the wharf.

On Kidder Point, on the western side of the harbor, is a large steamboat wharf with a depth of 15 feet at its end and shoaling thence to 12 feet 450 feet up the wharf.

SAILING DIRECTIONS, STOCKTON HARBOR

Pass 300 to 400 yards eastward from the black gas buoy lying southeastward from the southern end of Sears Island and steer 354° true (**N** by **E** mag.) through the middle of the entrance. On this course pass about 300 yards westward from red nun buoy No. 2 and pass about 50 yards westward of red spar buoy No. 4. When inside the harbor, the course may be shaped for either wharf.

Dangers.—A ledge extends nearly ¼ mile southeastward from the southern end of **Sears Island**; a black gas buoy is placed about 300 yards off the southeast end of the ledge.

A ledge, the outer part bare at half tide, extends ⅜ mile south-southwestward from **Squaw Point**, on the east side at the entrance of Stockton Harbor. On the ledge is a high grassy islet. A buoy (nun, red, No. 2) is placed well south-southwestward of the ledge and about ⅜ mile eastward from Sears Island.

In the entrance the channel is narrowed by shoals, which make out nearly 250 yards on both sides. The eastern side of the channel where narrowest is marked by a buoy (spar, red, No. 4).

PENOBSCOT RIVER[2]

empties into the head of Penobscot Bay, and is navigable about 24 miles to Bangor, at the head of navigation and tidewater. The river has considerable shipping trade from Bangor and some from the towns along its banks. The commerce of Bangor in deep-draft vessels is largely done from the railroad terminal on Stockton Harbor. From Fort Point at the entrance of the river to Sandy Point it is about 1 mile wide; above this it narrows rapidly, and on the west side of Whitmore Island its width is about ¼ mile. Above this it is somewhat wider in places, but from Hampden to Bangor some parts of it are not more than 225 yards wide.

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[1] Shown on charts **104**, scale $\frac{1}{80,000}$, price $0.50; **311**, scale $\frac{1}{40,000}$, price $0.25.

[2] Shown on chart **311**, scale $\frac{1}{40,000}$, price $0.25.

About 2½ miles above Fort Point the river is divided by Whitmore Island into two channels, the principal or main one leading on the west side of the island, and the **Eastern Channel** on the east side; they unite north of Whitmore Island, near the town of Bucksport. Flowing into Eastern Channel from a northeasterly direction is a shallow stream navigable for small coasting vessels and fishermen at high water to the village of **Orland**, about 2¼ miles above its mouth.

Fort Point Cove, on the western side of the entrance to the river and just north of Fort Point, is full of shoals with 7 to 13 feet of water. The usual anchorage for vessels waiting for wind or tide is in the entrance to this cove.

Bucksport, a town 6½ miles above Fort Point, on the east bank of the river, is the terminus of a branch of the Maine Central Railroad, and the Boston and Bangor line of steamers touch here. There is 14 to 18 feet at low tide alongside the principal wharves. Bucksport is connected with Whitmore Island by a drawbridge, which crosses Eastern Channel eastward of the principal wharves; width of draw 40 feet in the clear. Anchorage is found off the western end of the town in 5 to 10 fathoms.

Marsh River is a shallow stream flowing into Penobscot River from a southwesterly direction, about 3 miles above Bucksport. Some stone is shipped from a quarry on the west bank of the river. **Frankfort** is a village of little commercial importance on the west bank of Marsh River.

Winterport is a town on the west bank of the river, 12 miles above Fort Point; it is at the head of winter navigation, as ice closes the river 10 to 12 miles below Bangor. There is 16 feet at low water at the steamboat wharf.

Hampden, a small town on the west bank of the river, is 19 miles above Fort Point. There is 14 feet at the steamboat wharf at low water. The village of **Orrington** is on the east bank opposite Hampden.

The city of **Bangor** is about 22 miles above Fort Point, on the west bank of the river, and is connected with the town of Brewer, on the east bank, by a toll bridge. The deepest draft of vessels going to Bangor is 26 feet at extreme high tides; the usual draft is 12 feet, and 10 feet can be taken up at low water. There is 11 to 12 feet at low water alongside the wharves, with the exception of High Head wharf, which has about 18 feet.

The **channel** of the river is narrow and crooked, requiring local knowledge to carry the deepest water above Bucksport. The depth in places is gradually decreasing by deposit. About 1 mile above Bucksport there is a bar with a depth of about 15 feet, through which a cut with a depth of 22 feet was dredged. The cut is not maintained and has shoaled and may occasion delay at low water to vessels of over 18 feet draft. Above this bar there is a channel with a depth of no less than about 4 fathoms to the north end of Crosby Narrows. Above Crosby Narrows to Bangor the channel has been dredged in places to secure a depth of 14 feet. There is a depth of 11 to 14 feet in the channel off Bangor A draft of 26 feet at high water has been taken up the river to High Head coal wharf, at the lower end of Bangor.

The **usual anchorage** for vessels waiting at the entrance of the river for a towboat or favorable wind and tide is northward of Fort Point on the west side of the channel. Vessels bound up the river anchor anywhere in the channel where soft bottom is found. Vessels towing to Bangor, if the tide does not serve, anchor in **Crosby Narrows**, about 5 miles below, and wait for a favorable tide.

Pilots for Penobscot Bay and River can be had by making signal off Monhegan or Matinicus Islands, or they may be taken from fishermen or coasters off the entrance, or in the bay. There are no regular pilots for the river except the masters of the towboats.

Towboats are always taken by large vessels bound up the river; they will generally be found near Fort Point, on the last of the ebb, ready to tow vessels up on the flood. They can be telephoned for to Bangor from Fort Point or any part of Penobscot Bay having telegraphic communication. Vessels towing up the river do not require a pilot.

Harbor regulations for the port of Bangor are given in Appendix II.

Supplies.—Coal, anthracite and bituminous, can be had alongside the wharves at Bangor, and anthracite coal in limited quantities at Bucksport, Winterport, and Hampden. There is a coaling dock, with 12 feet of water at its end at low water, on the west side of the river, about 3 miles above Fort Point and just above Odom Ledge beacon. Water is taken from the river at Bangor; below the city it is taken from wells in casks. Provisions can be obtained at any of the above-mentioned places and ship-chandler's stores at Bangor.

Repairs to vessels' hulls can be made at Bangor, where there is a marine railway, capacity 600 tons. Much of the repairing is done on the beaches at low water. Bangor is the only place on the river at which repairs to the machinery of steamers can be made.

Steamers from Boston run to Bucksport, Hampden, and Bangor daily in summer; when the river is closed by ice they run to Bucksport or Winterport. Small steamers ply between Bangor and the landings on the river and in Penobscot Bay.

Freshets occur in the river during March and April; they are at times dangerous to vessels.

Marine hospital.—Relief is furnished at Bangor by an acting assistant surgeon of the U. S. Public Health and Marine-Hospital Service as for stations of Class III (see Appendix IV).

Storm warning displays of the United States Weather Bureau are made at Bangor.

Ice obstructs navigation each year above Winterport for nearly 5 months, beginning about December; during extreme cold weather the river is obstructed its entire length.

SAILING DIRECTIONS, PENOBSCOT RIVER.

These directions are good for vessels of 10 feet or less draft; vessels of deeper draft should employ a pilot in the absence of local knowledge. With the aid of the chart and these directions, vessels of 10 feet or less draft, exercising care and using the lead in places, can go up to Bangor without difficulty. The safest time is on a rising tide.

Directions to the entrance of the river are given on pages 83 and 87.

From a position ¼ mile eastward of Fort Point steer 7° true (**NNE** ⅛ **E** mag.) and pass about 350 yards eastward of black spar buoy No. 7 at the end of the ledge which extends 600 yards southeastward from Sandy Point. When about 400 yards eastward of Odom Ledge stone beacon steer 332° true (**N** by **W** mag.), and then follow a mid-river course until westward of Bucksport.

Give the western side of the point northwestward of Bucksport a berth of over 200 yards in rounding it, steer 357° true (**N** by **E** ¼ **E** mag.) for the northern point of Luce Cove, and pass about 200 yards westward of Indian Point. Pass 150 yards westward of the north point of Luce Cove and steer 331° true (**N** by **W** mag.) for nearly 1 mile heading for Drachm Point. Then steer 281° true (**NW** by **W** ½ **W** mag.) for the summit of Treat Hill and pass about 50 yards southward of red spar buoy No. 2. When the upper wharves of Winterport are open just clear of Drachm Point, steer 337° true (**N** ½ **W** mag.) and pass 50 yards westward of red spar buoy No. 4.

From red spar buoy No. 4 steer 355° true (**N** by **E** ⅛ **E** mag.) with the summit of Mount Heagan astern for ⅝ mile until about 250 yards from the western shore. Then steer about 28° true (**NE** mag.) in mid-channel westward of Drachm Point. Follow a mid-river course for 2 miles above Winterport to Oak Point, and pass southward and eastward of the latter, rounding it at a distance of 250 yards; the cove westward of Oak Point is shoal. A shelving reef extends a greatest distance of 150 yards off the southeast side of Oak Point, and the bight in the eastern shore opposite is shoal. Keep in mid-river and when about ¾ mile above Oak Point pass westward of a ledge, covered at high water and marked by a red spindle with cask, lying 125 yards from the eastern bank.

Round the point on the western bank above the spindle at a distance of about 150 yards, and follow the southern bank at this distance until the point at the western end of Bald Hill bears 343° true (*N* mag.). Then haul northward, pass 50 to 100 yards westward of red spar buoy No. 6, and round the point on the eastern shore westward of Bald Hill at a distance of 150 to 200 yards. Then steer 0° true (**N** by **E** ½ **E** mag.) to a position 150 yards eastward of the point on the north side of Bald Hill Cove. Then steer 341° true (**N** ⅛ **W** mag.) for ½ mile, following the western bank and giving it a berth of 100 yards. Then keep in mid-river, and at the south end of Crosby Narrows avoid at high water the ruins of the wharf making out from the mouth of the stream on the west side.

When up with the ice house on the east bank at the north end of Crosby Narrows, follow the west bank in the bight westward of Seven Pine Point at a distance of 75 yards until above the crib landing on that side, and then give that bank a berth of 100 yards. Only shoals are left of the two upper cribs on the west side of Seven Pine Point, and from the upper one a shoal with 7 to 9 feet over it extends westward and northwestward to mid-river; Crosby Narrows will be closed when in the bight until abreast the upper end of the shoal. Then steer 62° true (**E** by **N** mag.), pass about 100 yards off the coal wharf on the southern bank, and when ¼ mile above Sterns mill pass the point on the southern bank at a distance of 75 yards.

When the large lumber wharf on the west bank opens from the abandoned ice wharf on that side, steer about 5° true (**NNE** mag.) for the lumber wharf and keep the ice wharf aboard distant 40 to 50 yards. Pass 50 to 75 yards eastward of the crib in the water just below the lumber wharf on the west side, steer 42° true (**NE** by **E** ¼ **E** mag.) and favor the eastern bank for a distance of ¼ mile above the Eastern Manufacturing Co.'s lumber mill on that side. Then steer about 19° true (**NE** ¾ **N** mag.), favor the western bank in passing the coal wharves at High Head, and then keep in mid-river along the water front of Bangor.

TENNANT HARBOR.[1]

This is an excellent anchorage, frequently used as a harbor of refuge by small vessels, and is easy of access. It lies 3 miles westward from Whitehead, and its entrance is marked by Tennant Harbor lighthouse on the eastern end of Southern Island. It is open eastward, and an easterly gale raises a choppy sea in the harbor, but vessels with good ground tackle can ride in safety. The village of Tennant Harbor is on the northern shore, near the head of the harbor; there is a depth of about 9 feet at the steamboat wharf.

Long Cove, making northward from the entrance of Tennant Harbor, has several stone quarries where vessels load granite; 10 feet is their usual loaded draft. The entrance is 150 to 200 yards westward of Northern Island, between reefs partly bare at low water. There is a bare rock on the eastern part of the reef on the western side of the entrance.

The **anchorage** with most swinging room is halfway from the western ends of Northern and Southern Islands to the short stone pier on the north side. Small craft anchor more toward the head of the harbor. The bottom is mostly soft mud and good holding ground, and shoals gradually westward. The north side of the harbor eastward of the stone pier is clear, while westward of it are spots with 4 to 9 feet over them. The south side of the harbor abreast the western point of Long Cove should be given a berth of 250 yards.

Supplies.—Anthracite coal in limited quantity, provisions, and some ship-chandler's stores can be obtained here.

Ice seldom obstructs the harbor; during extremely cold weather it is sometimes frozen over for a few days.

SAILING DIRECTIONS, TENNANT HARBOR.

From Muscle Ridge Channel.—Pass about 200 yards northward of South Breaker bell buoy, lying ⅝ mile south-southwestward from Whitehead lighthouse, and steer 263° true (**W** ⅞ **N** mag.). Pass about ¼ mile northward of Tennant Harbor lighthouse, and when between the western ends of Northern and Southern Islands favor, if anything, Northern Island. The western end of Southern Island should be given a berth of 150 yards. The above course leads to the head of the harbor.

From Two Bush Channel.—Pass ¼ mile southward of Crow Island Ledge buoy (spar, red, No. 2), steer 281° true (**NW** by **W** ½ **W** mag.), and pass 300 to 400 yards northward of Tennant Harbor lighthouse.

From Southwestward.—From Marshall Point whistling buoy steer 6° true (**NNE** mag.) for 3⅜ miles and pass eastward and northward of Tennant Harbor lighthouse, rounding it at a distance of 300 to 400 yards.

Dangers.—A reef partly bare at low water extends nearly ⅜ mile southwestward from the western end of **Whitehead Island.**

Norton Island Ledges lie ½ to 1¼ miles westward of Whitehead Island. There is a bare rock near the middle of the south side of the ledge, and rocks bare at low water lie 600 yards east-southeastward and west-southwestward from the bare rock.

Seavey Ledges, westward of Norton Island Ledges, has two rocks awash at high water, and there is a depth of 5 feet at the southern end of the ledges lying 300 yards southwestward from the southern one of the two rocks.

Hart Ledge extends nearly ¼ mile from shore ¾ mile southwestward from Tennant Harbor lighthouse. There is a rock covered at high water near its northeast end and one bare at low water near its southwest end. The ledge is marked off its southeast side by a buoy (spar, black, No. 1).

PORT CLYDE[1]

is an excellent though small harbor and anchorage, lying between Marshall Point and Hooper Island, and about 9½ miles north-northeastward from Monhegan; it is used as a harbor of refuge by fishermen and coasters. **Marshall Point lighthouse** is on the eastern point at the southern entrance to the harbor. A bar with a depth of about 8 feet obstructs the northern entrance; vessels of 15 feet draft have been taken over this bar at high water by local pilots, but strangers should not attempt to cross it. The village of **Port Clyde** and a fish factory are on the eastern shore; the principal wharves have a depth of 15 feet at their ends. There is communication by steamer with Thomaston, Monhegan, and the landings westward.

The anchorage is anywhere in the channel inside of Marshall Point, in 4 to 6 fathoms, good holding ground, and has a clear width of 200 to 250 yards.

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[1] Shown on charts **105**, scale $\frac{1}{80,000}$, price $0.50; **312**, scale $\frac{1}{40,000}$, price $0.25.

Towboats.—The boats of the fish factory do any towing that is required. A towboat can be had by telephoning to Rockland or Bath.

Supplies.—Anthracite coal in limited quantities and water can be had alongside the wharf. Provisions can be obtained in the village.

Repairs.—There is one marine railway capable of hauling out vessels of 600 tons and 10 feet draft; also good facilities for repairing wooden vessels.

Ice does not usually interfere with navigation; in very severe winters the harbor may be frozen over for a short time.

Storm warning displays of the United States Weather Bureau are made at Marshall Point lighthouse (see Appendix III).

SAILING DIRECTIONS, PORT CLYDE.

Directions from eastward to the entrance of the harbor are given in section 8, page 33, and the directions of the same section reversed will lead from Davis Straits to the entrance.

From southward.—With the eastern end of Mosquito Island bearing northward of 31° true (**NE** ¼ **E** mag.), bring Marshall Point lighthouse to bear 335° true (**N** ¾ **W** mag.), and head for it on that bearing. This course leads close to Old Cilley Ledge bell buoy; continue the course from the buoy, passing 150 to 200 yards westward of Gunning Rocks. Pass 200 to 300 yards westward of Marshall Point, and enter the harbor in mid-channel. Then steer about 17° true (**NE** by **N** mag.), so as to leave Hooper Island Ledge buoy (spar, black, No. 1) about 100 yards on the port hand; anchor 125 yards off the wharves at Port Clyde in 3½ to 5 fathoms, soft bottom.

Dangers.—**Old Cilley Ledge**, lying 1½ miles east-northeastward from Burnt Island, is about ⅜ mile long. Its eastern end is awash at low water, and its western part is awash at high water. A red bell buoy is moored about 600 yards east-southeastward from the eastern end of the ledge.

Unmarked **ledges** with 12 to 18 feet over them lie between Old Cilley Ledge and Black Rock. They can be avoided by keeping Marshall Point lighthouse bearing westward of 340° true (**N** ¼ **W** mag.).

Black Rock is small and bare, with shoals making out 200 to 300 yards northward and eastward. There is a detached 15-foot shoal 450 yards northeastward from Black Rock.

Gunning Rock Shoal is a rock with 4½ feet over it, lying ½ mile east-northeastward from Black Rock and ⅜ mile south-southeastward from the western end of Gunning Rocks. The range of Marshall Point lighthouse and the western end of Gunning Rocks leads westward of it.

An unmarked **14-foot spot** lies 300 yards westward of the western end of **Gunning Rocks.** The latter are grass covered.

Marshall Ledge, with 15 feet at its end, extends 275 yards southward from Marshall Point. It is marked at its south end by a buoy (spar, red, No. 4). Vessels should not pass between the buoy and Marshall Point.

Hooper Island Ledge, with 5½ feet over it, extends 250 yards eastward from Hooper Island, nearly ⅜ mile northward of the lighthouse. It is marked on the eastern side by a buoy (spar, black, No. 1). Northward of the buoy, the western shore of Port Clyde and Raspberry Island should be given a berth of 150 yards. The bight on the eastern side of the harbor between Marshall Point and the fish factory is foul.

MONHEGAN ISLAND [1]

is one of the important landmarks for vessels bound along the coast; it is 1⅜ miles long, 160 feet high, and presents a rocky shore, with high bluffs in places. Near its middle is Monhegan Island lighthouse, and westward is **Manana Island**, small and 100 feet high, on which is a fog signal station.

Monhegan Harbor is an anchorage for small craft, exposed southward, lying between Monhegan and Manana Islands; it is used principally by local fishermen, and has 3 to 5½ fathoms, good holding ground, but there is scant room at the anchorage for a small vessel to swing. The deeper water in the harbor favors Manana Island. The post office is **Monhegan**, the landing is at the north end of the harbor, and has a depth of about 12 feet at its end. This depth can be taken through the northern entrance between Monhegan Island and the grass-covered rock on the end of the ledge making out from Manana Island.

Eastern Duck Rock is a large bare rock with some grass on top lying 400 yards off the north end of Monhegan Island; the narrow channel between them is near the rock.

Duck Rocks, lying ⅝ mile off the northwest side of Monhegan Island, are two large bare rocks, the western one marked by a large black tripod beacon. **Sunken Duck Rock**, with 6 feet over it, lies 350 yards north-northeastward from the tripod, and is marked on its north side by a buoy (spar, black, No. 5). A black bell buoy is moored 650 yards north-northwestward from the tripod.

[1] Shown on charts **105**, scale $\frac{1}{80,000}$, price $0.50; **312, 313**, scale $\frac{1}{40,000}$, price of each $0.25.

Allen Shoal lies 1⅞ miles 65° true (**E ¾ N** mag.) from Monhegan Island lighthouse and 1 mile from the nearest point of the island. The least depth found by the survey is 5½ fathoms, but a depth of about 3 fathoms is reported.

A breaker is reported to lie 2¼ miles 96° true (**ESE** mag.) from Monhegan Island lighthouse.

Gull Rock Ledge, with 3¾ fathoms over it, lies 1 mile 145° true (**S** by **E** ⅝ **E** mag.) from Monhegan Island lighthouse.

ST. GEORGE RIVER AND THOMASTON.[1]

The entrance of this river lies about 9 miles southwestward of Whitehead and north-northeast from Monhegan; Marshall Point lighthouse marks the eastern and Franklin Island lighthouse the western approach. A group of islands, known as the **Georges Islands**, extends 5 miles southward from the middle of the entrance, which is also obstructed by numerous ledges and rocks, the most prominent of which are marked by buoys or spindles. Several channels with deep water lead into the river between these islands and ledges. St. George River extends 10 miles in a northeasterly direction to the town of **Thomaston**, where the Warren River, a shallow stream of no commercial importance, empties into it from northwestward.

Port Clyde is on the eastern side of the entrance to the river (see p. 102). There is good anchorage in the middle of the northern entrance of Port Clyde, northward of Hooper Island, in 4 fathoms. The entrance is clear northward of Blubber Island.

Deep Cove, on the eastern shore just north of the northern entrance to Port Clyde, has good anchorage in 4 to 7 fathoms, soft bottom.

Gay Cove is a shallow cove in the eastern shore of **Gay Island**, the western point at entrance to the river.

Pleasant Point Gut separates Gay Island from the mainland. Its western part is bare at low water. There is a landing 350 yards northward of Pleasant Point.

Turkey Cove, on the eastern shore, about 1½ miles above Caldwell Island, has good anchorage in 3 to 5 fathoms, soft bottom, about midway between the points at entrance.

Maple Juice Cove is a long, shallow cove on the west shore about 2¼ miles above Caldwell Island; good anchorage is found in the entrance, in 2 to 4 fathoms.

Otis Point is a small landing on the eastern shore just northward of Teal Cove. There is another small landing on the western shore 1 mile northward of Otis Point landing.

Otis Cove is a broad cove, shallow at its head, on the eastern shore, about 1 mile above Maple Juice Cove. The village of **St. George** is at its head. There is good anchorage off the entrance in 3 to 5 fathoms.

Broad Cove is a large, shallow cove on the western shore about 4½ miles above Caldwell Island; the village of **Cushing** is situated near its western shore.

Watt Cove, and **Cutler Cove** at its head, are shallow coves on the eastern shore opposite Broad Cove.

The town of **Thomaston** is at the head of St. George River. Vessels of 20 feet draft have been taken up at high water, the average draft of vessels entering here is 10 to 12 feet. There are two shipyards where wooden vessels are built.

Warren River empties into St. George River west of Thomaston; it is navigable at high water to the village of **Warren**, about 4 miles above Thomaston. There are three drawbridges above Thomaston, with draws estimated to be 40 feet wide.

Channel.—There is a channel in St. George River up to Broad Cove which has 10 fathoms or more water; above this the depth gradually decreases and it narrows to a small stream through extensive flats which show bare at low water. There is a depth of 19 feet in the channel up to 1 mile from Thomaston. From this point a narrow channel, which is liable to shoal, has been dredged to a depth of 16 feet to Thomaston.

Anchorages.—Good anchorage for the deepest-draft vessels is found eastward of Caldwell Island in 6 to 8 fathoms, soft bottom; above this vessels anchor anywhere in the channel where the depth is not too great (see Turkey Cove, Maple Juice Cove, and Otis Cove).

Pilots are generally taken by strangers bound up the river. If from eastward, they can be had at Port Clyde by making signal when off Marshall Point, or, standing in and coming to anchor north of Caldwell Island. From westward, vessels make signal when off Franklin Island and take a pilot either from Franklin or Harbor Islands.

Towboats are seldom used; they may be had from Bath or Rockland by telephone. The fish boats at Port Clyde sometimes do towing for small vessels.

Supplies.—Provisions, anthracite and bituminous coal in limited quantity, and water can be had at Thomaston.

Ice closes the river to navigation from December to March.

Tides.—The mean rise and fall of the tides at Thomaston is 9.3 feet, and high and low water occur 13 minutes later than at Port Clyde. (See table, p. 24.)

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[1] Shown on charts **105**, scale $\frac{1}{80,000}$, price $0.50; **312, 313**, scale $\frac{1}{40,000}$, price of each $0.25.

SAILING DIRECTIONS, ST. GEORGE RIVER.

1. *From eastward.*—Follow the directions in section 8, page 33, to a position 50 yards northwestward of Allen Ledge buoy (spar, black, No. 3). Then steer 242° true (**W** by **S** mag.), pass 150 yards southward of Hooper Island Rocks buoy (nun, red, No. 6), and round the buoy at this distance. Then steer 326° 30′ true (**N** by **W** ½ **W** mag.) for the western end of Teal Island, and when the northern end of Bar Island bears 253° true (*W* mag.) distant ¼ mile, steer 37° true (**NE** ¾ **E** mag.) about 1 mile, heading for Hooper Point. Pass midway between Hooper Point and Channel Rock buoy and steer 340° 30′ true (**N** ¼ **W** mag.) for black spar buoy No. 5, passing ¼ mile westward of Howard Point.

Pass 150 yards eastward of buoy No. 5 and steer 36° true (**NE** ⅝ **E** mag.) for 2½ miles, passing through the middle of the Narrows. Above the Narrows there is excellent anchorage near the middle of the river off Otis Cove, in 4 to 5 fathoms. Above this point be guided by chart 312 and the buoys; the safest time is at low water, when the flats are bare, or on a rising tide.

Dangers.—Allen Ledge and Hooper Island Rocks are described on page 34.

Kelp Ledges extend out about 500 yards from the western shore of Hooper Island abreast of Bar Island. A small part of this ledge, nearest Hooper Island, is bare at low water; the rest has from 2 to 12 feet over it. The ledge is not marked, but a 287° true (**NW** by **W** mag.) bearing on the south end of Teal Island leads northward of it.

Murray Ledge has 17 feet over it and lies ¼ mile southwestward from Channel Rock buoy and about 350 yards eastward from the eastern end of the Little Caldwell Islands. There is deep water around it.

Channel Rock, with 9 feet over it, lies ¼ mile westward of Hooper Point, and is marked by a buoy (spar, red and black horizontal stripes).

Howard Point should be given a berth of over 250 yards when southward or westward of it. On its northwest side broken ground extends about 400 yards from shore.

A rock with 4 feet over it lies 250 yards southward from the northern point at the entrance of **Pleasant Point Gut**, and is marked on its southeast side by a buoy (spar, black, No. 5).

Ledges extend 300 yards in places from the west shore between the landing northward of Pleasant Point and Stone Point at the entrance of Maple Juice Cove. **Henderson Ledge**, making out 300 yards from Stone Point, is partly bare at low water, and is marked at its end by a buoy (spar, black, No. 7).

A bare rock, which should be given a berth of over 100 yards, lies 150 yards off the south side at the entrance of **Otis Cove**. A ledge, the highest part covered at three-quarters flood, extends 350 yards from the east shore 600 yards northward of the wooded islet northward of Otis Cove.

Bailey Ledge, partly bare at low water, extends ⅜ mile southeastward from Bailey Point, the southwest point at the entrance of Broad Cove. It is marked at its southeast end by a buoy (spar, black, No. 9).

1 A. *From westward.*—When Franklin Island lighthouse is distant 4 miles or more, bring it on any bearing between 28° 30′ true (**NE** mag.) and 51° true (**ENE** mag.) and steer for it. Pass about 300 yards westward of Franklin Island and steer 51° true (**ENE** mag.), heading just clear of the northern end of Caldwell Island. On this course pass about 250 yards northwestward of Jenks Ledge buoy, and midway between Goose Rock and Goose Rock Ledge buoy. Keep the northwest side of Caldwell Island aboard distant 200 to 250 yards, steer 36° true (**NE** ⅝ **E** mag.), and pass about 150 yards eastward of black spar buoys Nos. 3 and 5. Continue the course and follow the directions in the second paragraph of section 1 preceding.

Dangers.—The dangers southwestward of Franklin Island are described on page 108.

Gangway Ledge is a small, bare rock with shoals extending about 75 yards from it. It lies ⅞ mile 58° true (**ENE** ⅝ **E** mag.) from Franklin Island lighthouse.

Otter Island Ledge, with 8 feet over it, lies about 400 yards eastward of Otter Island, with deep water between.

Byer Ship Ledge, a part of which is bare at high water, extends about ⅜ mile southeastward and eastward from the northern end of Otter Island.

Jenks Ledge, showing bare at low water, is marked on its northwest side by a buoy (spar, red and black horizontal stripes) lying ½ mile northward from McGee Island.

Goose Rock Ledge, with 6 feet over it, lies ¼ mile northward from Goose Rock, and is marked on its southern side by a buoy (spar, red and black horizontal stripes). There is good water on both sides of the ledge, but the best passage is between it and Goose Rock.

Goose Rock is high, rugged, and surrounded by ledges extending out about 150 yards on all sides. It lies about ⅜ mile westward from the southern end of Caldwell Island.

Gay Cove Ledge, with 6 feet over it, is marked on its southeast side by a buoy (spar, black, No. 3) lying about 600 yards northwestward from the northern end of Caldwell Island. There is good water westward of this buoy, by giving it a berth of over 200 yards, but northeastward of the ledge shoals make off 350 yards from Gay Island.

MUSCONGUS BAY[1]

lies northward of Monhegan Island, between Georges Islands on the east and Pemaquid Neck on the west. It is obstructed by numerous islands and ledges, and is seldom used by vessels seeking shelter in heavy weather. As a measure of safety, vessels should avoid broken ground where abrupt changes in depth are indicated by the chart to depths less than 10 fathoms. Tennant Harbor and Port Clyde eastward, and Boothbay Harbor westward, are easier of access and more convenient. Monhegan Island, Pemaquid Point, and Franklin Island lighthouses and Old Man Ledge gas and whistling buoy are guides for the approach and entrance. Many of the dangers are marked by buoys.

Pilots for these waters can be found in Tennant Harbor or Port Clyde if coming from eastward, and in Boothbay Harbor or New Harbor if coming from westward.

Tides.—The mean rise and fall of tides in the bay is about 9½ feet.

MEDUNCOOK RIVER

is an unimportant estuary making in a general northeast direction, just westward of St. George River; the entrance forms an approach to Friendship Harbor and is a good anchorage with 4 to 5 fathoms. The approaches to the entrance are the same as for St. George River, and the anchorage is marked by buoys. The river above the anchorage has a narrow, crooked channel, and is obstructed by numerous unmarked rocks and ledges so that local knowledge is necessary for its navigation.

Directions to the anchorage from eastward are given on page 108. Approaching from westward, follow the directions in section 1A, page 105, until up with Jenks Ledge buoy, and then steer 357° 30′ true (**N** by **E** ¼ **E** mag.) for the summit of Morse Island until up with red spar buoy No. 2 at the entrance. Pass about 50 yards northwestward of buoy No. 2, steer 40° true (**NE** by **E** mag.) and pass about 100 yards eastward of Northeast Point Reef buoy (spar, black, No. 1). The anchorage is northward of buoy No. 1, and is about ⅜ mile in diameter.

FRIENDSHIP HARBOR

lies west of Meduncook River, and is separated from it by Friendship and Garrison Islands, between which a channel leads from the anchorage in Meduncook River into the harbor. The harbor is about 1 mile long and has good anchorage in 4 to 6 fathoms, but is little used. The town of **Friendship** is on the north shore of the harbor; the usual draft of vessels loading here is 10 feet. Ice closes the harbor proper from December to March.

A ledge extends 300 yards southwestward from Jameson Point. A rock bare at low water at the south end of the ledge is marked by a black spindle with cask on end. Above the wharf the northern and eastern sides of the harbor should be given a berth of over 200 yards.

The southeast side of the harbor should be given a berth of over 200 yards. Murphy Ledge is a rock, bare at half tide and marked by a red spindle with cask on bilge, lying 200 yards from the southeast side of the harbor abreast Jameson Point. In the eastern part of the harbor a shoal extends 350 yards northeastward from the northeast end of Friendship Island, and is marked at its end by a buoy (can, black, No. 5).

Directions for the passage from Port Clyde through Meduncook River, Friendship Harbor, and to the head of Muscongus Sound are given on page 108. Directions from southward in Muscongus Bay are given on page 107.

Hatchet Cove is a shallow cove making northward at the western end of Friendship Harbor. A narrow channel, with a least depth of 15 feet, leads northeastward into the cove near the western point at its entrance. It is of no importance as an anchorage.

MEDOMAK RIVER

enters the head of Muscongus Bay westward of **Martin Point**, the western point at the entrance to Friendship Harbor. Strangers wishing to enter the river should take a pilot, on account of the many unmarked dangers, narrow and crooked channels, and strong tidal currents, which require local knowledge. The lower part of the river is about 2 miles wide, but is separated by several islands into two approaches, which have three narrow and crooked channels by which the river proper is entered. The approaches to these channels are through Muscongus Bay or Muscongus Sound. The eastern approach is ⅝ mile wide and comparatively clear of dangers; at its upper end are two passages leading into the river, one through **Back River Cove**, and the other **Flying Passage**. Both have good water, but are very narrow in places, with strong tidal currents. **Hockomock Channel**, the western entrance, has a least depth of 4½ fathoms, but is narrow in places and has strong tidal currents.

Waldoboro, about 9 miles above Martin Point, is at the head of navigation, and is on a branch of the Maine Central Railroad. There is a least depth of 2 feet in the river about ½ mile below the town. The upper part of the river channel is staked with poles during the summer. The usual draft of vessels entering at high water is 10 feet; there

[1] Shown on charts **105**, scale $\frac{1}{80,000}$, price $0.50; **313**, scale $\frac{1}{40,000}$, price $0.25.

is 3 feet at low water alongside the wharves; 12 feet can be taken up at low water to within 3 miles of the town. Fresh water is taken from the river just above the wharves, and provisions can be obtained in the town. Ice closes the river to navigation from December to April.

Marine hospital.—Emergency relief is furnished by the United States Public Health and Marine-Hospital Service as for stations of Class IV (see Appendix IV).

SAILING DIRECTIONS, MUSCONGUS BAY FROM SEAWARD.

Directions through the bay from Davis Straits to Pemaquid Point are given on page 34.

1. ***From eastward.***—Passing southward of Old Man Ledge gas and whistling buoy, steer about 276° true (**WNW** mag.) and pass ¼ mile or more southward of Shark Island. When Franklin Island lighthouse bears 20° true (*NE* ¾ *N* mag.), steer 6° true (**NNE** mag.) for Jones Garden Island, passing ⅝ mile westward of Eastern Egg Rock tripod, ½ mile eastward of Western Egg Rock Breakers buoy, ¾ mile westward of Franklin Island lighthouse, and to a position 150 to 200 yards westward of Harbor Island Rock buoy. Then steer 34° true (**NE** ½ **E** mag.) for the summit of Black Island, and keep the northwest side of Harbor Island aboard, distant 300 to 400 yards.

Pass 300 to 400 yards westward of Black Island, steer 23° true (**NE** ½ **N** mag.), and pass about 300 yards northwestward from the southwest end of Friendship Island. When Gull Rock bears 262° true (*W* ¾ *N* mag.), steer 57° true (**ENE** ½ **E** mag.), and select anchorage near the middle of Friendship Harbor below buoy No. 5, in 4 to 6 fathoms.

Bound to Medomak River, follow the directions preceding to a position 300 to 400 yards westward of Black Island. Then steer 3° true (**N** by **E** ¾ **E** mag.), and pass about ¼ mile westward of Gull Rock. Anchor near mid-channel, about 1¾ miles above Gull Rock, and ⅜ mile below Hungry Island. Above Gull Rock danger will be avoided by giving the shores a berth of 400 yards. If desiring to enter the river, or if bound to Waldoboro, take a pilot.

Dangers.—Old Man Ledge is described on page 87.

Islands and unmarked ledges extend 3 miles westward from **Allen Island**. **Little Egg Rock** is high and rounding. **Harpoon Ledge** is a bare rock 600 yards westward of Little Egg Rock. **Andrew Rocks**, the highest covered at half tide, lie ½ mile west-northwestward from Harpoon Ledge. The area is very broken between these rocks and **Shark Island**. The latter is high and grass covered, and there is a rock awash at high water off its northwest side.

Eastern Egg Rock is low and bare and is marked on its northern end by a large, black, tripod beacon. **South Ledge**, with 19 feet over it, lies ⅝ mile south-southwestward from Eastern Egg Rock; and **Egg Rock South Ledge**, with 8 feet over it, lies between them.

Egg Rock North Ledge, 300 yards northward of Eastern Egg Rock, has two rocks awash at low water, and is marked at its southeast end by a buoy (spar, red, No. 12). There are ledges, mostly sunken, between this ledge and **Round Ledge**, the low, bare rock ¼ mile south-southwestward from Franklin Island; but there is a rock awash at low water at the eastern end of **Midway Rocks**, and another bare at low water near the south end of **Hough Ledge**.

Western Egg Rock is a low, bare islet lying 1¾ miles northwestward from Eastern Egg Rock. A rock, awash at low water, lies 250 yards south-southwestward from the islet; another rock, with 4 feet over it, lies 600 yards eastward from Western Egg Rock, and is marked by a buoy (spar, black, No. 1).

Devils Back, bare at half tide, and **Devils Elbow** and **Devils Limb**, bare at low water, are three rocks lying 1 mile northeastward from Western Egg Rock, between it and **Wreck Island**. The latter is heavily wooded and is a good mark. **Wreck Island Ledges**, having a bare rock near both ends, lie 300 to 900 yards northeastward from Wreck Island.

Harbor Island Rock, with 10 feet over it, lies nearly ½ mile southeastward from Wreck Island and ¼ mile westward from Harbor Island. The rock is marked by a buoy (spar, red and black horizontal stripes).

Jones Garden Island is a high, round, bare rock lying 1¼ miles northeastward from Wreck Island. There is a bare rock off its northeast side, and ledges extend 250 yards northeastward and northward from the island. **Garden Island South Ledge**, with 2 feet over it, extends 400 yards southwestward from the island, and is marked at its south end by a buoy (spar, red, No. 2).

A ledge with 12 feet at its end extends nearly ¼ mile northward from the southwest end of **Cranberry Island**.

Gull Rock is high and bare, and should be given a berth of 250 yards.

1 A. ***From westward.***—When Franklin Island lighthouse is distant 4 miles or more, bring it on any bearing between 28° 30′ true (**NE** mag.) and 51° true (**ENE** mag.) and steer for it. When Jones Garden Island bears 6° true (**NNE** mag.) steer for it and proceed as directed in section 1.

Or, from a position ¼ mile northward of Pemaquid Ledge buoy steer 61° true (**ENE** ⅞ **E** mag.) for 3¾ miles, passing ½ mile southward of Pemaquid Point lighthouse, and to a position

⅜ mile southward of New Harbor Sunken Ledges buoy (nun, red, No. 14). Then steer 51° true (**ENE** mag.) for 2¾ miles, heading for Franklin Island lighthouse, and pass ¼ mile southeastward of black spar buoy No. 1, eastward of Western Egg Rock. When Jones Garden Island bears 6° true (**NNE** mag.) steer for it and proceed as directed in section 1.

Dangers.—**New Harbor Sunken Ledges** have 4 to 15 feet over them, and are about ½ mile long in a northeasterly direction. They are marked at their southern end by a buoy (nun, red, No. 14), which lies 2⅞ miles 65° true (**E ¾ N** mag.) from Pemaquid Point lighthouse.

Moser Ledge is an unmarked 17-foot rock lying 3¾ miles 114° true (**SE ⅜ E** mag.) from Pemaquid Point lighthouse and 5⅜ miles 205° true (**SW ¼ S** mag.) from Franklin Island lighthouse.

SAILING DIRECTIONS, PORT CLYDE ENTRANCE THROUGH FRIENDSHIP HARBOR TO MUSCONGUS SOUND.

These directions are good for vessels of 10 feet or less draft. The tidal currents have little velocity, and generally the navigation is not difficult in daylight and clear weather with the aid of the chart and the buoys, but there are three places requiring extra caution. These are at the north end of McGee Island, between Garrison Island and the northeast point of Friendship Island, and Lower Narrows. The first named may be avoided by passing northward of Caldwell Island. (See directions for St. George River.)

Follow the directions in section 8, page 33, to a position 50 yards northwestward of Allen Ledge buoy (spar, black, No. 3). Then steer 242° true (**W** by **S** mag.) and pass 150 yards southward of Hooper Island Rocks buoy (nun, red, No. 6). Then steer 282° true (**NW** by **W ½ W** mag.) for the summit of McGee Island until Bar Island is abeam, distant 300 to 400 yards. Then steer about 308° true (**NW ⅞ N** mag.), and keep the northern end of McGee Island aboard, distant 100 to 125 yards, when passing between it and the end of the ledge, partly bare at low water, which extends 250 yards westward from the south end of Seavey Island; a shelving ledge also extends 250 yards southward from *Seavey Island*. Continue the course and pass about 50 yards northeastward of a black spar buoy and 150 yards southwestward of a red spar buoy (No. 2).

Then steer 346° true (**N ¼ E** mag.) for the summit of Morse Island with the summit of McGee Island astern until up with the red spar buoy between Morse and Gay Islands. Pass about 50 yards northwestward of this buoy, steer 40° true (**NE** by **E** mag.), and pass eastward and northward of Northeast Point Reef black spar buoy, rounding it at a distance of about 100 yards. Then steer 283° true (**NW** by **W ⅜ W** mag.) and pass about 50 yards southward of Crotch Island Ledges red spar buoy.

When about 300 yards westward of this buoy, steer 327° true (**N** by **W ½ W** mag.) for the northeast point of Friendship Island with the northeast end of Morse Island astern until up with the red spar buoy lying 140 yards southwestward of Garrison Island. Pass 50 yards westward of this buoy, steer 6° true (**NNE** mag.), and pass between Garrison Island and the northeast point of Friendship Island, slightly favoring if anything Garrison Island. Pass eastward and northward of black can buoy No. 5, rounding it at a distance of about 75 yards, and steer 237° true (**WSW ½ W** mag.) through Friendship Harbor, passing midway between the red spindle, marking *Murphy Ledge* on the southern side of the harbor, and the black spindle near the end of the ledge extending southward from *Jameson Point*.

Pass about 350 yards southward of *Ram Island* (wooded) and steer 270° true (**WNW ½ W** mag.) to a position 100 yards southwestward of the black spar buoy southward of Martin Point. Then steer 299° true (**NW** mag.) for the red spar buoy at the end of the ledge extending southward from Bremen Long Island. Pass close southward of this buoy, steer 270° true (**WNW ½ W** mag.) for the south part of *Middle Ledges*, which shows as two wooded clumps; on this course pass 150 yards southward of the south end of Bremen Long Island and close northward of a black spar buoy, and pass close southward and about 100 yards westward of a red bell buoy. Then steer 329° true (**N** by **W ¼ W** mag.) and pass about 150 yards eastward of the north end of the brush-covered islet on the northern part of Middle Ledges.

Pass about 150 yards eastward and 50 yards northward of the red spar buoy at the north end of Middle Ledges, steer about 270° true (**WNW ½ W** mag.), and pass about 125 yards northward of the house on piles, marked *Point Breeze*, at the northeast end of Hog Island. When about 125 yards from the eastern side of Hockomock Point steer about 237° true (**WSW ½ W**

mag.), and pass between the point and the small bare rock on the ledge extending northeastward from Hog Island, slightly favoring if anything the rock. The channel is narrow and great care is required at this point. When past the rock, keep the shore of Hog Island aboard, distant about 75 yards, and pass southward of black spar buoy No. 7 at the western end of Lower Narrows. Then follow the shore of Hog Island at a distance of about 200 yards until the stack at Muscongus Harbor bears 248° true (*W* ½ *S* mag.), which will clear Half Tide Ledge.

MUSCONGUS SOUND [1]

is on the western side of Muscongus Bay, between Muscongus and Hog Islands on the east and the mainland on the west. It is about ⅝ mile wide and 5 miles long, and has several rocks and ledges near its southern entrance, the most prominent of which are marked by buoys. Above Poland Ledges to abreast Muscongus Harbor the depths in the sound shoal gradually from 8 to 4 fathoms, and anchorage can be selected with the aid of the chart.

North of Hog Island a narrow channel called **Lower Narrows** forms one of the approaches to Hockomock Channel and Medomak River. Many of the vessels bound up the Medomak River pass through Muscongus Sound; strangers should take a pilot either at New Harbor or at Round Pond. Lower Narrows is also a part of a passage used by small vessels leading across the head of Muscongus Bay from Friendship Harbor. Directions for this passage are given above.

New Harbor is a small, narrow cove on the western shore of Muscongus Bay, about 2⅜ miles northeastward of Pemaquid Point lighthouse; it is used by small craft only, and though open eastward, is well sheltered from the sea. The channel is narrow between a shelving ledge extending northeastward from the south point at the entrance, and a ledge just inside it which extends halfway across from the north side and is marked at its end by a red buoy. The channel, with a width of about 150 feet, then leads close northward of a black spindle. Inside the spindle a part of the harbor has been dredged to a width of 200 to 250 feet, the lower half of the dredged area to a depth of 12 feet, and the upper half 6 feet.

Marsh Harbor is on the southeastern side of Muscongus Island, between it and Marsh Island; it is not an anchorage.

Round Pond is a landlocked little harbor with 12 to 18 feet in its middle, on the west shore of Muscongus Sound, about 2 miles above the southern end of Muscongus Island; it affords good anchorage for small vessels, but is little used. There is a granite quarry and wharf on the north side of the entrance at which vessels load granite, and **Round Pond**, a village and landing, is at the head of the harbor. The northeast and southwest ends of the harbor should be given a berth of 350 yards, and the west side 200 yards.

Muscongus Harbor is a small cove and village on the west shore of the sound about 1½ miles above Round Pond.

Greenland Cove is the extreme northern end of the sound; it is shallow and of no importance.

SAILING DIRECTIONS, MUSCONGUS SOUND.

From eastward.—Having come from Davis Straits as directed on page 34, pass 200 yards northward of Eastern Egg Rock beacon and steer 284° true (**NW** by **W** ¼ **W** mag.), passing ⅜ mile southward of Western Egg Rock and to a position 400 yards southwestward of Haddock Island Kelp Ledge buoy. Then steer 329° true (**N** by **W** ¼ **W** mag.) and pass about 300 yards southwestward of Webber Sunken Ledge buoy.

When about 400 yards from the western shore, steer 17° true (**NE** by **N** mag.), pass midway between Brown Head Ledge buoy and the western shore, about 300 yards off Brown Head, and to a position 100 to 200 yards eastward of Poland South Ledge buoy (spar, black, No. 1). Then steer 355° true (**N** by **E** mag.) and pass about 250 yards eastward of Poland North Ledge buoy (spar, black, No. 3). When Round Pond is opened, pass close northward of Harbor Ledge buoy on a 253° 30′ true (**W** mag.) course, and keep the north point at the entrance aboard distant about 75 yards. Anchor in the middle of Round Pond in 14 to 18 feet.

From southward or westward.—Follow the eastern shore of Pemaquid Neck at a distance of about ¾ mile on a 17° true (**NE** by **N** mag.) course until abreast Long Cove. Continue the course, pass midway between Brown Head Ledge buoy and the western shore, and proceed as directed in the preceding paragraph.

Dangers.—Western Egg Rock is described on page 107, and Moser Ledge and New Harbor Sunken Ledge on page 108.

Pumpkin Cove Ledge, with 3¼ fathoms on it, lies 1 mile 51° true (**ENE** mag.) from Pemaquid Point lighthouse and ½ mile from shore. The sea breaks on it in heavy weather.

[1] See footnote on page 106.

New Harbor Dry Ledges lie 2 miles northeastward from Pemaquid Point lighthouse and ¼ mile from the western shore. The ledges are ¼ mile long with a bare rock at each end, and there is no safe passage between them and the shore. **Little Island,** with a clump of trees, lies 200 yards from the shore ¼ mile southward of New Harbor. It is the highest part of a ledge about ¼ mile long.

Salt Pond Ledge, a rock with 13 feet on it, lies off the northern side of the entrance to New Harbor, and is marked by a black bell buoy placed 400 yards southeastward from the rock.

Islands and ledges extend 1¾ miles southward from **Muscongus Island. Haddock Island** is partly wooded, and **Ross Island** is high and grassy. **Haddock Island Kelp Ledge,** lying ⅜ mile southward from Haddock Island, has 8 feet over it and is marked at its south end by a buoy (spar, red and black horizontal stripes).

Webber Sunken Ledge has 7 feet over it and is marked at its southern end by a buoy (spar, red, No. 2), which lies ⅜ mile northwestward from the southwest end of Haddock Island and the same distance south-southwestward from **Webber Dry Ledge.** The latter is awash at high water. **Webber North Ledge,** with 14 feet over it, and **Bar Island Rock,** with 11 feet over it, lie between Webber Dry Ledge and Bar Island.

Brown Head Ledge, with 13 feet over it, lies nearly midway between Webber Dry Ledge and the shore northwestward of it, and is marked on its south side by a buoy (spar, red and black horizontal stripes).

Bar Island Ledge, bare in one place at low water, is ¼ mile long and is marked at its south end by a buoy (spar, red, No. 4), which lies ¼ mile westward from **Bar Island.** The latter is a small island with a lone tree lying close to the south end of Muscongus Island.

Poland South Ledge, with 9 feet on it, is marked on its eastern side by a buoy (spar, black, No. 1) lying near the middle of the sound and 1 mile north of the southern end of Muscongus Island. The better channel is eastward of it.

Poland North Ledge, bare at low water, lies 300 yards from the western shore and ⅝ mile southward from the south point at the entrance to Round Pond. It is marked on its southern end by a buoy (spar, black, No. 3).

Harbor Ledge extends 300 yards northeastward from the south side at the entrance to Round Pond. It is marked on its northeast end by a buoy (spar, black, No. 5) placed in 18 feet. There is an 18-foot spot about 200 yards northeastward from the buoy and 125 yards from shore.

JOHNS BAY [1]

lies westward of Pemaquid Neck, between it and Rutherford Island. It is about 1¼ miles wide at its entrance and 2 miles long to Johns Island, above which the Pemaquid River empties into its northeastern end, and Johns River into its northwestern. The depths in the bay are very irregular, and there are several ledges and rocks.

The bay is of no commercial importance; a number of summer resorts are located on its shores, and it is only used as an anchorage by fishermen and yachts well acquainted with the locality. The holding ground is poor, except in a few places near the head of the bay and in the coves. Port Clyde, eastward, and Boothbay Harbor, westward, are preferable at all times.

Pemaquid Harbor is at the entrance to Pemaquid River, northeastward of Johns Island; the bottom is rocky and irregular, but there is a fair anchorage for small vessels in the eastern part of the harbor between Fish Point and the entrance of Pemaquid River, in 6 fathoms. **Pemaquid Beach** and **Pemaquid Harbor** are post villages at the entrance of Pemaquid River. **Pemaquid River** extends northeastward about 2 miles to the village of **Pemaquid Falls.** The river is dry at low water near its head, and has a narrow and crooked channel.

Pemaquid Harbor can be entered from westward by passing 125 to 150 yards northward of **Beaver Island,** the high, round islet with some trees lying 300 yards northward from Johns Island. Or, when ½ mile or more southward of Johns Island, shape the course 355° true (**N** by **E** mag.) so as to pass 150 yards eastward of Johns Island and 125 yards westward of the western bare rocks of **Knowles Rocks.** A ledge, partly bare at half tide, extends 225 yards northeastward from the north end of **Johns Island.**

McFarling Cove is in the northwestern side of the bay northward and northwestward of Davis Island; a steep hill about 150 feet high is on the western shore of the cove. There is good anchorage for a small vessel about 300 yards northward, or in mid-channel northwestward, from the north end of Davis Island, in 4 to 6 fathoms.

To enter McFarling Cove, steer 273° true (**WNW ¼ W** mag.) with the south end of Beaver Island astern, which leads midway between Corvette Ledge and McFarling Ledges, and 250 yards northward of Davis Island.

Johns River extends northward about 2 miles above McFarling Cove, and separates into two branches, the eastern, **Foster Cove,** the western, **Western Branch. Robinson Cove** makes into the western shore of Johns River above High Island. There is good anchorage in the river southeastward and eastward from Clarke Point, in 3 to 4 fathoms.

Thread of Life is a narrow, deep channel lying between Thread of Life Ledges and Crow Island on the east, and the southern part of Rutherford Island and Turnip Island on the west. It is used by small local vessels entering Johns Bay from westward or from Damariscotta River. **Thrumbcap Island** is partly wooded in its northern part, **Thread of Life Ledges** are bare or grassy islets, **Turnip Island** has several houses, and **Crow Island** has a few trees. A shelving ledge, awash at low water at its south end, extends 300 yards southward from **Hay Island;** the latter has some trees on its south end, and there is a large hotel, at the head of Christmas Cove, westward of it.

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[1] Shown on charts **105,** scale $\frac{1}{80,000}$, price $0.50; **313,** scale $\frac{1}{40,000}$, price $0.25.

To pass through Thread of Life from westward, steer 61° true (**ENE** ⅞ **E** mag.) for the north end of Thrumbcap Island with Ram Island lighthouse astern, and pass 400 yards southward of **The Bulldog** (covered at half tide) and 500 yards southward of the rock covered at high water lying ¼ mile eastward from the south end of Inner Heron Island. When about 400 yards from Thrumbcap Island steer 15° true (**NNE** ¾ **E** mag.) and pass 200 yards westward of Thread of Life Ledges and 100 yards eastward of Turnip Island. Then keep in mid-channel, and pass into Johns Bay about 100 yards westward and northward of red spar buoy No. 2, lying about 200 yards northward of Crow Island.

SAILING DIRECTIONS, JOHNS BAY.

Stand up the middle of the bay on a 349° true (**N** ½ **E** mag.) course heading for the eastern end of High Island, and pass 300 yards westward of Johns Island and the same distance off the eastern shore northward of Pemaquid Harbor. Then keep in mid-channel until abreast High Island, and then pass about 50 yards westward of red spar buoy No. 2. Anchor near mid-river, about ¼ mile northeastward from buoy No. 2, in 3 to 4 fathoms.

Dangers.—Pemaquid Ledge, off the entrance of Johns Bay, is described on page 114.

Thrumbcap Ledge, with 3¾ fathoms over it, lies ¼ mile eastward from the north end of Thrumbcap Island.

A rock with 4¼ fathoms over it lies 600 yards from the western shore and ½ mile southwestward from Johns Island.

A rock with 3½ fathoms over it lies ⅜ mile south-southwestward from **Johns Island**, and another with less depth is reported to lie between.

Corvette Ledge, with 5 feet over it, lies 250 yards eastward from the east end of Davis Island.

McFarling Ledges lie 450 to 800 yards northward from Davis Island and 300 to 500 yards from the western shore. At the north end is a rock covered at half tide, and at the west end is a rock bare at low water.

Thurston Ledges are mostly bare rocks which extend 300 yards southward from the north side at the entrance of Pemaquid Harbor, their south edge lying 300 yards northward of Beaver Island.

A ledge with least depths of 9 to 10 feet extends over halfway across Johns River from the eastern shore abreast the northern part of High Island, and is marked at its western end by a buoy (spar, red, No. 2).

A partly bare ledge extends 300 yards eastward from the north end of **High Island.**

DAMARISCOTTA RIVER.[1]

The entrance to this river is about 3 miles westward of Pemaquid Point lighthouse and 1 mile northeastward from Ram Island lighthouse. From its mouth the river trends in a general north-northeast direction for 14 miles to the towns of Damariscotta and Newcastle, at the head of navigation. It is navigable to these towns for vessels of 18 feet draft at high water, but the tidal currents are strong, and, although some of the dangers are marked by buoys, strangers should not pass above the Narrows without a pilot.

The channel of the river is crooked, and in many places, owing to islands and ledges, very narrow; for a distance of 11 miles above the mouth of the river a least depth of 5 fathoms may be carried in the channel; above this the water shoals gradually to 9 feet at low water, just below the town of Damariscotta.

Inner Heron Island, on the eastern side of the main entrance, is ½ mile long, and has ledges extending southward and southwestward from it. There are several large summer houses on it and a landing at its northern end.

Christmas Cove is an anchorage for small craft or a very small vessel on the eastern side of the entrance ¾ mile north-northeastward from Inner Heron Island. The narrow entrance to the cove proper is midway between two bare rocks, the one on the southeast side being marked by a tripod beacon. A black spindle marks the north side of the channel just inside the entrance, and a red spindle marks the point of a ledge near the south side westward of the steamboat landing. The anchorage with best swinging room is in the middle of the cove off the landing, in 4 fathoms. **Christmas** is a post village and summer resort on the eastern side of the cove.

East Boothbay is a village on the west bank of the river, about 3 miles above its mouth; vessels bound up the river and waiting for a favorable wind or tide usually anchor here, and strangers take a pilot if one has not been taken off the entrance.

At the **Narrows**, 1⅜ miles above East Boothbay, the channel is contracted to a width of 100 to 150 yards, and the tidal currents are strong with swirls. **Eastern Ledge**, extending 100 yards from the eastern shore, is a rock with 3 feet over it, and is marked at its southwest end by a buoy (spar, red, No. 8). On the west side of the Narrows is a ledge, mostly sunken, extending 250 yards southwestward and 75 yards eastward from **Fort Point**. **Western Ledge**, lying in mid river 600 yards south-southwestward from Fort Point, has 4 feet over it, and is marked at its southeast end by

[1] Shown on charts **105**, scale $\frac{1}{80,000}$, price $0.50; **313**, scale $\frac{1}{40,000}$, price $0.25.

a buoy (spar, black, No. 3). A ledge with 5 feet over it lies 150 yards northward from the east point at the north end of the Narrows.

Clark Cove is in the eastern shore of the river where it makes an abrupt bend westward about 2¼ miles above the Narrows.

Pleasant Cove is on the western shore of the river opposite Clark Cove, and makes in nearly 1½ miles southwestward. There is good anchorage in the mouth of this cove just northwestward of Carlisle Point, in 2½ to 5 fathoms, soft bottom. **Pleasant Cove Ledges**, northward of the cove, are covered at high water.

Damariscotta on the east bank, and **Newcastle** on the west bank of the river, 14 miles from its mouth, are connected by a bridge; they are on a branch of the Maine Central Railroad. Vessels of 18 feet draft can go to the wharves at either place at high water; the usual draft of vessels loading here is 10 feet; there is 8 to 10 feet alongside the wharves.

Anchorages.—Vessels bound into the river usually go as far as Meadow Cove, just above East Boothbay, where there is good anchorage in 5 to 8 fathoms, keeping 150 yards from the shore; this is as far as a stranger should attempt to go without a pilot. Above the Narrows vessels can anchor anywhere in the channel where the bottom and depth are suitable.

Pilots can be found at Boothbay and at East Boothbay.

A small **towboat** can be had from Boothbay. The vessels ordinarily loading here sail up the river with a favorable wind and tide.

Supplies.—Provisions can be found at East Boothbay, Damariscotta, and Newcastle. Water can be had at East Boothbay.

Ice closes the river for a distance of 8 miles below Damariscotta during January, February, and March.

Currents.—The tidal currents have considerable velocity. The ebb lasts about two hours after low water in the upper part of the river and is usually stronger than the flood. The currents follow the general direction of the channel.

Tides.—It is high water at Newcastle about 20 minutes later than at the mouth of the river. (See also table on p. 24.)

SAILING DIRECTIONS, DAMARISCOTTA RIVER.

Directions for approaching from eastward are given in section 9, page 34, and section 1, page 114. Approaching from southward, pass eastward of Pumpkin Island and the islands off the entrance, giving them a berth of 1¼ miles. Pass ⅜ mile southwestward of Thrumbcap Island, steer 299° true (**NW** mag.), and pass about 400 yards southward and westward of Inner Heron Island Ledge buoy (spar, red, No. 2). Coming from Fisherman Island Passage steer 51° true (**ENE** mag.) for the south end of Inner Heron Island with Ram Island lighthouse astern, and pass about 400 yards southward and eastward of black can buoy No. 0.

Enter the river about midway between black can buoy No. 0 and Inner Heron Island Ledge buoy (spar, red, No. 2), and steer 6° true (**NNE** mag.) in mid river for 1½ miles above Inner Heron Island. Pass westward of East Shore buoy (spar, red, No. 6), give Farnum Point a berth of 300 yards, and when it is abeam change course to 327° true (**N** by **W** ½ **W** mag.), keeping about the middle of the river. Leave Montgomery Point buoy (spar, black, No. 1) on the port hand, and haul in for the western side of the channel off Meadow Cove; anchor in 5 to 8 fathoms.

Dangers.—**Outer Pumpkin Island Ledge**, with 5¾ fathoms on it, **Southeast Breaker**, with 3¾ fathoms on it, **Pumpkin Island Eastern Ledge**, with 10 feet on it, **Outer Heron Island Ledge**, with 8½ feet on it and marked by a buoy (spar, red and black horizontal stripes), and **White Island Ledges**, with 5¾ fathoms on it, will be avoided by keeping at least 1¼ miles southward and 1¼ miles eastward of the islands off the entrance.

Inner Heron Island Ledge, partly bare at low water, extends ¼ mile in a southwesterly direction from the southern end of Inner Heron Island, and is marked on its southwest end by a buoy (spar, red, No. 2).

The Bulldog is a rock covered at half tide near the southern end of a ledge which extends 400 yards southward from Inner Heron Island.

A ledge, largely bare at half tide, extends 300 yards northward from **Inner Heron Island**, and is marked on its northern end by a buoy (spar, red, No. 4).

A rock, with 8 feet over it and marked on its southwest side by a buoy (spar, red, No. 6), lies 200 yards from the eastern shore and 600 yards southeastward from Farnum Point.

Kelp Ledge, bare at low water, extends 150 yards from the western shore at the south end of East Boothbay, and lies 240° true (**WSW** ¾ **W** mag.) from Jones Point.

A ledge extends about 150 yards eastward from **Montgomery Point** and has black spar buoy No. 1 on its eastern side. A bare ledge lies 150 yards from the shore just north of **Meadow Cove**.

BOOTHBAY HARBOR [1]

is one of the best anchorages on the coast of Maine, and is much used as a harbor of refuge by all classes of vessels. It lies 14 miles northwestward from Monhegan Island and 9 miles northeastward from Seguin Island, and is marked at its eastern and western entrances by **Ram Island lighthouse** and **The Cuckolds lighthouse**, respectively. Lying south of the entrance are several islands and a number of rocks and ledges. The entrance between Linekin Neck on the east and Cape Newagen on the west is 2⅝ miles wide. **Squirrel Island** lies in the middle between these points with a good channel on either side of it; this island is a popular summer resort, and there is a landing on its northwest side. **Burnt Island lighthouse** is ⅞ mile north of Squirrel Island, and is the principal guide to the anchorage in the harbor.

Linekin Bay lies northeastward from Squirrel Island between Linekin Neck and Spruce Point. The principal dangers are buoyed, and good anchorage can be selected, the depths being 10 to 12 fathoms in the lower part of the bay and 5 to 6 in the upper. There are several summer resorts and landings. **Spruce Point Ledges**, bare at low water, lie on the northern side of the entrance, and are marked by two buoys, a black spar at the south end and a red spar at the north end. The better entrance is between the black buoy and Negro Island. In the narrow entrance between the red buoy and Spruce Point, give the point a berth of over 150 yards.

A 26° true (**NE ¼ N** mag.) course with the southeast point of Squirrel Island astern will lead to the head of Linekin Bay. The principal dangers are: **Independence Island** is wooded; the shelving ledge extending 300 yards south-southwestward from it is marked by black spar buoy No. 3. A small ledge, with 7 feet over it, southeastward from Independence Island, is marked on its southwest side by a spar buoy, red and black horizontal stripes. **Holbrook Ledge**, bare at low water, is marked about 100 yards off its western side by red spar buoy No. 4. **Seal Rock**, bare at half tide, is marked on its east side by black spar buoy No. 5; the narrow channel west of the rock should be used with caution. Red spar buoy No. 6 marks the southwest end of a ledge surrounding a low islet with several trees near the eastern shore. **Fish Hawk Islet**, at the north end of the bay, has a single tree, and a ledge bare at half tide extends 250 yards southward; eastward of it is a rock with 7 feet over it which is marked on its southeast side by black spar buoy No. 7.

The town of **Boothbay Harbor** is on the eastern arm at the head of Boothbay Harbor. The deepest draft entering here is 21 feet, the usual draft about 12 feet; there is from 4 to 12 feet alongside the wharves. A least depth of 30 feet at low water can be carried in the channel to the anchorage near the head of the harbor off McKown Point.

Channels.—There are three channels by which to approach the harbor. Fisherman Island Passage has a depth sufficient for the largest vessels, but there are some unmarked spots with a least depth of 13 feet, lying northwestward and westward from Ram Island, and the bottom is very broken; the passage is not recommended for a greater draft than about 18 feet at low water. The channel westward of Squirrel Island has a depth sufficient for the largest vessels, but there are three unmarked spots with from 19 to 25 feet nearly in the middle of the channel between Squirrel and Burnt Islands. The channel from southward, leading east of Squirrel Island, leads in the deepest water, and 8 fathoms can be taken up to the anchorage.

Anchorages.—The usual and best anchorage is northward of Tumbler Island and to the head of the harbor; there are 4 to 7 fathoms, good holding ground, anywhere in the channel above the island, the depths shoaling gradually toward the head of the harbor. The anchorage in the inner harbor, off the town, has a depth of 4 to 5 fathoms, but is limited in area and usually occupied by small craft and fishermen.

Towboats are seldom used by vessels entering or leaving the bay; there is a small towboat at Boothbay Harbor.

Supplies.—Anthracite and bituminous coal in limited quantity can be had at the wharves where the depths are 10 to 18 feet at high water. Water can be taken alongside the wharves or from water boat. Provisions and some ship chandler's stores can be obtained in the town.

Repairs.—There are good facilities for repairing hulls of wooden vessels, and a marine railway capable of hauling out vessels of 200 tons.

Storm warning displays of the United States Weather Bureau are made from a staff on the eastern side of the harbor on Mount Pisgah.

Marine hospital.—Relief is furnished by the United States Public Health and Marine-Hospital Service as for stations of Class III. (See Appendix IV.)

Ice occasionally, in severe winters, obstructs navigation above Tumbler Island during February and March.

The tidal currents have little velocity in the harbor. For **tides** see table, page 24.

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[1] Shown on charts **105**, scale $\frac{1}{80,000}$, price $0.50; **314**, scale $\frac{1}{40,000}$, price $0.25.

SAILING DIRECTIONS, BOOTHBAY HARBOR.

1. ***From eastward through Fisherman Island Passage.***—Directions from Davis Straits to Fisherman Island Passage are given on page 34.

From a position ⅜ mile southward of Old Man Ledge gas and whistling buoy steer 261° true (**W** ⅝ **N** mag.) for 9 miles, passing 1½ miles southward of Pemaquid Point lighthouse and to a position ½ mile south-southwestward of Pemaquid Ledge buoy. Then steer 268° true (**WNW** ¾ **W** mag.) and pass ½ mile southward of Thrumbcap Island.

Passing ¾ to 1 mile northward of Monhegan Island steer 276° true (**WNW** mag.), or passing ¾ to 1 mile southwestward of Monhegan Island steer 293° true (**NW** ½ **W** mag.); either course made good for 10 miles will lead to a position ½ mile southward of Thrumbcap Island.

Passing ½ mile southward of Thrumbcap Island steer 268° true (**WNW** ¾ **W** mag.), pass northward of the black bell buoy marking The Hypocrites and black spar buoy No. 1, and about 350 yards northward of Ram Island lighthouse, and pass southward of red spar buoys Nos. 2 and 2½ marking Gangway and Dictator Ledges.

Pass about 200 yards southward and westward of Dictator Ledge buoy (spar, red, No. 2½) and steer 321° true (**NNW** mag.) for 1⅝ miles to a position 200 yards westward of Tumbler Island Ledge buoy (spar, red, No. 6). Then steer 332° 30′ true (**N** by **W** mag.) and pass about 300 yards westward of Tumbler Island. Then steer about 17° 30′ true (**NE** by **N** mag.) and anchor in the middle of the harbor in 5 to 7 fathoms.

To anchor in the inner harbor off the town.—Pass about 200 yards northwestward of Tumbler Island and steer 29° true (**NE** mag.) for McFarland Island until a large bare ledge near the eastern shore is abeam distant about 250 yards. Then steer about 62° true (**E** by **N** mag.) into the inner harbor, passing southward of the black spar buoy southward of McFarland Island, and anchor southeastward of buoy No. 3, giving the wharves on the eastern side a berth of over 50 yards.

Dangers.—Moser ledge is described on page 108.

Pemaquid Ledge, lying 1⅜ miles 209° true (**SW** mag.) from Pemaquid Point lighthouse, has 11 feet over it and is marked by a buoy (can, red and black horizontal stripes), which should be given a berth of over 300 yards. There is a depth of 26 feet about 600 yards south-southwestward of the buoy. The white sector in Ram Island lighthouse, bearing between 259° true (**W** ½ **N** mag.) and 265° true (**W** by **N** mag.), leads southward of the shoaler part of Pemaquid Ledge, and the latter bearing on the south edge of the white sector leads southward of the 26-foot spot and nearly ½ mile southward of the buoy.

The Hypocrites are large bare rocks and ledges, the northeast end of which is marked by a black bell buoy, lying ½ mile 84° true (**E** ⅞ **S** mag.) from Ram Island lighthouse.

Ram Island Ledge, with 12 feet over it, extends 275 yards northeastward from Ram Island eastward of the lighthouse, and is marked at its northern end by a buoy (spar, black, No. 1).

Gangway Ledge, lying 600 yards northward from Ram Island lighthouse, has 7 feet over it and is marked on its southwest side by a buoy (spar, red, No. 2). There is foul ground between the ledge and the southwest end of Linekin Neck.

Dictator Ledge, 350 yards westward of Gangway Ledge, has 14 feet over it and is marked by a buoy (spar, red, No. 2½).

An unmarked rock with 13 feet over it lies a little over ½ mile west-northwestward from Ram Island lighthouse, and ¼ mile westward from Dictator Ledge buoy. A rock with 3½ fathoms over it lies between Dictator Ledge buoy and the southeast point of Squirrel Island, ⅜ mile from the buoy and ½ mile from the island.

Wylie Rock, with 16 feet over it, lies ¾ mile 254° true (**W** mag.) from Ram Island lighthouse and ½ mile southeastward from the southeast point of Squirrel Island.

Card Ledge, with a bare rock about midway its length and 1 foot at its southern end, extends ¼ mile southwestward from the southwest end of Linekin Neck; it is marked at its southern end by a buoy (spar, red, No. 4).

Ledges extend 200 to 300 yards eastward from **Squirrel Island.**

Spruce Point Ledges, lying on the northern side in the entrance of Linekin Bay, are partly bare at low water and nearly ¼ mile long. They are marked at the south end by a buoy (spar, black, No. 1), and at the north end by a buoy (spar, red, No. 2).

Tumbler Island Ledge, with 12 feet on it, lies nearly ¼ mile from the eastern shore eastward of Burnt Island lighthouse, and is marked on its western side by a buoy (spar, red, No. 6). There is a passage eastward of the buoy by giving it a berth of 250 yards.

There is a large bare rock near the eastern shore ⅜ mile northeastward from Tumbler Island. A ledge with 16 feet at its end extends 200 yards west-northwestward from the rock.

McFarland Island, on the north side at the entrance of the inner harbor, has a number of buildings and a small wharf. The edge of the shoal which extends about 150 yards southward from the island is marked by a buoy (spar, black, No. 1).

1 A. ***From westward.***—The directions of section 10, page 34, reversed, will lead northward of Seguin Island and to Cuckolds black bell buoy.

Pass 1½ miles south of Seguin lighthouse and steer 39° true (**NE** ⅞ **E** mag.) for nearly 7 miles to Cuckolds black bell buoy, lying ⅜ mile south-southwestward from The Cuckolds lighthouse. Pass eastward of the buoy and about ¼ mile eastward of The Cuckolds lighthouse, and steer 2° true (**N** by **E** ⅝ **E** mag.) for Burnt Island lighthouse, passing about ¼ mile westward of Squirrel Island. When about ½ mile from the lighthouse, and Squirrel Island Ledge buoy is abeam, steer 23° true (**NE** ½ **N** mag.) to a position 400 yards east-southeastward from Burnt Island lighthouse. Then steer 351° true (**N** ⅝ **E** mag.) for the eastern end of McKown Point, to a position 300 yards westward of Tumbler Island. Then steer about 17° 30′ true (**NE** by **N** mag.) and anchor in the middle of the harbor in 5 to 7 fathoms. Directions to the anchorage in the inner harbor off the town are given in section 1.

From southward.—Pass about ½ mile westward of Bantam Rock gas and whistling buoy and steer 2° true (**N** by **E** ⅝ **E** mag.) for Burnt Island lighthouse, and follow the directions in the preceding paragraph.

To enter eastward of Squirrel Island.—Pass eastward of Cuckolds black bell buoy, and about ¼ mile southeastward of the lighthouse, and steer 33° true (**NE** ⅜ **E** mag.). Follow the eastern side of Squirrel Island, giving it a berth of about ¼ mile, steer 332° 30′ true (**N** by **W** mag.), and pass about 200 yards westward of Tumbler Island Ledge buoy (spar, red, No. 6) and about 300 yards westward of Tumbler Island.

Dangers.—Mile Ledge and Tom Rock are described on pages 122, 118.

Bantam Rock, bare at low water, lies 1⅜ miles 197° 30′ true (**SW** by **S** mag.) from the southern point of Damiscove Island. It is marked by a buoy (nun, red, No. 2) placed about 100 yards southwestward from the dry part of the ledge. A gas and whistling buoy is placed 1⅞ miles 197° 30′ true (**SW** by **S** mag.) from Bantam Rock, and a short distance southward of a small ledge with 4 fathoms over it. Vessels standing along the coast should not pass inside of the gas and whistling buoy.

The Motions is a ledge, nearly awash at low water, which extends 600 yards south-southwestward from the southwest end of Damiscove Island.

An unmarked **11½-foot spot** lies nearly ⅝ mile northwestward from the southwest end of Damiscove Island. It can be avoided by keeping Ram Island lighthouse bearing eastward of 29° true (**NE** mag.).

The Cuckolds, two bare islets, are surrounded by ledges which make out 250 yards southward. The eastern islet is marked by The Cuckolds lighthouse. They are also marked by a black bell buoy lying ⅜ mile south-southwestward from the lighthouse. The passage inside The Cuckolds is foul, and foul ground extends nearly ½ mile westward of them.

Wylie Rock and the dangers between Ram Island and Squirrel Island are described in section 1, preceding.

Squirrel Island Ledge extends ¼ mile northwestward from the northern end of Squirrel Island, and is marked at its end by a buoy (spar, red, No. 4).

Burnt Island Ledge, with 4½ feet on it, lies 200 yards southward of Burnt Island, and is marked on its south side by a buoy (spar, black, No. 1). A spot with 19 feet over it lies 300 yards south-southwestward from the buoy.

Pig Cove Island is close to the western shore westward of Burnt Island. A black spindle with cask on bilge, and another with cask on end, mark rocks bare at low water near the ends of ledges which extend 300 yards southward, and 200 yards eastward, respectively, from Pig Cove Island.

SHEEPSCOT RIVER [1]

extends in a north-northeasterly direction 18¼ miles to the village of Sheepscot. Its entrance is about 5 miles northeastward from Seguin Island, between The Cuckolds on the east and Griffith Head on the west. The Cuckolds and Hendricks Head lighthouses are guides for entering. Sheepscot Falls, about 16¾ miles above its mouth, is the head of navigation except for small craft; 5 fathoms can be taken to Wiscasset at low water. Between Wiscasset and Sheepscot Falls two bridges cross the river; the width of the draws is about 33 feet.

Cape Harbor is an anchorage for small craft between Cape Newagen and Cape Island; it is only used by local fishermen.

Herman Harbor is a long, narrow cove making in northward on the western shore of the river about 1½ miles above Griffith Head. It has good anchorage in 4 to 7 fathoms, but has a very narrow entrance between a bare ledge near the shore and a dangerous reef, bare at low water, which extends 275 yards westward from the island on the eastern side of the entrance. There is a small village on its western shore.

[1] Shown on charts 105, scale $\frac{1}{50,000}$, price $0.50; 314, scale $\frac{1}{40,000}$, price $0.25.

Christmas Cove is a small, shallow cove in the eastern shore, about 1⅜ miles southward of Hendricks Head.

Hendricks Harbor is a small harbor, the entrance to which lies about ⅜ mile south-southeastward from Hendricks Head. Only small craft use this anchorage, the depth being 5 to 8 feet at low water. Just off the entrance is a rock, bare at half tide, with a spindle on its north end. There is a small village on its eastern shore.

Five Islands Harbor is a narrow passage between Five Islands and the western shore, forming a secure harbor for small craft, with 3 to 5 fathoms at low water. The entrance is northward of the largest wooded island, between it and a bare rock, and bears 272° true (**WNW ⅜ W** mag.) from Hendricks Head lighthouse. The village of **Five Islands** is on the western shore of the harbor.

Ebenecook Harbor is an excellent anchorage for vessels up to 20 feet draft. Its entrance lies about 1 mile above Hendricks Head lighthouse on the eastern bank of the river, and leads between Dog Fish Head on the south and the Green Islands on the north. It is the first anchorage available for large vessels entering the river; but the entrance is narrow, and large sailing vessels require a fair wind when leaving the anchorage. The village of **West Southport** is at the southern end of the harbor. Steamers plying between Boothbay Harbor and Bath stop here. This end of the harbor should be avoided by strangers unless they employ a pilot. There is from 4 to 10 feet alongside the wharves of the village.

To enter Ebenecook Harbor, give the eastern shore of Sheepscot River a berth of over 300 yards for 1 mile above Hendricks Head lighthouse until up with **Dog Fish Head**, which is rocky and grass covered, with a low neck behind it. Pass about 125 yards northward of Dog Fish Head, and steer about 96° true (**ESE** mag.) between it and Green Islands, favoring, if anything, the southern side, until past the south point of Green Islands. Follow the southeast side of Green Islands at a distance of about 200 yards, and steer 74° true (**E** mag.) with the south point of the islands astern; anchor on this course near mid harbor, or favoring the eastern shore, in 4 to 6 fathoms, soft bottom.

Extending northward from Ebenecook Harbor to Sawyer Island is a channel, affording good anchorage in places, which is used by small pleasure craft in summer, and is a part of the inside passage used by local vessels between Boothbay Harbor and Bath. Its northern part, and also the passages between the islands and ledges on its western side, requires some local knowledge to insure safety. The principal islands and rocks are:

Green Islands are partly wooded; a rock, bare at low water, lies 200 yards northeastward from them and is marked on its southeast side by a black spar buoy. A bare ledge lies between Green Islands and Boston Island, and a rock with 4 feet over it lies 250 yards westward of the ledge. **Boston Island** is high and grassy and has several houses on top. **Spectacle Islands** are grassy, with some trees, and a bare rock lies 150 yards westward from their southwest end. **Sweet Island** is large and wooded; the post office and landing of **Isle of Springs** is on the eastern side near its north end. A black spindle with cask is placed near the end of the ledge which extends 100 yards northward from Sweet Island. There is a landing on the west side of the point of **Sawyer Island**, northeastward from the north end of Sweet Island. Harding Ledge, Powderhorn Island and Ledge, and Ram Island Ledge are described on page 118.

Townsend Gut, leading into Boothbay Harbor, is northward of Ebenecook Harbor. (See inside passage from Boothbay Harbor to Bath.)

Little Sheepscot River and **Goose Rock Passage** are in the western bank, the former on the south and the latter on the north side of McMahan Island; they both lead into Sassanoa River.

Back River is a shallow, and in places narrow, stream, between Barter Island and the mainland. Its southern entrance is on the eastern side, 3¼ miles northward of Hendricks Head; its northern entrance is from Cross River. Local knowledge is necessary for its navigation.

On the west bank of the river, opposite the entrance to Back River, are three small coves, **Jewett**, **Long**, and **Tarbox Coves**. There is good anchorage for light-draft vessels off Jewett and Long Coves. The village of **Westport** is on the west bank, opposite the southern end of Barter Island.

Cross River makes eastward at the northern end of Barter Island, about 6¼ miles above Hendricks Head. This river has a good, deep channel for 1¼ miles, but is little used except by vessels loading ice; Back River makes into it from southward about ⅜ mile from its entrance.

Wiscasset is a town on the west bank of the river, 11 miles above Hendricks Head lighthouse, and can be reached by deep-draft vessels; the usual draft of vessels entering here is 10 to 16 feet. **Sheepscot Falls** is about 3 miles above Wiscasset; 20 feet of water can be taken up to it.

Sheepscot, a village about 4½ miles above Wiscasset, can only be reached by vessels of less than 5 feet draft.

The channel of the river up to Hendricks Head light is wide, with few dangers, but above this for a distance of about 3½ miles it leads between islands, rocks, and ledges, the most dangerous of which are marked by buoys, which contract the channel to a width of ¼ mile in its narrowest part. Above Stover Ledge the channel is comparatively free from dangers until up to Davis Island, where it makes a sharp turn westward and forms Wiscasset Harbor; at this point there are several rocks marked by buoys. The least depth in the channel, by following the sailing line, is about 9½ fathoms until nearly up to Wiscasset. Above Wiscasset the channel is narrow and crooked.

Anchorages.—**Ebenecook Harbor** is the first anchorage available for large vessels entering the river. Above Stover Ledge anchorage can be had in the channel, the depths being generally 12 fathoms or less. **Colby Cove**, in the west bank, about 2¼ miles above Cross River, affords anchorage in 8 to 10 fathoms; Merrill Ledge spindle is northeastward of the anchorage. The anchorage at Wiscasset is below the bridge and near the wharves of the town. Above Wiscasset vessels bound to Sheepscot Falls anchor anywhere in the channel where the bottom and depth are suitable.

Pilots can be had by making signal when entering the bay and standing up to Hendricks Head. Vessels bound to Sheepscot Falls generally take a pilot at Wiscasset.

Towboats are sometimes used by vessels bound up the river; they can be had from the Kennebec River. Vessels bound above Wiscasset generally tow.

Supplies.—Anthracite coal in limited quantities can be obtained at the wharf near the coal depot at Wiscasset. Provisions can be had at Wiscasset.

Repairs.—The nearest places having marine railways and where repairs to wooden vessels can be made are Boothbay Harbor and Bath. Repairs to machinery of steamers and hulls of steel or iron vessels can be made at Bath.

Marine hospital.—Emergency relief is furnished at Wiscasset by the United States Public Health and Marine-Hospital Service as for stations of Class IV. (See Appendix IV.)

Ice does not interfere with navigation up to Wiscasset. Ebenecook Harbor is always open. Above Wiscasset the river is closed by ice for a distance of 3 miles below Sheepscot Falls.

For **tides** see table, page 24.

Currents.—The currents in the river generally set in the direction of the channel and have considerable velocity in the narrow parts. At the entrance to Cross River the flood sets on to Quarry Point. The ebb sets on to Clough Point.

SAILING DIRECTIONS, SHEEPSCOT RIVER.

1. ***From eastward.***—Having come from Boothbay Harbor or Fisherman Island Passage, pass close to Cuckolds black bell buoy and steer 265° true (**W** by **N** mag.) for 1 mile until Lower Mark Island is abeam. Then steer 331° true (**N** by **W** ⅛ **W** mag.) for 1¾ miles and pass ½ mile westward of Lower Mark Island and about 250 yards westward of Cat Ledges buoy. When about ¼ mile northwestward of this buoy, steer 2° true (**N** by **E** ⅝ **E** mag.) for nearly 1½ miles and pass 350 yards westward of Hendricks Head lighthouse.

Or, coming from southward, pass ½ mile westward of Bantam Rock gas and whistling buoy and steer 339° 30′ true (**N** ⅜ **W** mag.) for 6 miles, passing 1⅝ miles westward of The Cuckolds lighthouse and to a position ⅞ mile westward of Lower Mark Island. Then steer 2° true (**N** by **E** ⅝ **E** mag.) for about 2 miles, passing ¼ mile westward of Cat Ledges buoy and 350 yards westward of Hendricks Head lighthouse. Then follow the directions in section 2.

Dangers.—Bantam Rock and The Cuckolds are described on page 115.

Lower Mark Island lies 1¼ miles northwestward of The Cuckolds and ⅜ mile from the eastern shore. It is small, wooded, and a good mark. A ledge, the southern end of which is well bare at low water, lies 150 to 350 yards eastward of the island. **Cranberry Ledge**, with 9 feet over it, lies ⅜ mile southward of Lower Mark Island and the same distance from the eastern shore.

Cat Ledges are a group of rocks, the higher ones bare, lying ½ to 1 mile northward of Lower Mark Island, and the outer ones ⅝ mile from the eastern shore. A rock with 3¾ fathoms over it lies ½ mile northwestward from Lower Mark Island and 1⅝ miles 176° true (**S** by **W** ⅛ **W** mag.) from Hendricks Head lighthouse, and is marked on its western side by Cat Ledges buoy (spar, red, No. 2 CL).

1 A. ***From westward.***—Pass 1½ miles southward of Seguin lighthouse and steer 37° true (**NE** ¾ **E** mag.) for The Cuckolds lighthouse to a position ⅝ mile southeastward of Tom Rock buoy. Then steer 6° true (**NNE** mag.) for 3¼ miles, heading for Hendricks Head lighthouse until The Cuckolds lighthouse is abeam, distant 2 miles. Then steer 2° true (**N** by **E** ⅝ **E** mag.) for nearly 2½ miles, and pass ⅞ mile westward of Lower Mark Island, ¼ mile westward of Cat Ledges buoy, and 350 yards westward of Hendricks Head lighthouse.

Or, the directions reversed of section 10, page 34, will lead northward of Seguin Island and The Sisters. Pass ¼ mile northward of The Sisters tripod beacon, and bring it astern on a 20° true (**NE** ¾ **N** mag.) course. Keep this course for nearly 3 miles, passing ⅜ mile eastward of Black Rocks and Griffith Head Ledge buoy, and to a position ⅞ mile westward of Lower Mark Island. Then steer 2° true (**N** by **E** ⅝ **E** mag.) for about 2 miles, passing ¼ mile westward of Cat Ledges buoy and 350 yards westward of Hendricks Head lighthouse. Then follow the directions in section 2.

Dangers.—Mile Ledge is described on page 122.

Tom Rock, with 9 feet over it, lies 2⅜ miles northeastward from Seguin lighthouse and ⅝ mile southward from The Sisters tripod, and is marked on its southwestern side by a buoy (spar, red, No. 2).

The Sisters, three small bare rocks with shoals surrounding them for about 100 yards, lie 1⅜ miles from the western shore at the entrance of Sheepscot Bay. The westernmost of the three rocks is marked by a black tripod beacon.

Black Rocks are three rocks lying 1 mile from the western shore of Sheepscot Bay, and the end ones are ½ mile apart. The southernmost rock is awash at high water and lies 600 yards south-southwestward from the middle rock, which is about 15 feet high; a 13-foot spot lies 250 yards southwestward from the southernmost rock. The northeasternmost rock is about 10 feet high.

Sloop Ledge, with 6 feet over it, lies ⅜ mile northwestward from the middle one of the Black Rocks, and is marked on its south side by a buoy (spar, black, No. 1). There is foul ground between Sloop Ledge and the shore.

Griffith Head, on the west side at the entrance of Sheepscot River, is a white, rocky head, with a bare rocky island 200 yards eastward. **Griffith Head Ledge**, with 7 feet over it, lies ⅜ mile eastward of the island, and is marked on its southerly side by a buoy (spar, red and black horizontal stripes).

2. ***Hendricks Head to Wiscasset.***—Passing 350 yards westward of Hendricks Head lighthouse steer 2° true (**N** by **E** ⅝ **E** mag.) for 4½ miles, passing eastward of Bull Ledge buoy, Middle Mark Island at a distance of 250 yards, Middle Ledge buoy, Clous Ledge spindle and bell buoy, Four-foot Rock buoy, Upper Mark Island at a distance of 350 yards, and Hodgdon Ledge buoy; and passing westward of Harding Ledge buoy, Powderhorn Island, Powderhorn Ledge buoy at a distance of 175 yards, Ram Island, Barter Island buoy, and Stover Ledge buoy at a distance of 200 yards.

From a mid-river position ¾ mile above Stover Ledge buoy steer 20° true (**NE** ¾ **N** mag.) for 2 miles to the entrance of the narrow part of the river between Quarry Point and Fowle Point. Then steer more northward and follow a mid-river course for 2 miles. Pass westward of the spindle and red buoy marking the southerly and northerly ends of Merrill Ledge, and when about ¾ mile above the buoy favor slightly the eastern bank to avoid the shoal on the western side above Hilton Point. Then keep in mid river until up with Clough Point, where the river makes a sharp bend westward.

Pass about 200 yards eastward and 100 yards northeastward of Clough Point buoy, and steer 299° true (**NW** mag.), passing about 150 yards off the south end of Davis Island (marked by earthworks and a blockhouse). Pass southward and about 100 yards westward of Middle Ground buoy (spar, red, No. 8), and steer about 344° true (**N** mag.) for the wharves. Anchor about midway between the buoy and the wharves, in 6 to 7 fathoms.

Dangers.—A 16-foot spot lies 250 yards from the eastern shore and ⅝ mile above Hendricks Head lighthouse.

Bull Ledge, bare in one place at low water, extends 400 yards north-northeastward from the buoy (spar, red and black horizontal stripes) marking its southern end. The ledge lies nearly ⅞ mile northward from Hendricks Head lighthouse and ⅜ mile from the western shore.

Middle Mark Island, a small, round, bare islet, is in the middle of a ledge ¼ mile long, and lies ¼ mile from the western shore and 1½ miles above Hendricks Head lighthouse. **Mark Island Ledge**, with 7 feet on it, lies 250 yards southwestward of the island. The eastern side of the island should be given a berth of 150 yards.

Powderhorn Island, low and grassy, is on the eastern side of the river 2 miles above Hendricks Head lighthouse. **Powderhorn South Ledge**, awash in places at low water, extends ¼ mile southward from the island, and is marked at its south end by a buoy (spar, red, No. 2). There is a narrow channel between the buoy and the north end of **Harding Ledge**. The latter is sunken and is marked at its south end by a buoy (nun, red, No. 2 HL), which lies nearly ½ mile southward of Powderhorn Island and ¼ mile westward of Boston Island.

Powderhorn Ledge, with 4 feet on it, lies 200 to 350 yards northward from Powderhorn Island, and is marked on its northwest side by a buoy (spar, red, No. 2).

Middle Ledge, lying 600 yards eastward from the southern side of the entrance to Goose Rock Passage, has 10 feet on it, and is marked on its southern side by a buoy (spar, red and black horizontal stripes).

Clous Ledge, lying ¼ mile eastward from Whittum Island (wooded) at the entrance to Goose Rock Passage, is awash at half tide, and is marked by a black spindle on the middle of the ledge and a black bell buoy off its northern end.

Four-foot Rock lies on the west side of the channel about ¼ mile northward from Clous Ledge spindle, and is marked on its southern side by a buoy (spar, red and black horizontal stripes).

An 18-foot rocky spot lies ¼ mile south-southwestward from **Upper Mark Island**. The latter is a low grassy ledge, from which a shoal extends 600 yards northward toward Hodgdon Ledge.

Ram Island Ledge, awash in spots at half tide, is on the east side of the channel and extends ⅜ mile in a north-northeasterly direction from Ram Island to the entrance to Back River. It is marked on its eastern side by a black spindle and spar buoy which are guides to the narrow channel leading northward from Ebenecook Harbor. A buoy (spar, red, No. 2½) marks the end of a ledge which extends 200 yards westward from the south end of Barter Island.

Hodgdon Ledge, lying ⅜ to ⅝ mile above Upper Mark Island and 250 yards from the west shore, is partly bare at half tide, and is marked on its southern side by a buoy (spar, black, No. 3).

Stover Ledge, lying 200 yards from the east side of the river ½ mile above the southern end of Barter Island, is bare at low water, and is marked on its southwestern end by a buoy (spar, red, No. 4).

Greenleaf Ledge, bare at low water, is marked on its southeast side by a buoy (spar, black, No. 5). The ledge is on the easterly edge of the shoals which fill the bight in the western shore for a distance of 1 mile southwestward of Fowle Point. The shoals are usually covered by fish traps.

Merrill Ledge, partly bare at low water and its southwest end covered at high water, extends a little over ¼ mile in a northeasterly direction from the red spindle marking its southwest end. There is no passage between this spindle and the eastern bank. The north end of the ledge is marked by a buoy (spar, red, No. 6).

An unmarked shoal, with 8 feet on it, extends 400 yards above **Hilton Point**, which is on the western bank ¾ mile below Clough Point. An unmarked 17-foot spot lies 600 yards above Hilton Point, and 200 yards from the western bank.

Clough Point has ledges making out about 100 yards from it, which are marked on the northeast side by a buoy (spar, black, No. 5½).

Seal Rock, bare at half tide, lies ¼ mile west-northwestward from Clough Point, and is marked at its northeast end by a buoy (spar, black, No. 7).

Middle Ground, with 10 feet on it, lies in the northeastern part of the harbor, and its southern end lies northwestward from the southern end of Davis Island, leaving a passage about 350 yards wide between the shoal and the wharves at the southern part of the town; its southern end is marked by a buoy (spar, red, No. 8).

Birch Point Ledge, with 7 feet on it, lies 150 yards southward from the southern end of **The Boom**, which is marked by a brick stack.

INSIDE PASSAGE FROM BOOTHBAY TO BATH.[1]

This passage is about 11 miles long and leads between the islands lying between Boothbay Harbor and the Kennebec River, forming an inland passage from Boothbay Harbor to Bath. The only vessels using this passage are the small steamers running from Boothbay Harbor to Bath, and small vessels owned in the vicinity.

The channel is very narrow in some places, has strong tidal currents, is much obstructed by rocks and shoals, and although many of the dangers are marked, strangers should not attempt to pass through without a pilot. The passage leads through Townsend Gut, across Sheepscot River, through Goose Rock Passage into Sassanoa River; about midway through Sassanoa River the channel crosses the southeastern part of Hockomock Bay, and then continues through the Sassanoa River, coming out in the Kennebec River opposite the city of Bath.

Townsend Gut is a narrow crooked passage leading from Boothbay Harbor into Sheepscot River. The eastern entrance to the gut is northwestward from Mouse Island, in Boothbay Harbor. Its western entrance lies eastward from Boston Island, in Sheepscot River, and northward of Ebenecook Harbor. A drawbridge crosses Townsend Gut about ½ mile from its eastern end.

Goose Rock Passage is on the western side of Sheepscot River, north of McMahan Island, and leads westward into the eastern end of Sassanoa River.

Little Sheepscot River is a narrow passage leading from Sheepscot River into the entrance of Sassanoa River southwestward of McMahan Island.

Sassanoa River is an estuary leading from Sheepscot River to Kennebec River, north of Georgetown and Arrowsic Islands. It has numerous coves and bays making off northward and southward, but none of them are of commercial importance. Near its western end the river is crossed by a drawbridge. The principal coves and bays making southward are Robin Hood Cove, Riggs Cove, Hall Bay, and Back River, the latter separating Georgetown and Arrowsic Islands. Northward is Heal Cove and Hockomock Bay; from the latter Montseag and Brooking Bays lead northward; the former separates Westport Island from the mainland, and joins the Sheepscot River at Wiscasset, through Black River. Knubble Bay is the broadest part of the river, after passing Robin Hood Cove and The Knubble, before entering Hockomock Bay when coming from eastward. **Great Hell Gate** is the crooked passage from Knubble Bay into Hockomock Bay. **Upper Hell Gate** is about 2 miles from the western entrance to the river; this is the narrowest part, and is only about 60 yards wide.

No directions of practical use can be given for this passage; small steamers, or yachts, desiring to pass through should take a pilot at Boothbay Harbor or Bath.

KENNEBEC RIVER[2]

is navigable to the city of Augusta, 40 miles above its entrance, for vessels of 12 feet draft. Vessels drawing 25 feet go to Bath, 12 miles above Pond Island. The river entrance is 2 miles north of Seguin Island, and is marked by

[1] Shown on charts 105, scale $\frac{1}{80,000}$, price $0.50; 314, scale $\frac{1}{40,000}$, price $0.25; 315a, scale $\frac{1}{20,000}$, price $0.20.

[2] The entrance to Abagadasset Point is shown on charts 105, scale $\frac{1}{80,000}$, price $0.50; 314, scale $\frac{1}{40,000}$, price $0.25. The river from Abagadasset Point to Augusta is shown on two sheets; 316a and 316b, scale $\frac{1}{10,000}$, price of each $0.50.

Pond Island lighthouse on its western side. The river and entrance are somewhat obstructed by rocks and ledges, the principal ones being marked by buoys or spindles, and it has strong tidal currents. Strangers wishing to enter are advised to take a pilot or towboat near Seguin or Pond Islands. Large vessels, when unable to get a pilot or towboat on account of unfavorable weather, sometimes make an anchorage in Boothbay Harbor and wait for a favorable wind to enter the Kennebec.

Stage Island Bay and **Sagadahoc Bay** form a shallow body of water extending in a northerly direction 1¾ miles from Salter Island on the east and Stage Island on the west. They are exposed seaward and unfit for an anchorage.

Heals Eddy is a small shallow cove making northward, west of Stage Island. Anchorage is found in places off the entrance between it and the Sugar Loaves, but strangers should not anchor here.

Popham Beach is a village, with several large hotels, on the western point at the entrance of the river. A life-saving station is located on the beach eastward of the hotels; northward of the station is a wharf, and above the latter is **Fort Popham**, a large granite structure. Fort Popham light is near the west edge of the channel southeastward of Fort Popham.

Bay Point is a post village and landing on the eastern side of Long Island Narrows, southeastward from Gilbert Head.

Atkins Bay is a shallow bight, almost entirely dry at low water, in the west bank above Fort Popham.

Parker Head is a village on the west bank, 2 miles above Fort Popham.

Todd Bay, dry at low water, is eastward of the islands opposite the village of Parker Head.

Back River, a crooked stream with a narrow shallow channel, makes into the eastern bank about 1¼ miles above Parker Head. This river separates Georgetown and Arrowsic Islands and enters the Sassanoa River at Hockomock Bay.

Phippsburg is a village on the west bank about 2 miles above Parker Head; it has a shipyard for building wooden vessels.

Drummore Bay is a shallow bight west of Lee Island and north of Phippsburg.

Fishers Eddy is a small bight in the east bank about 2½ miles above Phippsburg. **Bluff Head** is on the western side of the bight; the full width of the river abreast Bluff Head is about 200 yards.

Fiddler Reach is a sharp bend westward in the river about 1½ miles above Fishers Eddy.

Winnegance Creek is a broad, shallow creek emptying into the western end of Fiddler Reach, where the river takes a sharp turn northward. The village of **Winnegance** is on the western bank of the creek.

The city of **Bath** is on the west bank of the river 12 miles above Pond Island; one of its largest industries is shipbuilding. The deepest draft of vessels ascending to Bath is 25 feet, but a greater draft can be carried up at high water; there is 10 to 25 feet of water alongside the wharves.

Woolwich is a village on the east bank opposite Bath; a railroad ferry crosses the river from Bath to Woolwich.

Merrymeeting Bay is a large, shallow body of water making into the west bank of the river about 2¼ miles above Telegraph Point; the village of **Bowdoinham** is on its northern shore.

Richmond is a town on the west bank about 12 miles above Bath. The deepest draft of vessels loading here is 14 feet; vessels of 15 to 16 feet draft can come here when the river is high in the spring and fall; the depth alongside the wharves is 12 feet at low water.

The city of **Gardiner** is on the west bank of the river about 10 miles above Richmond, The deepest draft of vessels loading here is 16 to 17 feet during the spring and fall; 12 to 14 feet is the usual draft; there is 6 to 17 feet of water alongside the wharves at low water.

The village of **Randolph** is on the east bank of the river opposite Gardiner, and is connected with it by a drawbridge; the width of the draw, in the clear, is about 69 feet.

Hallowell is a city on the west bank about 4 miles above Gardiner; the deepest draft that can be carried up to it is 13½ feet.

Augusta, the capital of the State, is on the west bank of the river about 2 miles above Hallowell, and at the head of navigation and tide water. The deepest draft carried up to it is 12½ feet.

The channels of the approach to the entrance are well marked; the eastern one has a least depth of 5½ fathoms between Pond Island and the Whales Back. The western channel has a depth of 4 to 5 fathoms on the sailing line. Above Fort Popham and up to Fiddler Reach the least depth is 30 feet, and from thence to the city of Bath 28 feet. In several places islands and ledges contract the channel to a width of about 100 yards, and just eastward of Pettis Rocks, about ⅞ mile above Phippsburg, the channel is only 75 yards wide.

Above Bath the channel is narrow and crooked in places, and has a least depth of 12 feet to Gardiner; improvements are in progress to obtain a depth of 20½ feet at high water. For a distance of 3 miles below Richmond the channel is divided by Swan Island. The eastern channel along Swan Island is used by the deeper-draft vessels; the western channel is used at high water by steamers bound to Richmond and by light-draft vessels. At Richmond the

channels unite, and above this it is narrow and has a number of dangerous ledges and shoals. Many of the dangers are marked by aids.

Anchorages.—The holding ground at the entrance below Fort Popham is poor, and vessels should not anchor unless forced to do so. If obliged to anchor when inside Pond Island, it is advisable to come-to in the channel abreast the wharf just above the life-saving station with a long scope of chain; if not blowing strong a moderate-sized vessel may ride here if care is taken to keep the anchor clear.

Anchorage can be had on the eastern side of the channel southward of Perkins Island South Ledge buoy, in 6 to 8 fathoms. On the eastern edge of the channel at the anchorage the depths shoal abruptly from 5 fathoms to a few feet; drift ice coming down the river generally follows the western shore.

The best and most frequently used anchorage is on the western side of the channel off **Parker Flats**, in 4 to 6 fathoms. Perches, each a pile with keg, are maintained on the edge of Parker Flats, also on the edge of the flat between Bald Head and Squirrel Point.

Above Parker Flats vessels anchor wherever they can find good holding ground and suitable depth, keeping out of the strength of the current.

For **harbor regulations** for Bath and **quarantine regulations** see Appendix II.

Marine hospital.—Relief is furnished at Bath by an acting assistant surgeon of the United States Public Health and Marine-Hospital Service, as for stations of Class III. Patients requiring long-continued hospital treatment are sent to the Marine Hospital at Portland. (See also Appendix IV.)

Pilots will come out to a vessel making signal when near Pond Island. There are pilot lookouts at the entrance of the river; the principal lookout is on Cox Head, from which there is communication with the city of Bath by telephone. Strangers generally take a pilot, or, if a sailing vessel, a towboat. Strangers of over 17 feet draft should take a pilot. Under no circumstances should a stranger attempt to enter at night. Pilots for the upper part of the river can be secured at Bath.

Towboats will generally be found off or just inside the entrance waiting to take vessels into the river. If one is not met outside they can be had by making signal when near Pond Island. Towboats will also be found at Bath to take vessels farther up the river.

Supplies.—Anthracite and bituminous coal can be obtained alongside wharves at Bath, and a limited quantity at Gardiner; anthracite coal can be had at Richmond. Fresh water can be had alongside the wharves at Bath, Richmond, and Gardiner; the water in the river is fresh at Richmond and above. Provisions and ship chandler's stores can be obtained at Bath, and provisions at the cities and towns on the river.

Repairs.—Bath has excellent facilities for repairing steel and wood vessels or the machinery of steamers. There are several large shipyards at which large steamers and sailing vessels are built. There is one marine railway capable of hauling out vessels of 1,000 tons.

Communication.—Bath and the principal cities and towns on the Kennebec River are on or near the line of the Maine Central Railway. The cities and towns on the river have communication with each other by steamer.

Freshets occur in March and April, also after heavy rains in the fall, but they are not dangerous to shipping unless accompanied by ice.

Ice usually closes the river to navigation above Bath from December to April. In severe winters the river may be closed below Bath for a limited period. Sailing vessels entering the river do so on the flood tide, and if unable to reach Bath on one tide, anchor below Perkins Island, on account of the drift ice which makes an anchorage in other parts of the river dangerous. Steamers, or vessels assisted by steam, are rarely delayed by ice.

The **tidal currents** have considerable velocity at the entrance and in the narrow parts of the river especially from Pond Island to Fort Popham, Bluff Head to Fiddler Reach, and Telegraph Point to the Chops; some local knowledge of their set is necessary to insure safety to vessels under sail. The direction of the currents at the entrance is influenced by strong winds, especially easterly gales. During spring tides and freshets the velocity of the ebb current is increased and requires special attention. No complete observations have been made to determine the set and velocity of the currents.

Tides.—The corrected establishment at Fort Popham is 11 hours 11 minutes. It is high water at Phippsburg about 19 minutes later, at Bath about 1 hour 4 minutes later, at Bowdoinham about 2 hours 28 minutes later, and at Gardiner about 3 hours 44 minutes later than at Fort Popham (see also the table on page 24).

SAILING DIRECTIONS, KENNEBEC RIVER TO BATH.

Vessels approaching Kennebec River should have clear weather, and, if desiring to sail to the anchorage off Parker Flats, should have a strong fair wind when the tidal current is running ebb. No vessel can beat into the river against the current, and only small craft

attempt it even with a favorable current. In heavy weather vessels should anchor in Boothbay Harbor if eastward, or in Harpswell Harbor if westward; at such times, if the wind is opposed to the current, an ugly chop sea is encountered in the entrance. (See "Pilots" and "Towboats" in the general information preceding.) Vessels of over 18 feet draft should enter the river from eastward of Seguin Island.

1. ***From eastward or southward.***—Having come from Boothbay Harbor or Fisherman Island Passage, pass close to Cuckolds black bell buoy and steer 244° true (**W** ⅞ **S** mag.) for 5 miles, passing about midway between The Sisters and Black Rocks, and pass southward and southwestward of Whales Back, rounding it at a distance of about ¼ mile. Then follow the directions in section 2.

Coming from eastward outside the islands, pass ¼ mile southward of Bantam Rock gas and whistling buoy and steer 293° 30′ true (**NW** ½ **W** mag.) for nearly 6 miles, heading for Pond Island lighthouse, and passing ⅜ mile southwestward of Tom Rock buoy, ¼ mile northeastward of White Ledge buoy, and to a position ¼ mile southwestward of Whales Back. Then follow the directions in section 2.

Approaching from southward, pass southward and eastward of Mile Ledge buoy, and eastward of Seguin Island, giving it a berth of over ½ mile; then steer 6° true (**NNE** mag.). When Pond Island lighthouse bears 293° 30′ true (**NW** ½ **W** mag.), steer for it and pass ¼ mile northeastward of White Ledge buoy and to a position ¼ mile southwestward of Whales Back. Then follow the directions in section 2.

Remarks and dangers.—The 293° 30′ true (**NW** ½ **W** mag.) course for Pond Island lighthouse leads in the deepest water (about 7 fathoms) in the approach to the river until abreast Whales Back.

Mile Ledge is described under section 1 A, and Tom Rock, The Sisters, and Black Rocks are described on page 118.

White Ledge, lying nearly ⅜ mile northeastward from Seguin Ledges and 1 mile 129° true (**SE** ⅞ **S** mag.) from Pond Island lighthouse, has 6 feet over it, and is marked on its eastern side by a buoy (spar, black, No. 1). Vessels should not pass between White Ledge and Seguin Ledges. A small ledge with 16 feet over it lies 400 yards northward from White Ledge, with deep water between.

Whales Back is a bare rock about 8 feet high lying on the eastern side of the entrance to the river and nearly ⅝ mile eastward of Pond Island. A shoal extends about 100 yards southward from Whales Back. **Salter Island**, northward of Whales Back, is wooded.

1 A. ***From westward.***—The directions reversed of section 10, page 34, will lead to a position nearly midway between Seguin Ledges and Pond Island Bar black bell buoy. Then steer 358° true (**N** by **E** ¼ **E** mag.) with Seguin lighthouse astern and pass about ¼ mile eastward of the bell buoy and to a position ¼ mile southwestward of Whales Back. Then follow the directions in section 2.

Or, steer for Seguin lighthouse on any bearing northward of 68° true (**E** ½ **N** mag.), pass preferably westward of the Camel Ground, and stand northeastward, passing between Ellingwood Rock and Jack Knife Ledge buoy and between Seguin Ledges and Pond Island Bar black bell buoy, as in the preceding paragraph.

Dangers.—**Fuller**, or **Glover, Rock** is a low, bare islet ¼ mile southward from Small Point. **Bill Wallace Ground**, with a depth of 18 feet, lies ½ mile west from Fuller Rock. **Button Mould Ledges**, with depths of 10 and 16 feet, lie a little over ⅛ mile northwestward of Fuller Rock, in the passage between the latter and Small Point.

Halibut Rocks lie ½ mile eastward from Fuller Rock. A depth of 4¼ fathoms was found by the survey, but less depth is reported. They will be avoided by keeping Seguin lighthouse bearing northward of 71° true (**E** ¼ **N** mag.)

Seguin SSW Ledge is a small 6-fathom spot lying 2½ miles 195° true (**SSW** ¾ **W** mag.) from Seguin lighthouse. A red whistling buoy is moored ⅜ mile northwestward from the ledge.

Mile Ledge, with 10 feet over it, lies ⅞ mile 172° true (**S** ¾ **W** mag.) from Seguin lighthouse, and is marked on its southern side by a buoy (can, red and black horizontal stripes).

Camel Ground is a small ledge with 3½ fathoms over it lying 1 mile 226° true (**SW** by **W** ½ **W** mag.) from Seguin lighthouse.

Northward of the sailing line between Cape Small and Pond Island are a number of small islands, rocks, and shoals. **Jack Knife Ledge**, the farthest offshore, has a least depth of 8 feet, and lies 1⅛ miles 203° true (**SW** ½ **S** mag.) from Pond Island lighthouse; it is marked close to its south side by a buoy (can, black, No. 1 JK). Vessels should not pass northward of this buoy.

Ellingwood Rock is a bare islet about 20 feet high lying 400 yards northward of Seguin Island.

Seguin Ledges, lying ½ mile northeastward from Ellingwood Rock, are about 5 feet high, and sunken ledges extend about 300 yards northeastward and southwestward from the bare ledge.

Pond Island Bar is the shoal lying southward and southwestward of Pond Island. It has depths ranging from 5 to 21 feet over it, and in heavy gales is covered with breakers. A buoy (bell, black) marks the southeastern end of the bar and lies ⅝ mile 164° true (**S** mag.) from Pond Island lighthouse. Vessels should not pass between this buoy and Pond Island.

2. ***Entrance to Parker Flats.***—From a position ¼ mile southwestward of Whales Back steer 313° true (**NNW ¾ W** mag.) for the end of the wharf southward of Fort Popham, and pass 200 yards northeastward of Pond Island, 50 yards eastward of the red and black horizontally striped spar buoy just above the island, and nearly 200 yards southwestward of South Sugar Loaf. Pass in mid-channel westward of North Sugar Loaf, steer 337° true (**N ⅝ W** mag.) and pass midway between the light off Fort Popham and Gilbert Head.

When about ¼ mile below Shag Rock tripod, steer 1° true (**N** by **E ½ E** mag.), pass about 200 yards westward of the tripod, and 150 yards eastward of Cox Head. Then steer 346° true (**N ⅛ E** mag.) for the eastern end of Parker Head until nearly up with Perkins Island South Ledge buoy (nun, red and black horizontal stripes). Pass 75 yards westward of this buoy, steer 1° true (**N** by **E ½ E** mag.) and pass 150 to 200 yards westward of Perkins Island, 100 yards eastward of Perkins Island North Ledge buoy (can, black, No. 1), and continue the course ¾ mile past Perkins Island to a position 250 yards westward of Back River buoy (spar, red, No. 0). Then follow the directions in section 3.

Remarks and dangers.—A rock with 19 feet over it lies 200 yards from **Pond Island** and southeastward from the lighthouse. **Four Fathom Rock**, with 3½ fathoms over it, lies 550 yards 66° true (**E ¾ N** mag.) from Pond Island lighthouse. The channel is westward of it.

Pond Island Rock, with 18 feet over it, lies 200 yards northward from Pond Island, and is marked by a buoy (spar, red and black horizontal stripes) placed near the rock, and which should be left on the port hand when entering. There is deep water around the rock, but a ledge makes out about 50 yards northward from the northern end of Pond Island.

South and **North Sugar Loaf** are high, rounded, bare, rocky islets. A ledge extends 100 yards southward from South Sugar Loaf; **Jack Rock**, bare at low water and marked by a black spindle with cage, is near the end of a ledge which extends 125 yards northeastward from this islet. Ledges extend 150 yards southward and 125 yards northwestward from North Sugar Loaf.

The bight between Fort Popham and Cox Head is mostly filled by flats, bare at low water.

Shag Rock, awash at high water, is on the eastern side of the channel southeastward from Cox Head. The rock is marked by a large tripod beacon, and is nearer the southern end of the ledge which surrounds it and is 250 yards long in a northerly direction and about 80 yards wide.

Perkins Island South Ledge has 11 feet over it and lies in mid-channel about ¼ mile below Perkins Island; it is marked on its south side by a buoy (nun, red and black horizontal stripes). **Perkins Island North Ledge** is in mid-channel west of Perkins Island; it has 7 feet over it and is marked on its southeast side by a buoy (can, black, No. 1).

A shoal extends 250 yards southward from **Perkins Island**, its southern edge lying 200 yards northeastward from Perkins Island South Ledge.

The bight in the west bank southward of Parker Head is full of flats, mostly bare at low water. A narrow channel, with about 9 feet of water, leads to the village of **Parker Head**.

Parker Flats make out a greatest distance of 400 yards from the western shore for a distance of 1¼ miles above Parker Head. The edge of the flats is marked by black perches, each a pile with keg. **Seal Rocks**, at the northern end of the flats, are awash at high water, and there is a black perch close southeastward from them.

Back River buoy (spar, red, No. 0) marks the edge of the flats which fill the mouth of Back River. The edge of the flat on the eastern side of the river between Bald Head and Squirrel Point is marked by red perches.

3. ***Parker Flats to Bath.***—From a position 250 yards westward of Back River buoy, steer 319° true (**NNW ¼ W** mag.), and round Squirrel Point lighthouse at a distance of about 200 yards. Then steer 6° true (**NNE** mag.) for about ½ mile, passing eastward of *Goat Island* (wooded). Pass in mid-channel southeastward of Lee Island Rock buoy (spar, black, No. 3), and steer about 37° true (**NE ¾ E** mag.) to a position 75 yards eastward of the spindle on the southernmost bare rock of the *Pettis Rocks*. Pass eastward of Pettis Rocks, slightly favoring the rocks, and when about 75 yards eastward of the northernmost grassy rock of the group, steer about 12° true (**NNE ½ E** mag.) and pass in mid-channel eastward of Ram Island, slightly favoring, if anything, the island side.

When past the black tripod beacon on the northern end of *Ram Island*, steer 0° true (**N** by **E ⅜ E** mag.) on the line of Doubling Point range lights, taking care to go nothing westward of the range when about ¼ mile above Indian Point white tripod beacon to insure clearing a

rock with 7 feet over it which lies about 125 yards from the western bank. Keep in mid-river in the narrow part for a distance of a little over 1 mile above **Bluff** Head, and then stand on the Doubling Point range, or go nothing westward of it, to avoid rocks with 8 and 10 feet on them. These rocks are marked by black spar buoys Nos. 5 and 7; buoy No. 5 is frequently towed under during the strength of the current. When past buoy No. 7, haul westward in mid-channel through Fiddler Reach, and round Doubling Point lighthouse at a distance of 200 yards.

Pass about 75 yards eastward of black spar buoy No. 9, lying ¼ mile northwestward of Doubling Point lighthouse, steer 2° true (**N** by **E** ⅝ **E** mag.), and pass about 100 yards eastward of Lincoln Rock buoy (spar, black, No. 11). Anchor about ¼ mile above black spar buoy No. 13, or continue up the river in mid-stream and anchor southward of red spar buoy No. 2, within the limits prescribed by the regulations in Appendix II.

CASCO BAY, EASTERN PART.[1]

The part of Casco Bay between Cape Small and Bailey and Orr Islands is full of small islands, ledges, and rocks, between which narrow but deep channels lead to the bays and arms northward. These arms afford good anchorages for small vessels, but are of no commercial importance, and are frequented only by local vessels and by yachts in summer.

The principal outlying islands and rocks are **East Brown Cow**, a large, low, bare rock; **Mark Island**, wooded on top and prominent; **White Bull**, a high, bare rock; Ragged Island, high and scantily wooded on top; **Bold Dick** and **Saddleback Ledge**, bare rocks; **Round Rock**, awash at high water; **Pond** and **Ram Islands**, high and grassy; and **Jaquish** and **Turnip Islands**, low and grassy.

A buoyed channel leads inside the islands and rocks along the western and northern sides of the bay to the entrance of New Meadows River. Small vessels, with the aid of the chart, can go through this channel by the following directions:

From the bell buoy southward of Jaquish Island steer 29° true (**NE** mag.), passing 350 yards southeastward of the bare ledges near Jaquish Island and ¼ mile southeastward of Bailey Island. When the south ends of Pond Island Ledges and Ragged Island are in range, steer 6° 30′ true (**NNE** mag.) for the end of the ledge at the northeast end of Bailey Island. When about 400 yards from Bailey Island and White Bull is in range with the south end of Pond Island, steer 25° true (**NE** ⅜ **N** mag.), and pass westward of red spar buoys Nos. 2 and 4, which mark the northwest sides of The Middle Ground and Littlejohn Rock.

Pass close northward of the latter buoy, and steer 56° true (**ENE** ⅜ **E** mag.), with the red spar buoy southward of Oak Island on the starboard bow. Pass close southward of this buoy, steer 91° true (**ESE** ½ **E** mag.), and pass close southward of the red spar buoy northward of Elm Islands. Then steer 83° true (**E** ¾ **S** mag.), and pass 250 yards southward of Jenny Island. Pass southward of the red and black horizontally striped spar buoy at the south end of North Jenny Ledge, and pass between Goudy Ledge spindle and the black spar buoy southward of Rogue Island into New Meadows River.

Small Point Harbor is about 2 miles northward of **Bald Head**, the grassy knoll at the southwest end of Cape Small. It lies eastward of Wood Island and is open southwestward. It is seldom used as an anchorage except by fishermen. The principal dangers are marked, but the holding ground is poor. The village of **Small Point** is at the head of the harbor.

Small Point Harbor can be entered on either side of Wood and Little Wood Islands. The channel eastward of them is on either side of Middle Ledge, which is awash at low water and is marked by a red and black horizontally striped spar buoy placed about 150 yards southwestward of the ledge. The channel northward of the islands is southward of the black spar buoy southwestward of Carrying Place Head, and in mid-channel northward of Little Wood Island. The latter is wooded. **Wood Island** is rocky and grass covered, and has a patch of trees toward its southern end.

There is a small bight eastward of Burnt Coat Island, a little over 2¾ miles northward of Bald Head. It has a narrow channel with a least depth of 19 feet at low water, marked by three buoys. It is suitable only for small craft with local knowledge.

Horse Island Harbor is a good anchorage for small vessels eastward and southeastward from Horse Island, 3½ miles northward of Bald Head. **North Blacksnake** is a large bare ledge in the entrance; its northern end should be given a berth of over 100 yards, and the broken ground extending 300 yards eastward from the ledge should be avoided. The entrance is between North Blacksnake and the black spar buoy lying about 200 yards southward of Horse Island.

[1] Shown on charts **106, 107**, scale $\frac{1}{30,000}$, price of each $0.50; **315**, scale $\frac{1}{40,000}$, price $0.25.

Anchorage can be selected 250 to 300 yards off the cove on the eastern side, in 5 to 6 fathoms; also in mid-channel off the landing inside Horse Island, in 4 fathoms.

New Meadows River, at the northeastern end of Casco Bay, is about 11 miles long. The channel of the river is comparatively free from dangers, and has a depth of over 5 fathoms for a distance of 6 miles to Foster Point. Above that point the channels are narrow and lead between unmarked shoals. The river affords secure anchorage, but large vessels should avoid all broken ground, especially with depths less than 10 fathoms, in the approaches and river.

Cundy Harbor is a good anchorage for small vessels on the west side of New Meadows River, 1 mile above its mouth. The harbor is clear and has depths of 4 to 6 fathoms. A black buoy marks the south end of the bare ledges on the northeast side of the harbor. **Cundy Harbor** is a village and landing on its western side.

The Basin, a cove in the east shore, about 1¼ miles above Cundy Harbor, has a narrow entrance and is only used by small local craft.

Winnegance Bay, on the east side of New Meadows River, 3 miles above the entrance, is a large bight with secure anchorage, in 3 to 5 fathoms. The southeast side of the bay is foul; Bushy and Hen Islets are near the edge of the foul ground, and **Hen Island Ledge**, bare at its end at low water, extends ¼ mile westward from the south islet. The north side of the bay is clear.

Ridley Cove is eastward of Yarmouth Island and just westward of the entrance to New Meadows River. It has good anchorage in 5 to 7 fathoms, but is exposed to southerly and southwesterly winds. It should be avoided by strangers on account of numerous unmarked ledges and rocks which lie off the entrance. From its northern end a narrow deep channel leads close northward of George Island into Hen Cove, and a narrow obstructed channel, suitable only for small craft in the absence of local knowledge, leads to Quohog Bay. **Hen Cove** has extensive shoals, but is a good anchorage for small craft.

Quohog Bay is a narrow arm extending about 4 miles in a northeasterly direction; it has good anchorage for small vessels, but is seldom entered by strangers. Numerous unmarked ledges and many small islands lie off its entrance, which is between Yarmouth Island and ledges on the east and Long Point on the west. The buoyed channel from New Meadows River to Orr and Bailey Islands leads across the entrance. There is also a good channel between **Saddleback Ledge** (bare rocks), **Ragged Island** (high and scantily wooded on top), **Blacksnake Ledge, Yellow Rock,** and **Two Bush Ledge** on the east, and **Round Rock** (awash at high water), **Middle Ground Rock,** and **Cedar Ledges** on the west; the course through to the entrance is 14° true (**NNE** ⅝ **E** mag.). There are a number of unmarked ledges and sunken rocks in Quohog Bay. **South Ledge** and **North Ledge** extend ⅜ mile southwestward and northeastward, respectively, from Pole Island; the former is covered at high water and the latter at half tide.

The Gurnet is an unimportant arm making in 2 miles northeastward on the east side of Orr Island.

Lowell Cove is a small cove in the southern end of Orr Island. **Horse Cove** is a small cove in the north shore of Bailey Island.

SAILING DIRECTIONS, NEW MEADOWS RIVER.

1. ***From eastward.***—Directions for passing northward of Seguin Island are given on page 34.

Or, passing about 1¼ miles southward of Seguin lighthouse and southward of Mile Ledge buoy, steer about 271° true (**WNW** ½ **W** mag.) and pass about ½ mile southward of Fuller Rock. When Bald Head Ledge spindle is abeam, haul northward, pass about ⅜ mile westward of the spindle, and steer 340° true (**N** ⅜ **W** mag.) for the eastern edge of Flag Island. When the north end of Little Wood Island opens from the north end of Wood Island, steer 8° true (**NNE** ⅛ **E** mag.) for the western edge of Horse Island and pass 250 yards eastward of Jamison Ledge spindle. Pass about 300 yards westward of *North Blacksnake* (the bare ledges at the entrance to Horse Island Harbor), steer 335° 30′ true (**N** ¾ **W** mag.) for the entrance of New Meadows River, and pass 350 yards westward of Bear Island.

Keep in mid-channel until up with the southern point at the entrance of Cundy Harbor, and then steer 29° true (**NE** mag.) to a mid-channel position southeastward of Sheep Island Ledge buoy. Then steer 7° true (**NNE** mag.) for Birch Point until abreast the southern end of Long Island. A 49° true (**NE** by **E** ¾ **E** mag.) course will then lead into Winnegance Bay, taking care to keep the northern shore best aboard, distant ¼ mile or less.

Dangers.—Mile Ledge is described on page 122. Fuller, or Glover, Rock and Bill Wallace Ground are described on page 122.

Bald Head Ledge, bare at half tide and marked by a red spindle with wheel, lies ⅜ mile southward from **Bald Head,** the grassy knoll at the southwest end of Cape Small.

Gooseberry Island Ledge is about 250 yards long and partly awash at low water. It lies ¾ mile northward from Bald Head and 300 yards westward from Gooseberry Island, and is marked off its southwestern end by a buoy (spar, red, No. 2.).

Wyman Ledge, about 200 yards in diameter, with 4 feet over it, lies ⅝ mile east-southeastward from Mark Island, and is marked on its southeast side by a buoy (spar, black, No. 1).

A rock with 16 feet over it lies ¼ mile southward from **Wood Island**, and is marked on its south side by a buoy (spar, red and black horizontal stripes). This island also has ledges making 200 yards in a southerly and westerly direction from its southern end.

Chivers Ledge, with 6½ feet over it, lies 650 yards northeastward from Mark Island, with no safe channel between.

Ledges, partly bare at low water, extend 150 yards off the southwest point of **Carrying Place Head**. A rock, with 6 feet over it and marked on its southwest side by a black spar buoy, lies 350 yards southwestward from the same point and nearly ¼ mile northward from Wood Island.

Jamison Ledge, bare at low water near its southern end, is ⅜ mile long, and is marked on its southern end by a black spindle with cage, which lies ½ mile east-southeastward from the south end of Flag Island.

Flag Island Ledge, bare at low water, lies about midway between Jamison Ledge and Flag Island.

A ledge extends 300 yards southwestward from the southern end of Burnt Coat Island, and is marked on its end by a buoy (spar, black, No. 1).

Detached ledges extend ⅝ mile northeastward from the northern end of **Flag Island**. The northernmost, with 15 feet on it, lies 600 yards east-southeastward from Goudy Ledge spindle.

Horse Island, the large island northward from North Blacksnake, has ledges making out 300 to 400 yards from its southern and western sides; the southern end of these ledges is marked by a black spar buoy.

There are also rocky spots with 14 feet on them lying in the entrance of the bight northward of Horse Island, between it and Bear Island.

Goudy Ledge, bare at half ebb, is marked by a spindle with cage (red and black horizontal stripes), placed on the southwest end of the ledge and lying nearly ⅝ mile northward from Flag Island.

Bear Island has ledges making out 300 yards from its southern end and about 150 yards from its western side. A ledge covered at high water extends 350 yards north-northeasterly from Bear Island, and is marked at its north end by a buoy (spar, red, No. 2).

Sheep Island Ledge, bare at lowest tides, lies in the middle of the river nearly ¾ mile above the northern end of Bear Island. It is about 225 yards long and is marked on its southeast side by a buoy (spar, black, No. 5).

1 A. ***From westward.***—Pass on either side of Halfway Rock lighthouse, giving it a berth of ½ mile, and bring it astern on a 57° true (**ENE ½ E** mag.) course heading for Mark Island. When the southwest ends of White Bull and Ragged Island are in range, steer 18° true (**NE** by **N** mag.) for Goudy Ledge spindle until the southern end of Flag Island is abaft the starboard beam. Then steer 11° true (**NNE ⅜ E** mag.), follow the eastern side of Long Ledge at a distance of 250 yards, and pass 250 yards westward of Goudy Ledge spindle. Then steer 18° true (**NE** by **N** mag.) for the entrance of New Meadows River, and follow the western shore at a distance of 250 yards. When in mid-channel abreast the southern point at the entrance of Cundy Harbor, follow the directions in the third paragraph of section 1 preceding.

Dangers.—**Halfway Rock** is a low rocky islet marked by Halfway Rock lighthouse, and has ledges extending ¼ mile southwestward and northward from it. **Webster Rock**, with 11 feet over it, lies ¼ mile northward from Halfway Rock, and is marked on its north side by a buoy (spar, black, No. 1).

Lumbo Ledge is described on page 134.

Bold Dick is a small, bare rock, with good water as close as 200 yards from it, lying ¾ mile southwestward from the southeast end of Ragged Island.

Mark Island Ledge, a small, detached ledge, just covered at high water, lies nearly ⅜ mile westward from the southern end of Mark Island. An unmarked 17-foot rock lies 200 yards south-southeastward from this ledge.

Sisters Ground, a group of shoals and detached ledges having from 5 to 18 feet on them, extends a little over ½ mile in a southeasterly direction from **The Sisters**, two bare, rocky islets, lying northeastward from Ragged Island; they can be avoided by keeping White Bull bearing westward of 209° true (**SW** mag.).

A ledge, with 7 feet over it, lies 200 yards northwestward from the northern end of **Flag Island**. The latter is wooded.

Long Ledge is two flat, grass-covered islets, having a combined length of ⅜ mile. Its sides are fairly bold, but its ends on the line of the ledge should be given a good berth.

For Goudy Ledge and Bear Island see section 1.

North Jenny Ledge is about 400 yards long, bare at lowest tides, and is marked at its southern end by a buoy (spar, red and black horizontal stripes). It lies ½ mile west-northwestward from Goudy Ledge spindle.

A ledge extends 200 yards southward from **Rogue Island**, the low island with some trees off the western point at the entrance to the river, and is marked at its south end by a buoy (spar, black, No. 1).

East Cundy Point has a ledge making out 300 yards in a southeasterly direction from it and obstructing the bight northward of Rogue Island.

MERICONEAG AND HARPSWELL SOUNDS.[1]

These waters are of no commercial importance, but they are the approach to a good and convenient anchorage. Vessels of the deepest draft can enter and find anchorage in 3½ to 10 fathoms, good holding ground. If in the vicinity of Halfway Rock, and unable to beat into Portland against a northwesterly wind, this is the best harbor that can be made.

The entrance lies 3¼ miles north-northeastward from Halfway Rock lighthouse, and is marked on its western side by a stone monument on Little Mark Island. The sounds extend in a northeasterly direction 10 miles, and for the first 4 miles the prominent dangers are marked; above this strangers should not go without a pilot, as the channel is narrow, and flats make out some distance from the shores in several places.

Mackerel Cove, in the southwestern shore of **Bailey Island**, the eastern point at the entrance to Mericoneag Sound, is a good anchorage for small craft, with 5 to 11 fathoms. It is open southwestward, but a heavy sea never enters. The post village of **Bailey Island** is on the cove. There are no dangers; the water shoals gradually toward its head. The entrance lies 1½ miles 54° 30′ true (**ENE ¼ E** mag.) from the monument on Little Mark Island.

Harpswell Harbor makes into the western shore about 3½ miles above the monument on Little Mark Island. This is an excellent well-sheltered anchorage, with 3 to 6 fathoms, shoaling gradually southwestward toward the head of the cove.

On the eastern shore of the sound opposite Harpswell Harbor, at the southern end of Orr Island, is **Orr Island**, a small village which has steamboat communication with Portland. **Wills Straits**, just south of the village, is a narrow and dangerous passage separating Orr and Bailey Islands.

SAILING DIRECTIONS, HARPSWELL HARBOR.

The directions of section 11, page 35, lead to the entrance eastward of Little Mark Island monument. In heavy weather vessels should pass southward of Drunker Ledge, as follows:

Approaching from eastward, steer for Halfway Rock lighthouse on any bearing northward of 260° true (**W ½ N** mag.), which leads southward of Flat Ground and Lumbo Ledge, and pass between Halfway Rock lighthouse and Drunker Ledge. From southward or westward avoid the dangers on East Cod and West Cod Ledges, and pass on either side of Halfway Rock lighthouse, giving it a berth of ½ mile.

Bring Halfway Rock lighthouse to bear 181° true (*S* by *W* ½ *W* mag.) distant 1⅞ miles, or to a position ⅜ mile westward of Drunker Ledge spindle. Then steer 25° true (**NE ⅜ N** mag.), and pass ¼ mile northwestward of the spindle, Mark Island Ledge buoy (spar, black, No. 1), and Turnip Island Ledge buoy (spar, red, No. 2); and pass ⅜ mile southeastward of Little Mark Island monument, and to a position 200 to 300 yards southeastward of Interval Shoal buoy (spar, black, No. 3). Then steer 21° true (**NE ¾ N** mag.) in mid-channel until up with Stover Point buoy (spar, black, No. 5). Anchor in Harpswell Harbor northward or northwestward of this buoy, in 3½ to 5 fathoms, taking care to give the south side of the harbor a berth of over 300 yards.

Dangers.—Halfway Rock is described on page 126.

Drunker Ledge is two ledges ¼ mile apart. The southeast one has 4 feet over it and is marked at its southwest end by a buoy (spar, red, No. 2); the northwest one is bare at half tide and is marked near its western end by a spindle with cage (red and black horizontal stripes), which lies 2 miles 11° true (**NNE ⅜ E** mag.) from Halfway Rock lighthouse. Between Drunker Ledge and Jaquish Island there is broken ground with depths of 16 to 24 feet, and in heavy weather the sea breaks on the shoaler places.

Mark Island Ledge, with 3 feet over it, lies nearly ¾ mile southeastward from Little Mark Island monument, and is marked on its northwest side by a buoy (spar, black, No. 1).

Whale Rock, a bare ledge nearly awash at high water, lies ⅜ mile southwestward from Little Mark Island.

Turnip Island Ledge, bare at low water, lies at the entrance to Mericoneag Sound nearly ¼ mile southwestward from Turnip Island, with foul ground between, and is marked on its southwest side by a buoy (spar, red, No. 2).

Interval Shoal, with 16 feet over it, is the end of a shoal which extends 600 yards from the northwest shore of Mericoneag Sound, 2¼ miles above Little Mark Island monument, and is marked by a buoy (spar, black, No. 3) placed southeastward of it. There is no safe passage westward of this buoy.

Cox Ledge, bare at low water, extends 450 yards northeastward from the northern end of Bailey Island. Its northern end is marked by a red spindle with cask and a buoy (spar, red, No. 4). A small, detached spot, with 13 feet over it, lies 350 yards from the eastern shore and 600 yards northeastward from the spindle.

Stover Point Shoal, with 1 foot over it near its end, makes out 200 yards northward and northeastward from Stover Point. It is marked on its northeastern end by a buoy (spar, black, No. 5).

[1] Shown on charts 106, 107, scale $\frac{1}{80,000}$, price of each $0.50; 315, scale $\frac{1}{40,000}$, price $0.25.

CASCO BAY, WESTERN PART.[1]

The part of Casco Bay westward of Harpswell Neck has numerous sounds, bays, and rivers, separated by islands lying in a northeasterly and southwesterly direction. Portland Harbor, at the western end of the bay, is the principal port of Maine. There are many summer resorts and landings on the islands and shores of the bay, and small steamers from Portland run as far east as Orr Island, calling at the landings between. There are broad channels into the bay through Broad, Luckse, and Hussey Sounds, and secure anchorage for vessels of any draft can be found.

Potts Harbor is a large irregular bight in the southern end of Harpswell Neck and has Haskell and Upper Flag Islands and the ledges between them on its southern side. It is a good anchorage, with depths of 4 to 5½ fathoms. **South Harpswell** is a village and landing on its eastern shore. There are two entrances to the harbor—the eastern one, from Mericoneag Sound, is buoyed, but it is narrow and crooked, with strong tidal currents, and is suitable only for small vessels with local knowledge; the western entrance, between Upper Flag Island and Horse Island, is straight and about 225 yards wide at its narrowest part, between Horse Island and the edge of the shoal between Upper Flag Island and **Thrumbcap**, a grass-covered rock. **Upper Flag, Little Birch,** and **Horse Islands** are grass covered.

To enter Potts Harbor, pass midway between Upper Flag Island ledge buoy (spar, red and black horizontal stripes) and the red bell buoy lying 150 yards southwestward of Little Birch Island. Then steer 60° true (**ENE ¾ E** mag.), pass 200 yards southward of Horse Island, and about 100 yards northward of the black buoy lying 400 yards east-northeastward from Thrumbcap. Anchor about 400 yards northeastward or eastward of this buoy, in 5 to 5½ fathoms.

Middle Bay makes northeastward on the western side of Harpswell Neck, and has the Goose Islands, Birch Island, and White Island on its northwest side. It has good anchorage, but is of little commercial importance. Directions for the bay are given in sections 1 and 1C of the sailing directions for Casco Bay.

Mare Point Bay, shallow and obstructed by flats, lies between Birch and White Islands on the east and Mare Point Neck on the west. There is a steamboat landing on the eastern side of Mare Point Neck near its southern end, and another on the northwest side of Birch Island.

Maquoit Bay makes northeastward on the western side of Mare Point Neck, the entrance lying north of the Goose Islands. It is obstructed by flats, with 1 to 4 feet over them, through which a channel with 19 to 24 feet leads for a distance of 2¼ miles from its entrance. The chain of islands between **Sister** and **Bibber Islands** are wooded, and there are flats between and northward of them. **Sister Island Ledge,** northward of Sister Island, is partly bare at high water. Bibber Island has numerous cottages, and there are landings on its western end and southeast side; **Bustins Island** is the name of the post office.

Freeport River, also known as **Harrasecket River,** is west of Maquoit Bay; the approach lies between Bibber Island on the east and Great Moshier Island on the west. The entrance of the river is between Moore Point on the east and Stockbridge Point on the west, and is narrow, with a least depth of 20 feet. From the entrance the channel leads between flats, mostly dry at low water, in a northerly direction 1¾ miles; a dredged channel 70 feet wide and about 7 feet deep then leads to the town of **Freeport.** The principal dangers in the approach and entrance to the river are marked by buoys. Freeport has little commerce; a small steamer daily from Portland and small coasting vessels are engaged in the carrying trade. Directions to the entrance are given in sections 1A and 1C of the sailing directions for Casco Bay.

Littlejohn and **Cousin Islands,** northward of Great Chebeag Island, are connected by a trestle and have numerous cottages. There is a landing on the south side of Littlejohn Island westward of Chebeag Bar and several small landings on Cousin Island, which is also the name of the post office.

Yarmouth River, is a narrow, crooked, shallow stream westward of Freeport River; its approach is westward of Cousin Island, in the northwestern part of Casco Bay. The river makes in a northwesterly direction about 1¾ miles to the town of **Yarmouth.** Strangers can not enter without a pilot. **Cousin River,** a narrow, shallow stream, empties into the mouth of Yarmouth River from northward. The channels in the approach and up these rivers lead through extensive flats that are dry at low water.

Great Chebeag Island is one of the larger islands in the western part of Casco Bay, and has numerous landings, especially along its eastern shore. **Chebeag Island** is the post office.

Chandler Cove is formed by a bight in the southwestern end of Great Chebeag Island and by Little Chebeag Island; it is a good anchorage, with 5 to 10 fathoms, but is little used. The entrance from southward is through Luckse Sound and between the northeastern point of Long Island and **Deer Point,** the southern point of Great Chebeag Island. The western entrance, between the north end of Long Island and the south end of Little Chebeag Island, is somewhat obstructed by rocks, which are marked by buoys. Directions through the cove are given in section 11, page 35.

Long Island, southwestward of Great Chebeag Island, has several landings on its northwest side. **Mariner** and **Long Island** are post offices near its northern and western ends, respectively.

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[1] Shown on charts **106, 107,** scale $\frac{1}{80,000}$, price of each $0.50; **315,** scale $\frac{1}{40,000}$, price $0.25.

Broad Cove is a large shallow cove in the northwestern part of Casco Bay. There is good anchorage in the middle of the cove, southwest of Prince Point, in 15 to 17 feet. It is open southward and eastward. There is a steamboat landing at Prince Point, and several landings on the western shore southwestward of Sturdivant Island.

Presumpscot River, on the western shore of the bay, is north of the city of Portland. Its entrance is between Mackey Point on the east and Martin Point on the west. The **United States Marine Hospital** is situated on the latter point. The channel is narrow, crooked, and shallow, and is crossed by a bridge from Mackey Point to Martin Point. Vessels passing up the river take a towboat at Portland.

Anchorages.—In the eastern part of Casco Bay, the best anchorage for strangers is in New Meadows River (see heading). Local fishermen frequently use Horse Island and Cundy Harbors. Potts Harbor, Harpswell Harbor, and Mackerel Cove are good anchorages in the middle of the bay for small vessels and yachts. Mericoneag Sound and Harpswell Sound and the whole of Casco Bay westward of Harpswell Neck afford good anchorage for large vessels except in heavy northeast gales. Vessels enter through Broad Sound, Luckse Sound, or Hussey Sound, and select an anchorage under the lee of some of the many islands, a suitable depth and good holding ground being found in most places. Portland Harbor is a secure anchorage on the western side of the bay.

Pilots.—Vessels from eastward sometimes signal off Small Point Harbor for a pilot; one can always be had there for the waters northeastward of Halfway Rock. Vessels from westward take a pilot off Portland, or, standing into Hussey or Luckse Sounds, take one from some one of the islands in the bay if a fisherman is not found outside.

Towboats.—Vessels bound into the bay, when coming from eastward, sometimes take a towboat near Seguin Island, or, when coming from westward, take one off Portland Harbor. They can usually be found in the mouth of the Kennebec River and off Portland Head.

Supplies.—Provisions can be obtained at Small Point Harbor, Cundy Harbor, Potts Harbor, and Freeport. Water has to be taken in casks from wells or ice ponds. (See also Portland Harbor.)

Repairs.—There are no facilities for repairing vessels except at Portland. (See heading "Portland Harbor.")

Ice.—Considerable ice forms at the heads of the numerous arms extending northward in Casco Bay, but the principal anchorages are available at any season of the year.

Currents.—The tidal currents are not strong, but on the flood there is a perceptible set northward and on the ebb southward in the bay and across the entrance.

Tides.—The mean rise and fall of tides in the bay is about 9 feet. (See table, p. 24.)

SAILING DIRECTIONS, CASCO BAY.

Directions through Casco Bay inside the islands from Little Mark Island to Portland are given in section 11, page 35.

1. ***Through Broad Sound.***—Pass on either side of Halfway Rock lighthouse, giving it a berth of ½ mile, bring it astern on a 341° 30′ true (**N ¼ W** mag.) course, and pass midway between Broken Cave Ledges and Eagle Island. When the north end of Eagle Island is abeam, steer 0° true (**N** by **E ⅜ E** mag.) for the southwest end of Whaleboat Island. Then, if bound to Freeport River, follow the directions in the second paragraph of section 1A.

Bound to Middle Bay.—Follow the southeast side of Whaleboat Island at a distance of 300 to 400 yards on a 38° true (**NE ¾ E** mag.) course until abreast the summit of the northeastern part of the island. Then steer 28° true (**NE ⅛ N** mag.) and pass 200 yards eastward of Shelter Island and the same distance westward of Black Rock. Then bring Black Rock in range with the northwest side of Whaleboat Island, and steer 36° true (**NE ⅝ E** mag.), keeping the range astern, which leads in a least depth of about 16 feet until 2½ miles above Black Rock and abreast Scrag Island. Anchorage can be had nearly anywhere in the bay on the range until abreast Scrag Island.

Dangers.—Halfway Rock is described on page 126, and Drunker Ledge and Whale Rock on page 127.

Broken Cave is a group of bare rocks and small islets, connected by ledges, extending ⅝ mile northeastward from **West Brown Cow,** a grass-covered islet. A rock with 10 feet over it lies 350 yards north-northeastward from the grass-covered rock at the northeast end of the group. The beacon on Stockman Island in range with, or open eastward of, the northeast point of Ministerial Island leads eastward of the ledges.

Eagle Island is high, wooded, and prominent. A ledge, bare at one-quarter ebb, extends 300 yards westward from it. **Eagle Island Ledge,** awash at high water, lies 300 yards southeastward from the southern end of Eagle Island; ledges with 8 to 10 feet over them extend 300 yards southeastward and 500 yards eastward from the rock that shows bare. Partly bare ledges extend 350 yards northeastward from Eagle Island.

Bates and **Ministerial Islands** are grass covered and are nearly joined to Stave and Crotch Islands by ledges. Their northeast ends should be given a berth of ¼ mile.

Upper Flag Island Ledge, 400 yards long and with 5 feet over it, lies 400 yards northwestward from Upper Flag Island and is marked at its southwest end by a buoy (spar, red and black horizontal stripes).

Birch Island Ledge, the top of which is bare at one-quarter ebb, is ¼ mile long, and is marked at its southwest end by a buoy (spar, red, No. 8), which lies ⅜ mile southeastward from the southwest end of Whaleboat Island.

Shelter Island, small and wooded, is near the middle of Middle Bay, 2¼ miles above Whaleboat Island. **Brant Ledges**, ⅜ mile long in a northeasterly direction, are awash at high water at the southwest end, which lies 600 yards eastward of Shelter Island. **Black Rock**, about 5 feet high, lies ⅜ mile east-northeastward from Shelter Island. A ledge with 9 feet over it extends 400 yards east-northeastward from Black Rock.

A small **13-foot spot** lies 450 yards from the northern shore ½ mile above Black Rock, and there is a ledge, awash at lowest tides, 300 yards from the northern shore, ¼ mile farther up the bay. Off the south shore there are two ledges marked by red spar buoys. The water is shoal at the head of the bay, with a narrow channel marked by two buoys and a beacon as guides to Dunning Wharf.

1 A. ***Through Luckse Sound.***—Enter between Outer Green Island and Ram Island Ledge lighthouse, pass on either side of the buoy marking The Hussey, and pass in mid-channel between Crotch and Hope Islands. Or, from a position ¼ mile eastward of Witch Rock gas buoy steer 20° true (**NE** ⅞ **N** mag.) for 2¼ miles to a position ¼ mile northwestward of The Hussey buoy. Then steer 35° true (**NE** ½ **E** mag.), follow the northwest side of Crotch Island at a distance of ¼ mile, and keep the southeast side of Little Bangs Island aboard distant about 300 yards. Then steer 71° 30′ true (**E** ¼ **N** mag.), with the south end of Little Bangs Island astern, and pass about 150 yards northward of Stave Island Ledge buoy. Then steer northeastward for Whaleboat Island, and, if bound to Middle Bay, follow the directions in the second paragraph of section 1 preceding.

Bound to Freeport River.—Pass about 600 yards westward of the southwest end of Whaleboat Island, and steer 336° true (**N** ¾ **W** mag.), with the northeast end of Eagle Island astern to a position 200 yards westward of Whaleboat Ledge buoy. Then steer 355° 30′ true (**N** by **E** mag.), and pass 400 yards eastward of Upper Green Islands. Pass midway between Upper Green Islands and French Island, steer 341° 30′ true (**N** ¼ **W** mag.), and pass 200 yards eastward of Moshier Ledge buoy and about 350 yards westward of Busting Island. Then bring the southwest end of Busting Island in range with the northeast point of French Island, and steer 311° true (**NW** by **N** mag.), keeping the range astern. Anchor on or a little northeastward of the range and below red spar buoy No. 2, in 3 to 5 fathoms.

Remarks and dangers.—**Outer Green Island** is grassy and is marked by a stone beacon on its northwest side; **Junk of Pork**, a high rock with surrounding bare ledges, lies 250 yards southward of it. **Johnson Rock**, lying ¼ mile northeastward from Outer Green Island, with foul ground between, has 7 feet over it and is marked on its north side by a buoy (spar, black, No. 3). **Green Island Reef** is about ¼ mile long and bare at low water, and lies ½ mile southwestward from **Inner Green Island** (low and grassy), with foul ground between; it is marked on its southwest side by a buoy (spar, red, No. 4). **Green Island Passage**, leading between buoys Nos. 3 and 4, has a width of ¼ mile and is used to some extent by small vessels; when using it be careful to avoid the southeast end of Green Island Reef eastward of buoy No. 4.

The Hussey, a small rock with 12½ feet over it, lies about the middle of the entrance to Luckse Sound, and is surrounded by deep water; it is marked by a buoy (can, red and black horizontal stripes) placed on its southwestern side. To avoid the rock, give this buoy a berth of 300 yards. Broken ground with a depth of 8 fathoms extends ⅜ mile southwestward from The Hussey; it has not been examined carefully, and should be avoided by deep-draft vessels.

Jewell Island and **Crotch Island** are partly wooded, and there are numerous cottages and a landing on the northwest side of the latter. **Crotch Island Ledge**, with 3 feet over it in places, extends ⅜ mile southwestward from the southern end of Crotch Island. Its end, with 10 feet, is known as **John Rock** and is marked by a buoy (spar, red, No. 4). There is no safe passage between the buoy and the island.

A rock with 16 feet over it lies 250 yards southeastward from **Sand Island**.

Stave Island (partly wooded) has broken ground with a depth of 17 feet extending 350 yards northward from it toward Little Bangs Island. **Stave Island Ledge**, mostly bare at low water, extends ¼ mile northeastward from the long rocky point at the northeast end of Stave Island, and is marked at its northern end by a buoy (spar, black, No. 5). Between this buoy and the black tripod beacon on the southwest end of **Stockman Island**, there is broken ground with depths of 3¾ to 5¼ fathoms, across which a depth of about 7 fathoms can be carried about 150 yards northward of the buoy.

Goose Nest, lying 600 yards northwestward of Stockman Island, is a ledge ⅜ mile long, the summit of which is a grassy islet about 5 feet high. The ledge is marked at its southwest end by a buoy (spar, red, No. 8). **Goose Nest Ledge** is a large ledge, bare at low water, lying ⅜ mile northward of Goose Nest and the same distance from Great Chebeag Island.

Whaleboat Ledge, a rock with 9 feet over it, lies ⅝ mile north-northwestward from the southwest end of Whaleboat Island. It is marked on its western side by a buoy (spar, red, No. 2).

Little Whaleboat Ledge, with 2 feet on it, lying ⅜ mile northeastward from Whaleboat Ledge, and the ledges making ½ mile southward and westward from Little Whaleboat Island may be avoided by keeping Whaleboat Ledge buoy bearing southward of 187° true (**SSW** mag.).

Upper Green Islands are two grass-covered, rocky islets joined by ledges. A shoal with 18 feet at its end extends 350 yards north-northwestward from the northern one. **Green Island Ledge,** a rock with 6 feet over it, lies nearly ¼ mile southwestward of them, and is marked on its southwest side by a buoy (spar, red, No. 4).

Moshier Ledge, with 10 feet on it, is marked by a buoy (spar, red and black horizontal stripes) placed southward of it and lying a little over ¼ mile northeastward from Great Moshier Island.

Busting Island is partly wooded; **Busting Island Ledge,** a rock with 14 feet over it, lies 350 yards south-southwestward from the island and nearly ¼ mile eastward from Moshier Ledge buoy.

Crab Island Ledge, bare at low water, extends nearly ⅜ mile northeastward from **Great Moshier Island,** and is marked at its end by a buoy (spar, black, No. 1). Between this buoy and the entrance of the river are extensive flats which rise abruptly from deep water. **Crab Island** is on the flat near its edge. A rock with 17 feet over it lies nearly ¼ mile eastward from Crab Island.

On the northeast side of the channel between Bibber Island and the entrance of Freeport River there are extensive shoals and ledges, the edges of which are marked by **Googin Ledge** buoy (spar, red, No. 2G).

1 B. ***Through Hussey Sound.***—Pass on either side of The Hussey buoy, giving it a berth of over ½ mile when southwestward of it. Steer 312° true (**NNW** ⅞ **W** mag.) for the water tank on Great Diamond Island in range with the middle of Pumpkin Knob, and pass about 400 yards northeastward from Eastern Point Breaker buoy. When the western point of Long Island opens westward of the grassy islet southward of it, steer 350° true (**N** ½ **E** mag.) for the eastern end of Cow Island, and pass 250 yards eastward of Pumpkin Knob. Then keep near the middle of the sound and enter Casco Bay between Cow Island and Long Island, giving the shore of the latter a berth of over 300 yards.

Or, vessels can pass northeastward of Soldier Ledge by passing 250 yards southwestward of Overset Island on a 325° true (**N** by **W** ¾ **W** mag.) course heading for Crow Island. When the grassy islet near the southwest side of Long Island is abaft the beam, steer more northward and northeastward, keeping near the middle of the sound.

Remarks and dangers.—Eastern Point Breaker, with 10 feet over it, extends ¼ mile from the eastern shore of Peak Island, and is marked off its eastern end by a buoy (spar, black, No. 1). The range of the water tank on Great Diamond Island and the south side of Pumpkin Knob, bearing 315° true (**NNW** ⅝ **W** mag.), clears the ledge.

Overset Island, high and grass covered, lies close to the south end of Long Island.

Soldier Ledge, with 4¾ fathoms over it, lies in the middle of Hussey Sound, 550 yards 272° true (**WNW** ⅜ **W** mag.) from the south end of Overset Island.

Pumpkin Knob is the round, wooded islet close to the northern end of Peak Island.

1 C. ***From Portland.***—These directions are good for a draft of 12 feet at low water.

Passing about ¼ mile northwestward of Fort Gorges, steer 32° 30′ true (**NE** ¼ **E** mag.) with Portland Breakwater lighthouse in range with a church steeple in South Portland astern, and pass close westward of buoy No. 2 and 250 yards northwestward of buoy No. 4. Then steer 52° true (**ENE** mag.) to a position 250 yards southeastward of Cow Island Ledge spindle. Then steer 40° 30′ true (**NE** by **E** mag.) to a position 250 yards southeastward of Lower Basket Ledge spindle. Then steer 36° true (**NE** ⅝ **E** mag.) and pass 100 yards northward of Chebeag Bar buoy (spar, red, No. 4).

Bound to Freeport River.—Steer 68° true (**E** ½ **N** mag.) until the eastern end of Littlejohn Island is abeam. Then steer 37° 30′ true (**NE** ¾ **E** mag.) with the northwest end of Great Chebeag Island astern and pass about 300 yards southeastward of the eastern end of Great Moshier Island. Pass 200 yards southward and eastward of Moshier Ledge buoy and steer 341° 30′ true (**N** ¼ **W** mag.). Then bring the southwest end of Busting Island in range with the northeast point of French Island, and steer 311° true (**NW** by **N** mag.), keeping the range astern. Anchor on or a little northeastward of the range and below red spar buoy No. 2, in 3 to 5 fathoms.

Bound to Middle Bay.—From a position 100 yards northward of Chebeag Bar buoy (spar, red, No. 4) steer 68° true (**E** ½ **N** mag.), pass 250 yards northward of black spar buoy No. 3

off Chebeag Point, 100 yards southward of Green Island Ledge buoy (spar, red, No 4), 150 yards northward of Goose Ledge buoy (spar, red and black horizontal stripes), and 350 yards southward of The Goslings into Middle Bay. When Black Rock bears 36° true (**NE** ⅝ **E** mag.) steer for it with the northwest side of Whaleboat Island astern. Pass 200 yards eastward of Shelter Island and the same distance westward of Black Rock. Then bring Black Rock in range with the northwest side of Whaleboat Island, and steer 36° true (**NE** ⅝ **E** mag.), keeping the range astern. Anchorage can be had nearly anywhere in the bay on the range until abreast Scrag Island, 2½ miles above Black Rock.

Dangers.—**Diamond Island Ledge** is the shoal extending from the western shore of Diamond Island. Its extreme western end, about 700 yards westward from the middle of the island, is marked by a buoy (spar, red, No. 2). The ledge on which Fort Gorges is built is also called **Diamond Island Ledge**. It is partly bare at low water and extends 400 yards westward and 600 yards northeastward from the fort; this, together with the extensive shoals extending 1⅛ miles southward from Mackey Island, contracts the channel between the 12-foot curves northward of Fort Gorges to 200 yards.

Brimstone Point Ledge extends nearly ¼ mile north-northwestward from the northern end of Great Diamond Island. It is marked on its end by a buoy (spar, red, No. 4).

Cow Island Ledge, partly bare at low water, is marked by a black spindle with cage, and lies ⅝ mile northward from Cow Island. The ledge is about 250 yards long and the spindle is near the southern end.

Clapboard Island Ledges, extending ¼ mile southward and eastward from the south end of Clapboard Island, are bare at half tide.

Basket Island, small and partly wooded, is surrounded by ledges to a distance of 200 yards. **Lower Basket Ledge**, 400 yards long and bare at half tide, lies ⅜ mile southeastward from the island, and is marked near its eastern end by a black spindle with cage. **Upper Basket Ledge**, 300 yards in diameter and bare at low water, lies ⅜ mile northeastward from Basket Island, and is marked near its north end by a black spindle with cage. **Upper Clapboard Island Ledge**, a rock with 7 feet over it, lies ⅜ mile westward from Basket Island, and is marked on its south side by a buoy (spar, red, No. 8).

Seal Ledge, bare at low water, extends ⅜ mile northwestward from the western shore of Great Chebeag Island eastward of Lower Basket Ledge spindle. It is marked on its end by a buoy (spar, red, No. 2).

Chebeag Bar is a long, sandy bar, with scattered bowlders, bare at low water, making out from the middle of the northern shore of Great Chebeag Island and extending to within 250 yards of Littlejohn Island. It is marked on its northern end by a buoy (spar, red, No. 4). An unmarked **14-foot spot** lies ⅜ mile southwestward from the buoy.

An extensive **shoal** extends from the shore of Great Chebeag Island between Chebeag Bar and **Chebeag Point**, the northeastern point of the island. The sailing line leads well northward of this shoal.

An unmarked **shoal** makes southward about 350 yards from the southeastern side of Littlejohn Island, nearly ½ mile eastward of Chebeag Bar.

Chebeag Point Ledge, with 3 feet over it, makes 400 yards north-northeastward from the northeastern point of Great Chebeag Island. It is marked on its end by a buoy (spar, black, No. 3).

Green Island Ledge, Moshier Ledge, and other dangers in the approach to Freeport River are described under section 1 A preceding.

Ledges, covered at high water, extend 400 yards northward from **Little Whaleboat Island.**

Goose Ledge is a rock with 4 feet over it lying ⅜ mile southward from the western island of The Goslings, and is marked on its southwest side by a buoy (spar, red and black horizontal stripes).

Shelter Island and the dangers in Middle Bay are described under section 1 preceding.

PORTLAND HARBOR.[1]

This harbor, in the western side of Casco Bay, is the approach to the city of Portland, the principal maritime port on the coast of Maine. There are several entrances to the harbor between the islands eastward; these are marked by aids to navigation, but they are principally used by local vessels or those towing from Portland to points in Casco Bay. Off Cape Elizabeth and the entrance are numerous ledges and sunken rocks which make the approach dangerous in thick weather, especially for deep-draft vessels. In clear weather entrance for the largest vessels is comparatively easy with the aid of the lights and buoys.

The depth of water in the channel to the Upper Harbor is 6 fathoms, and in the Upper Harbor it is 30 feet. Alongside the wharves the depths range from 12 to 30 feet, according to locality.

Portland has a large foreign and coastwise trade, and is entered by the largest vessels; steamers leave the port loaded to 30 feet draft. The **Upper Harbor**, or harbor proper, is westward of a line from Spring Point Ledge lighthouse to Fort Gorges, a stone fort on Diamond Island Ledge, and lies between Portland Breakwater and lighthouse and Cape Elizabeth on the south and the city of Portland on the north. Two villages, **South Portland** and **Knightsville**, are on the Cape Elizabeth side of the harbor; the former has communication with Portland by ferry. **Portland Bridge** crosses the harbor about 1¼ miles above the Breakwater lighthouse, and above this bridge are three others; the width of the draws is 60 to 70 feet.

[1] Shown on charts **106, 107**, scale $\frac{1}{80,000}$, price of each $0.50; **315**, scale $\frac{1}{40,000}$, price $0.25; **325**, scale $\frac{1}{20,000}$, price $0.40.

The **Lower Harbor** is southward and eastward of a line from Fort Gorges to Spring Point Ledge lighthouse, including Diamond Island Roads, the latter being an excellent anchorage between the islands east of Portland Breakwater, with depths ranging from 3½ to 7 fathoms.

Back Cove is on the north side of the city of Portland. It is nearly all bare at low water, and has a dredged channel along the northern water front of the city 300 feet wide and 12 feet deep. Near its entrance the cove is crossed by two drawbridges; width of draws about 60 feet.

Ram Island, a bare, rocky islet, surrounded by ledges, lies ⅜ mile southeastward of Cushing Island. **Ram Island Ledge lighthouse** is near the end of the ledge which extends 600 yards southward from the island. A ledge bare at low water lies 600 yards northeastward from the island, and is marked on its easterly side by a buoy (spar, black, No. 5); broken ground with 3½ fathoms over it extends 600 yards north-northeastward from the buoy. These dangers are in the way only for vessels entering through Whitehead Passage.

Cushing Island, on the eastern side of the entrance of Portland Harbor, is marked near its southwestern end by a large hotel. **White Head** is the high, bluff, northeastern end of Cushing Island. The shoal making out from the northwest side of Cushing Island is marked by two buoys. Between the northern edge of this shoal and a shoal which extends 250 yards southeastward from House Island is a channel 200 yards wide, with depths of 3 to 5 fathoms.

House Island is marked at its southwest end by a stone fort, northeastward of which are the buildings of the quarantine station. House Island light is near the end of the shoal about 60 yards off the north end of the island.

Whitehead Passage, between Cushing Island and Peak Island, has a channel with a least width of about 100 yards, with depths of 4 to 5 fathoms, and has ledges on both sides. It is used to some extent by local vessels of 12 feet or less draft.

To go through Whitehead Passage, avoid the broken ground which extends ⅝ mile northeastward from Ram Island. Enter the passage between two spindles, which mark rocks bare at low water, favoring, if anything, the southern one, and pass southward of a red buoy just inside them. Then steer 243° true (**W** by **S** mag.) for nearly ¼ mile, giving the shore of Cushing Island a berth of about 125 yards. Then steer 299° true (**NW** mag.), and pass southward of the red bell buoy at the western end of the passage. Pass 100 yards westward of the bell buoy, steer 351° true (**N** ⅝ **E** mag.), and pass 100 yards eastward of the black spar buoy off the north end of House Island. Pass 150 yards northward of House Island light, steer 274° true (**WNW** ¼ **W** mag.), and pass northward of the black buoy northward of the Breakwater lighthouse into Portland Harbor.

Peak Island is a large island, used as a summer resort, northeastward of Cushing Island. Peak Island, the post office on the west side of the island, has communication with Portland by a ferry and other steamers. **Trefethen** is a post office and landing near the northern end of the island.

Great and **Little Diamond Islands,** connected by a spit, lie northwestward of Peak Island Great Diamond Island is marked by a prominent water tank.

The passage between Peak Island and Great and Little Diamond Islands has a good channel with a least width of 100 yards and a depth of 15 feet. Enter between Pumpkin Knob and Great Diamond Island, and pass northward of the black can buoy near Pumpkin Knob. Pass 75 yards northward of black buoy No. 13 and steer 243° true (**W** by **S** mag.) to a position about 50 yards off the landing at the south end of Great Diamond Island. Then steer 226° true (**SW** by **W** ½ **W** mag.) for the buoy depot wharf at the eastern end of Little Diamond Island. Pass 50 yards off this wharf, steer 198° true (**SW** by **S** mag.), and pass 50 yards eastward and southward of the red buoy at the southwest end of the passage. Then steer 254° true (**W** mag.) to a position 75 to 100 yards southward of the red spar buoy southwestward of Little Diamond Island. Then steer 265° 30′ true (**W** by **N** mag.), pass about 100 yards southward of the red buoy southwestward of Fort Gorges, and about 100 yards northward of the black buoy northward of the Breakwater lighthouse into Portland Harbor.

Pilots.—Between October 1 and May 1 a pilot boat will usually be found cruising outside Portland Head and vessels desiring a pilot will be boarded when making signal. In the summer pilots are on the lookout for vessels requiring their services, and vessels making signal for a pilot should stand off and on outside of Portland Head until boarded. There are licensed pilots for this port, but pilotage is not compulsory. Strangers entering the port generally take a pilot. The rates are $2.50 per foot draft entering, and $1.25 per foot draft leaving the port.

Towboats will usually be found cruising off the entrance and in the harbor. They are used by vessels going alongside the wharves or through the bridges. Regular rates have been adopted for towing vessels within the harbor, but for towing in from sea an agreement is made between the vessel and the towboat.

Anchorage.—The usual anchorage for large vessels is in Diamond Island Roads or between Fort Gorges and the eastern end of the city. Vessels sometimes anchor for a limited period in the channel below Spring Point Ledge lighthouse, but the holding ground is not good. The anchorage in the harbor is on the Cape Elizabeth side of the channel and is marked by buoys (See Harbor Regulations, Appendix II.) The **Quarantine anchorage** is northeastward of Fort Gorges. Vessels subject to visitation by the health officer do not proceed above House Island until after they have been boarded and have been given pratique.

Harbor regulations.—The harbor master has charge of the anchorages and sees that vessels do not anchor outside the authorized limits. (See Harbor Regulations, Appendix II.)

Quarantine.—(See National Quarantines in Appendix IV.)

The **Marine Hospital** is situated 1 mile from the city. The surgeon in charge has an office at the customhouse. (See Appendix IV.)

Supplies.—Anthracite and bituminous coal in any quantity can be had alongside the wharves or from lighters. Water can be obtained alonside the wharves or from water boats. Provisions and ship chandler's stores are to be had in the city.

Repairs.—The facilities for repairing wooden vessels are of the best. There are two marine railways on the Cape Elizabeth side of the harbor. The greatest draft taken out is 10 feet forward and 16 feet aft, and the capacity is vessels up to 1,300 registered tons.

The facilities for repairs to machinery of steamers are good. There are several machine shops where building and repairing can be done.

Storm warning displays of the United States Weather Bureau are shown from a building opposite the post office, and can be readily seen by the shipping in the harbor. (For explanation of signals see Appendix III.)

Ice seldom obstructs navigation; when it does, it is only for a limited time. The towboats keep a clear channel to the wharves.

Tides.—For tides, see table, page 24; also, the tide tables for the Atlantic Coast of the United States, in which the tides are predicted for every day of the current year.

SAILING DIRECTIONS, PORTLAND HARBOR.

These directions are good for vessels of the deepest draft. Directions for entering Portland Harbor from northward, for vessels of 12 feet or less draft that have crossed Casco Bay inside the islands, are given in section 11, page 35.

1. ***From eastward.***—From a position ½ mile southward of Bantam Rock gas and whistling buoy steer 260° 30′ true (**W** ½ **N** mag.) for 23¾ miles to Witch Rock gas buoy. On this course pass 1⅞ miles southward of Seguin lighthouse and close northward of Seguin Island whistling buoy, and pass ⅞ mile southward of Halfway Rock lighthouse and close northward of Halfway Rock whistling buoy; Portland Head and Ram Island Ledge lighthouses will be a little on the starboard bow. Pass 100 yards southward of Witch Rock gas buoy and steer 291° true (**NW** ¾ **W** mag.) for 1⅝ miles, passing about 150 yards southward of the red bell buoy off the southwest point of Cushing Island.

When Portland Head lighthouse bears 164° true (*S.* mag.), bring it astern and steer 344° true (**N** mag.), passing 350 to 400 yards westward of House Island and the same distance eastward of Spring Point Ledge lighthouse. When the lighthouse is abaft the beam, steer 316° true (**NNW** ½ **W** mag.) for the eastern end of the land at the easterly end of Portland; the south end of House Island will be astern. When the Breakwater lighthouse is abeam, steer 265° 30′ true (**W** by **N** mag.) until the lighthouse is again abeam, and then follow the wharves, giving them a berth of 200 yards. For anchorages see the description preceding.

Dangers.—Mile Ledge and Camel Ground, near Seguin Island, are described on page 122. Seguin Island whistling buoy lies 2½ miles 205° true (**SW** ⅜ **S** mag.) from Seguin lighthouse. **Seguin SSW Ledge**, with 6 fathoms over it, lies ⅜ mile southeastward of the whistling buoy.

Flat Ground, or **Temple Ledge**, with 5 fathoms over it, lies 1½ to 1¾ miles southwestward from Bald Head, and can be avoided by keeping Halfway Rock lighthouse bearing northward of 260° true (**W** ½ **N** mag.). The sea breaks on this ledge in heavy weather.

Lumbo Ledge is about ⅞ mile long and lies nearly midway between Small Point and Halfway Rock. At its southwestern end is a spot with 9 feet over it, marked on its south side by a buoy (spar, red and black horizontal stripes), which lies 4¾ miles 71° 30′ true (**E** ¼ **N** mag.) from Halfway Rock lighthouse. The depths on the ledge northeastward of the buoy range from 5 to 9 fathoms.

Bulwark Shoal, at the eastern end of West Cod Ledge, and East Cod Ledge are described under section 1 A.

A ledge with 5¾ fathoms over it lies 2¾ miles 232° true (**WSW** mag.) from Halfway Rock lighthouse.

Witch Rock, with 4 fathoms over it, lies nearly ¾ mile 130° true (**SE** by **S** mag.) from Ram Island Ledge lighthouse and 1⅜ miles 87° true (**ESE** ⅞ **E** mag.) from Portland Head lighthouse. A gas buoy is placed about 100 yards southeastward from the rock.

Ram Island Ledge lighthouse is near the southern end of the ledge, and should be given a berth of about 300 yards when southward of it.

Jordan Reef is about 200 yards long and has a least depth of 22 feet over it. It is marked on its southeast side by a buoy (nun, red and black horizontal stripes), which lies 1 mile 113° 30′ true (**SE** ½ **E** mag.) from Portland Head lighthouse.

Catfish Rock is near the western end of ledges which extend 150 yards southwestward and westward from the southwest point of **Cushing Island**. The ledges are marked on the southwest side by a buoy (spar, red, No. 2). A red bell buoy is moored about 250 yards southward from the southwest point of Cushing Island.

From abreast the southwest point of Cushing Island to Spring Point Ledge lighthouse, shoals extend 200 to 300 yards from the eastern shore of Cape Elizabeth. **Mill Rock** buoy (spar, black, No. 1) marks the easterly edge of the shoal nearly ⅝ mile southward of Spring Point Ledge lighthouse.

Spring Point Ledge extends 350 yards northeastward from Spring Point, the point on which Fort Preble is built. This ledge shows partly bare at three-quarters ebb, and is marked near its end by a lighthouse.

A **shoal**, with 14 to 17 feet over it, extends 650 yards northward from the southern part of House Island in Diamond Island Roads. To avoid this shoal when standing into Diamond Island Roads, keep the western end of Cushing Island open from the southwest end of House Island until Portland Breakwater lighthouse bears southward of 260° true (**W** ½ **N** mag.).

Diamond Island Ledge is the large partly bare ledge, on the southern side of which Fort Gorges is built. The ledge extends about 400 yards westward of the fort and 600 yards northeastward of it. A buoy (spar, red, No. 16) is placed 250 yards southwestward of the fort.

Portland Breakwater, with a lighthouse on its end, is built out to the 6-foot curve on **Staniford Ledge**. The shoal with less than 18 feet over it extends 400 yards eastward and 250 yards northward from the lighthouse, and is marked northward of the lighthouse by a black spar buoy. From this buoy the edge of the shoals on the south side of Portland Harbor extends about 231° true (**WSW** mag.) to the southern end of the draw in Portland Bridge.

1 A. ***From southwestward.***—Bearings from Cape Elizabeth light vessel are given on page 13. The light vessel may be steered for on any course from 74° true (**E** mag.) through north and west to 215° true (**SW** ½ **W** mag.). From the light vessel, steer 319° true (**NNW** ¼ **W** mag.) for 5 miles heading for Portland Head lighthouse, and pass ⅜ to ½ mile eastward of Corwin Rock bell buoy. When the two Cape Elizabeth lighthouses are in range, steer 342° true (**N** ¼ **W** mag.) for Ram Island ledge lighthouse.

When Portland Head lighthouse bears 310° 30′ true (**NW** by **N** mag.) steer for it until Jordan Reef buoy is abeam, or at night until Spring Point Ledge light changes from red to white. Then steer for Spring Point Ledge light on the easterly edge of the white sector, course 330° true (**N** by **W** ¼ **W** mag.), and pass 500 to 600 yards eastward of Portland Head lighthouse. When the latter lighthouse bears 209° true (*SW* mag.), steer 310° 30′ true (**NW** by **N** mag.). When Portland Head lighthouse bears 164° true (*S* mag.), bring it astern on a 344° true (**N** mag.) course, and follow the directions in the second paragraph of section 1 preceding.

To enter by Old Anthony whistling buoy.—Steer for Cape Elizabeth east lighthouse on a 341° true (**N** ¼ **W** mag.) course, and when it is 2 miles distant the position should be close to Old Anthony whistling buoy. Pass about 200 yards westward of the buoy and steer 12° 30′ true (**NNE** ½ **E** mag.) for about 4 miles, passing 600 yards eastward of Taylor Reef buoy and ½ mile eastward of Broad Cove Rock buoy. When Portland Head lighthouse bears 310° 30′ true (**NW** by **N** mag.), steer for it and follow the directions in the preceding paragraph.

Dangers.—**East Cod Ledge** has a least depth of 4¾ fathoms on its eastern part, lying 3¼ miles 181° true (**S** by **W** ½ **W** mag.) from Halfway Rock lighthouse; the sea breaks over it in heavy weather. To avoid this ledge and West Cod Ledge when passing northward of them, keep Portland Head lighthouse bearing westward of 274° true (**WNW** ¼ **W** mag.) until Halfway Rock lighthouse bears eastward of 29° true (**NE** mag.).

Bulwark Shoal, a dangerous ledge with 14 feet over it, is the easternmost of the line of rocks forming West Cod Ledge; it lies 3⅝ miles 205° true (**SW** ⅜ **S** mag.) from Halfway Rock lighthouse, and is marked by a buoy (nun, red and black horizontal stripes) placed about ⅛ mile southeastward from the shoalest part of the ledge.

Bache Rock has 25 feet over it, and lies 1 mile west-southwestward from Bulwark Shoal.

West Cod Ledge Rock has 26 feet over it, and lies 3¼ miles 83° true (**E** ¾ **S** mag.) from Cape Elizabeth east lighthouse. It is not marked, but the sea breaks over it in heavy gales.

Corwin Rock, with 21 feet over it, lies 2⅜ miles 102° true (**SE** by **E** ½ **E** mag.) from Cape Elizabeth east lighthouse, and is marked close to its southeast side by a black bell buoy (No. 3 CR).

Alden Rock, with 6 feet over it, lies 2 miles 111° true (**SE** ¾ **E** mag.) from Cape Elizabeth east lighthouse, and is marked by a buoy (nun, red, No. 2 AR) placed about 250 yards south-southwesterly from the rock.

East Hue and Cry Rocks is a ledge about ¼ mile long with 3¼ fathoms over it, and lies 3 miles 130° 30′ true (**SE** by **S** mag.) from Cape Elizabeth east lighthouse. A buoy (can, black, No. 1) is placed about 200 yards southeastward from the rocks. About ½ mile south-southwestward of the buoy is a ledge with 4½ fathoms over it.

West Hue and Cry is a rock with 4½ fathoms over it, lying ¾ mile westward from East Hue and Cry Rocks and 2⅝ miles 145° true (**S** by **E** ¾ **E** mag.) from Cape Elizabeth east lighthouse.

Old Anthony, or **Vapor Rock,** has 20 feet over it and lies 1¾ miles 153° true (**S** by **E** mag.) from Cape Elizabeth east lighthouse; it is marked off its southeast side by a buoy (can, red and black horizontal stripes). A red whistling buoy is placed about ⅜ mile southwestward from the rock.

Watts Ledge extends ⅜ mile eastward from the southeastern point of Richmond Island; it is partly bare, and is avoided by keeping Cape Elizabeth east lighthouse bearing northward of 24° true (**NE** ½ **N** mag.).

Lying 1½ miles 199° true (**SW** ⅞ **S** mag.) from Cape Elizabeth east lighthouse is a spot with 4½ fathoms over it, on which the sea breaks in heavy gales.

Taylor Reef is a group of rocks with 15 to 18 feet over them, which extends about ½ mile in an east-northeasterly direction, lying ⅝ mile southeastward of Cape Elizabeth lighthouses. A buoy (can, black, No. 1 TR) is placed about 100 yards off the southeast side of the middle of the reef.

A spot with 18 feet over it lies nearly ½ mile eastward from Cape Elizabeth east lighthouse.

Mitchell Rock has 31 feet over it, and lies 1⅜ miles 76° true (**E** ⅛ **S** mag.) from Cape Elizabeth east lighthouse.

Broad Cove Rock, with 14 feet over it, lies ¾ mile from shore and 1¼ miles 26° true (**NE** ¼ **N.** mag.) from Cape Elizabeth east lighthouse. It is marked about 200 yards off its southeast side by a buoy (can, black, No. 5 BC). A rock with 7 feet over it lies ⅜ mile southwestward of the outer rock, and there is no safe channel between the buoy and the shore southwestward.

Trundy Reef extends about ⅞ mile northeastward from Trundy Point, the point 2¼ miles south from Portland Head lighthouse. For ¼ mile from the point the reef shows bare at low water, and outside of this it has 11 to 17 feet over it. A buoy (can, black, No. 7 TR) is placed about 200 yards east-northeastward from the northern end of the reef and lies 1¾ miles 147° true (**S** by **E** ½ **E** mag.) from Portland Head lighthouse.

Willard Rock, with 31 feet over it, lies ¼ mile northeastward from Trundy Reef buoy and nearly 1¾ miles 141° 30′ true (**SSE** mag.) from Portland Head lighthouse.

Pine Tree Ledge, with 3½ fathoms over it, small and unmarked, lies 1⅜ miles 119° true (**SE** mag.) from Portland Head lighthouse.

Jordan Reef and the dangers in Portland Harbor are described under section 1.

COAST FROM PORTLAND TO PORTSMOUTH.[1]

This stretch of coast extends about 37 miles in a general southwesterly direction from Cape Elizabeth, with but few harbors indenting it, they being principally the resort of fishermen and small coasters seeking shelter in bad weather. Richmond Island Harbor, Wood Island Harbor, and Cape Porpoise Harbor are the only anchorages available for strangers.

Seal Cove [2] is on the southeast side of Cape Elizabeth northeastward of Richmond Island. It has numerous rocks and ledges, and is frequented only by boats of local fishermen.

Richmond Island Harbor,[2] formed by Richmond Island and a breakwater extending to the shore, lies 2½ miles southwestward of Cape Elizabeth lighthouses and 6¼ miles 32° true (**NE** ¼ **E** mag.) from Wood Island lighthouse. It is sheltered from northerly and westerly winds but is exposed to southeasterly and southerly winds, and vessels should leave the harbor on indications that the wind will veer southward of east. Foul ground extends ⅜ mile from the northern side of the harbor, leaving an anchorage about ⅜ mile wide near Richmond Island, where the depths shoal gradually from 8 fathoms at the entrance to 3 fathoms ¼ mile from the breakwater at the head.

Approaching Richmond Island Harbor from eastward, pass over ½ mile eastward and ¼ mile or more southward of Richmond Island. Approaching from southward, pass about 1 mile eastward of Wood Island lighthouse and then keep it bearing westward of 207° true (**SW** ¼ **S** mag.) to avoid the ledge extending ¼ mile eastward from Stratten Island and Old Proprietor. Three Tree Ledge may be passed on either side. Enter the harbor on a 59° true (**ENE** ⅝ **E** mag.) course heading for Cape Elizabeth west lighthouse, and anchor about ¼ mile from Richmond Island with its western end bearing between 119° true (**SE** mag.) and 164° true (**S** mag.), in 4 to 8 fathoms.

Chimney Rock, lying ⅜ mile from the north side of Richmond Island Harbor, is awash at low water, and is marked on its southeast side by a buoy (spar, black, No. 3). Vessels must pass southward of the buoy. A rock with 16 feet on it lies 400 yards east-southeastward from Chimney Rock buoy. **Ram Island,** low and grassy, lies ¼ mile northwestward, and **The Brothers,** three small bare rocks, lie 300 yards north-northeastward from Chimney Rock.

Old Proprietor is a ledge, bare at low water, lying nearly 1 mile from shore and 1⅞ miles 266° true (**W** by **N** mag.) from the western end of Richmond Island. It is marked on its south side by a buoy (spar, black, No. 1). A ledge with 11 feet over it lies nearly ½ mile northeastward from Old Proprietor.

Between Richmond Island and Wood Island lighthouse, a distance of 6¼ miles, the shore forms a large open bight, the southern part of which is **Saco Bay.** **Prout Neck,** a prominent point nearly 3 miles west from Richmond Island, is the northern point of Saco Bay. The shore of the bay is known as **Scarboro Beach, Old Orchard Beach,** and **Ferry Beach,** in the order named from northward. The large hotels, pier, and standpipe at Old Orchard Beach are prominent. A rock with 12 feet over it lies ⅞ mile from shore in the northern part of Saco Bay, and is marked on

[1] Shown in parts on charts **107, 108,** scale $\frac{1}{80,000}$, price of each $0.50.

[2] Shown on chart **327,** scale $\frac{1}{20,000}$, price $0.20.

its south side by a buoy (spar, red, No. 2). About ⅝ mile westward of the buoy and the same distance northeastward of the pier at Old Orchard, there is a ledge with 2 feet over it which extends ½ mile from shore.

Stratten and **Bluff Islands**, grass-covered, lie off the northern part of Saco Bay 1 mile southward from Prout Neck, with deep water between. The islands are joined by ledges, which also extend ¼ mile eastward from Stratten Island.

Three Tree Ledge has a least depth of 4½ fathoms over it, and lies 1⅝ miles east-southeastward from Stratten Island and 5 miles 217° true (**SW** ⅝ **W** mag.) from Cape Elizabeth east lighthouse.

In the southern end of Saco Bay there are islands and ledges which extend 1¼ miles from shore, and inside of them are Wood Island Harbor and the entrance of Saco River. **Eagle** and **Ram Islands** are rocky and grass-covered; vessels should pass eastward of them, giving them a berth of ½ mile.

Saco River is a narrow crooked stream with a least depth of 3½ feet on the bar between the ends of the jetties at the entrance. **Biddeford** and **Saco** are cities at the head of navigation, about 5 miles above its mouth. The deepest draft of the vessels towed to the cities is about 12 feet. There is a towboat on the river, and a pilot can be had from Wood Island Harbor. Anthracite and bituminous coal and provisions can be had at the cities. Ice closes the river from January to April.

Wood Island Harbor is an anchorage for small vessels of about 12 feet or less draft, lying on the south side of the ledge extending westward from Wood Island, and has a width of about 250 yards. It is exposed to easterly winds. The anchorage with best shelter is about 200 yards northeastward, northward, or northwestward of Philip Rock spindle, in a depth of 15 feet. Anchorage can also be had 200 to 300 yards northwestward of Negro Island Bar buoy (spar, red, No. 4), in 15 to 18 feet.

The south side of the anchorage is formed by **Gooseberry Island** (grassy on top and shows but little above high water), and ledges westward of it which extend 300 yards from Fletcher Neck. **Philip Rock**, near the edge of the channel 450 yards westward of Gooseberry Island, is marked by a black spindle with two cages. The southwest end of the harbor is filled by shoals, with 7 to 12 feet over them, the edge of which extends from Philip Rock to Stage Island, and lies 150 yards southwestward from Negro Island Bar buoy (spar, red, No. 4). A black spindle with cage marks a rock bare at low water lying about 600 yards westward of Philip Rock and on the south side of the channel leading to The Pool.

To enter Wood Island Harbor from northeastward, give the north side of Wood Island a berth of over ½ mile and steer 232° true (**WSW** mag.) for Stage Island monument, passing about midway between Negro Island Ledge buoy (spar, black, No. 1) and Ram Island Ledge buoy (spar, red, No. 2). When Tappen Island is abeam steer about 187° true (**SSW** mag.), and pass about 150 yards eastward of Stage Island Shoal buoy (spar, black, No. 3). Pass 150 to 200 yards northwestward, and not over 100 yards southward, of Negro Island Bar buoy (spar, red, No. 4).

Approaching from southward, steer for Wood Island lighthouse on a 343° true (**N** ⅛ **W** mag.) course; Dansbury Reef buoy should be made a little on the starboard bow. Pass midway between the buoy and Washman Rock spindle on a 325° true (**N** by **W** ¾ **W** mag.) course, heading for a 2½-story house on the southern side of Wood Island, and pass 200 yards eastward of Gooseberry Island. Pass midway between Gooseberry and Wood Islands, and steer 272° true (**WNW** ½ **W** mag.), with Negro Island Bar buoy a little on the starboard bow.

Ram Island Ledge, about ¼ mile long, has 9 feet over it, and its eastern end is marked on the south side by a buoy (spar, red, No. 2), which lies nearly ½ mile east-southeastward from Ram Island.

Negro Island Ledge, small, and with 9 feet over it, lies ¼ mile northward from the western part of Wood Island, and is marked on its northeast side by a buoy (spar, black, No. 1).

Wood Island, ⅜ mile long, is marked on its eastern end by Wood Island lighthouse. **Tappan Island** (low, and grassy on top) lies just westward of Wood Island; ledges extend nearly 200 yards northwestward and 300 yards southwestward from Tappan Island, and are marked at the southwest end by Negro Island Bar buoy (spar, red, No. 4).

Stage Island is marked by a prominent, white, stone monument. The harbor southwestward of a line joining Philip Rock, Stage Island, and the entrance of Saco River is shoal. **Stage Island Shoal**, partly bare at low water, extends 300 yards east-northeastward from the island, and is marked at its end by a buoy (spar, black, No. 3). **Sharp Rocks**, bare at low water, lie ⅜ mile northward from Stage Island, and are marked on their southern side by a buoy (spar, red, No. 6).

The Pool is a shallow bay making southwestward from Wood Island Harbor inside of Fletcher Neck. The entrance is about 50 yards wide, and the tidal currents have considerable velocity. Small craft can anchor just inside the entrance. **Biddeford Pool** is a post village on the south side of Wood Island Harbor, extending from The Pool nearly to the eastern point of Fletcher Neck.

Washman Rock, bare at half tide, is near the end of a reef which extends nearly 600 yards southeastward from the eastern point of Fletcher Neck, and is marked by a black spindle with cask.

Dansbury Reef is a small ledge with 5 feet over it, lying ½ mile 158° true (**S** ⅝ **E** mag.) from Wood Island lighthouse. It is marked on its southeast side by a buoy (spar, red, No. 2). There are several shoal spots between the reef and Wood Island, and strangers should not enter between them.

A number of rocks and ledges extend ⅝ mile southeastward from **Fletcher Neck.** **Huzzey Rock**, at the south end of the ledges, has 7 feet over it; a buoy (spar, black, No. 1) is placed ½ mile southward from the rock and just southward of a 19-foot spot. Vessels will avoid these dangers by keeping Wood Island lighthouse bearing northward and westward of 350° true (**N** ½ **E** mag.).

Goose Fair Bay is a shallow cove full of rocks and ledges lying 2 miles northeastward of Goat Island lighthouse.

Stage Island Harbor is a small slough, ½ mile northeastward of Goat Island lighthouse, that is used by boats and small local craft. The entrance is about 50 yards wide between reefs, making northward from Cape Island and southward from Little Stage Island.

Cape Porpoise Harbor is an anchorage which has been dredged to a width of 500 to 600 feet, with a depth of 15 feet, lying between the islands and rocks northwestward of Goat Island lighthouse. The channel at the entrance has been straightened by cutting off the points of ledges, and has a width of 190 feet and depths of 18 to 35 feet. Small local craft sometimes anchor on the flats on the west side of the dredged anchorage, and lie aground in the soft mud at low water. Vessels of over 100 tons should not attempt to enter the harbor for refuge on account of the small area of the anchorage; it is advisable for strangers to run either for Portland or Portsmouth if caught in a blow. Vessels of 18 feet draft loaded with coal have been brought into the harbor to the wharf on the west side of Bickford Island.

The Old Prince is a ledge with 5 feet over it lying 400 to 500 yards southeastward from Goat Island lighthouse; the ledge is marked by a red bell buoy placed about 200 feet south-southwestward from it, and the buoy should be kept fairly close aboard to avoid the southeast point of the ledge making out from Folly Island. **Folly Island** beacon, a large white tripod, is placed on the partly bare ledge extending eastward from Folly Island; the beacon lies 180 feet from the westerly edge of the dredged channel. A red spindle with wheel and pendants is placed on a ledge bare at low water, and lies 370 feet west-southwestward from Goat Island lighthouse and 30 feet from the easterly edge of the channel. About 300 yards above the lighthouse the west side of the channel is marked by a buoy (spar, black, No. 1), placed on the northeast side of **Lobster Rock**, which has 4 feet over it. Abreast the buoy is an islet, nearly awash at high water, marked by a beacon (pile of stones), which lies 275 feet from the easterly edge of the channel.

Approaching Cape Porpoise Harbor, give the islands northeastward of the entrance a berth of ½ mile, and the shore southwestward of the entrance a berth of 1½ miles. Steer for Goat Island lighthouse on a 330° 30′ true (**N** by **W** ¼ **W** mag.) course until up with The Old Prince bell buoy, which lies 600 yards from the lighthouse. Pass close westward of the bell buoy, steer about 315° true (**NNW** ⅝ **W** mag.), and pass 100 to 150 feet westward of the red spindle abreast the lighthouse and 50 to 60 feet eastward of the black buoy lying 300 yards above the lighthouse. Continue the course about 150 yards above the buoy, and then steer 347° 30′ true (**N** ¼ **E** mag.) for the wharf on the west side of Bickford Island. Anchor on or a very little westward of this line, keeping 200 yards or more southward of the wharf.

Southwestward of Goat Island lighthouse is an area of broken ground, with depths of 3¼ to 5½ fathoms, which has not been closely examined. Its southern end is a 5½-fathom spot lying 1¼ miles from shore and 2¼ miles south-southwestward of Goat Island lighthouse. The lighthouse bearing 0° true (**N** by **E** ⅜ **E** mag.) leads eastward of the broken ground.

Kennebunk River is a small stream about 2½ miles westward of Goat Island lighthouse. The entrance is between two stone piers, the easterly one being marked at its end by **Kennebunkport Pier light.** The crooked channel of the river leads between flats, and has a width of about 100 feet and a depth of 3 feet to **Kennebunkport.** Vessels of 12 feet draft are sometimes taken to the wharves of the town at high water under favorable conditions. The depth at the wharves is about 5 feet, and some anthracite coal, water, and provisions can be obtained. There is no sheltered anchorage off the entrance; the Fishing Rocks are a dangerous obstruction to the approach. Strangers should not attempt to enter without a pilot.

Fishing Rock, bare at half tide and marked by a black iron spindle, lies ⅝ mile southwestward of the entrance of Kennebunk River. About 600 yards eastward of the spindle is a buoy (spar, black, No. 3), placed off the southeast side of rocks that are awash at lowest tides. A rock with 9 feet over it lies ½ mile southward from Fishing Rock spindle, and is marked on its south side by a buoy (spar, black, No. 1).

Oaks Reef extends ½ mile south-southwestward from the shore. A rock near the middle of the reef is marked by a black spindle with cask. Near the south end of the reef is a black spindle with cage, which lies about ⅜ mile west-northwestward from Fishing Rock spindle.

Kennebunk Beach is a post village 1 mile westward of Kennebunk River. Ledges extend ¾ mile from shore southward from the village. There is a prominent yellow bluff at the western end of Kennebunk Beach.

Wells Beach extends 6½ miles southwestward from Kennebunk Beach to the village of **Ogunquit.** The beach southward of Webhannet River has numerous cottages. The principal outlying dangers are **Fishing Rocks**, which lie ⅜ to ⅞ mile from shore and 2 miles southwestward from Kennebunk Beach: and **Bibb Rock**, which is bare at low water and lies ⅞ mile from shore and 3½ miles north-northeastward from Bald Head Cliff.

Bald Head Cliff is a high, prominent point 3½ miles north-northeastward of Cape Neddick, and is marked by a large hotel and outbuildings.

Cape Neddick is a prominent headland extending out about 1 mile from the main shore; off its eastern end is a small, high islet, called Cape Neddick Nubble, on which is **Cape Neddick lighthouse. York Beach** is a large village and much frequented summer resort in the bights northward and southward of the cape.

Boon Island, lying 5¾ miles southeastward from Cape Neddick, is a small, low, rocky islet marked by Boon Island lighthouse, an important offshore aid. A black spindle is placed 250 yards westward of the lighthouse. The island is surrounded by deep water, but the following detached ledges are in the vicinity:

Spout Shoal is a small ledge with 3 fathoms over it lying ⅜ mile west-northwestward from the lighthouse.

Pollock Rock, with 17 feet over it, lies ¾ mile west-southwestward from the lighthouse.

Sanders Ledge, with 4¾ fathoms over it, lies 1 mile south-southwestward from the lighthouse.

Southeast Shoal, with 3½ fathoms over it, lies ¾ mile south-southeastward from the lighthouse.

Boon Island Ledge, showing bare at extreme low tides, lies 2¾ miles 83° true (**E ¾ S** mag.) from Boon Island lighthouse. A whistling buoy (red and black horizontal stripes) is placed about 300 yards southeastward of it. Commencing about 1⅜ miles eastward of Boon Island lighthouse and extending toward Boon Island Ledge is a ledge with 4½ to 8 fathoms over it on which the sea breaks in heavy weather.

Between Cape Neddick and the entrance to Portsmouth Harbor, a distance of 8 miles, the shore has no marked indentations except York River. Lying offshore 2½ miles are two dangerous ledges; **York Ledge**, the northernmost of these, lies southeastward from York River entrance. There are spots with 2¾ to 6 fathoms over them between the southernmost ledge (**Murray Rock**) and the mainland.

York River [1] lies 2½ miles southwestward from Cape Neddick and 275° true (**WNW ¼ W** mag.) from Boon Island lighthouse. It is a secure harbor for small craft, the usual anchorage being at the entrance to the cove on the north side of Stage Neck, between the Marshall House and the coal bunker at York, in 2 to 4 fathoms. Small vessels can find temporary anchorage in good weather in the entrance just eastward of buoy No. 6, in 18 to 22 feet, soft bottom. The principal dangers are marked by buoys up to the southwest end of Stage Neck.

The channel is narrow and crooked, and the tidal currents have great velocity, possibly as much as 5 miles at the strength of spring tides, in the narrower parts of the channel. The channel has been dredged to a depth of 10 feet, and has a width of 150 and 120 feet, respectively, at its narrowest parts just westward of Rocks Nose and between the southwest end of Stage Neck and the east point of Harris Island; the latter place is the most difficult part of the entrance on account of the sharp turn and the strong currents, and care must be taken to avoid the ledge making out from Harris Island nearly to mid-channel. The deepest draft taken to **York** is about 15 feet at high water. Several bridges cross the river above York; the width of the draws is 27 to 35 feet. A pilot can be obtained by making signal outside the entrance. The most favorable time for entering is on the flood near high water. Ice closes the river to navigation in severe winters.

Marshall House is a large, yellow hotel on Stage Neck, and there are numerous houses on the north side of the entrance extending nearly to East Point. Sunken rocks extend ¼ mile southeastward from **East Point**, and are marked at the southeast end by a buoy (spar, red, No. 2). **Black Rocks** are two bare rocks, the highest parts of a ledge, lying 200 yards from the north side. A bar extends from Black Rocks to the south point at the entrance, and is marked by two buoys; the channel between the buoys has a depth of 14 to 16 feet. Red spar buoy No. 6 marks the end of a ledge, bare at low water, extending 100 yards southward from the eastern end of **Stage Neck. Rocks Nose** is a bare ledge on the south side of the channel, southward of the Marshall House, and should be given a berth of over 100 feet.

PORTSMOUTH HARBOR,[2]

lying 38 miles southwestward from Cape Elizabeth and about 25 miles northward from Cape Ann lighthouses, is the only harbor of refuge for deep-draft vessels between Portland and Gloucester. The entrance is marked by Whaleback and Portsmouth Harbor lighthouses and the principal outlying dangers are marked, so that no difficulty should be experienced when entering in clear weather, either in the daytime or at night. Portsmouth Harbor is formed by the mouth of Piscataqua River, and is the approach to the cities of Portsmouth and Dover and the towns of Newcastle, Kittery, South Newmarket, and Exeter; on the north side of the harbor, opposite Portsmouth, is the United States Navy Yard.

Piscataqua River has several branches, the principal ones being **Cocheco River**, and **Great Bay** and **Exeter River**, also known locally as the "Exeter and South Newmarket Branch." These are navigable at high water for vessels up to 10 feet draft, but a towboat and local knowledge are necessary.

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[1] Shown on chart **328**, scale $\frac{1}{20,000}$, price $0.15.

[2] Shown on charts **108**, scale $\frac{1}{80,000}$, price $0.50; **0329**, scale $\frac{1}{10,000}$, price $0.25.

Little Harbor is a good anchorage for small craft and vessels of about 10 feet draft, and lies on the west side of the entrance to Portsmouth Harbor ¾ mile westward of Whaleback lighthouse. Vessels should not attempt to enter in bad southeasterly weather, when the sea breaks across the entrance. The entrance is between two breakwaters, the ends of which are marked by lights, and two buoys mark the entrance outside the breakwaters. Inside the breakwaters an anchorage basin has been dredged 2,000 feet long and 600 feet wide, with a depth of 11 feet or more, and is marked on its north side by buoys Nos. 4, 6, and 8. There is room only for very small craft to anchor in the channel above buoy No. 8. The Wentworth is a large white hotel, with red roof, on the north side of the harbor.

To enter Little Harbor, from a position 600 yards southwestward of Kitts Rocks whistling buoy steer 303° true (**NW** ¼ **N** mag.) for the cupola of The Wentworth showing just northward of Frost Point light on the south breakwater. Pass between buoys Nos. 1 and 2 at the entrance, pass about 100 yards southwestward of Jaffrey Point light on the end of the north breakwater, and midway between it and Frost Point light, and pass midway between the latter light and buoy No. 4, lying 400 feet northeastward from it. Then steer 269° true (**WNW** ¾ **W** mag.) and anchor 200 to 400 feet southward of the line of red buoys.

Pepperell Cove is on the eastern side of the harbor, northeastward from Portsmouth Harbor lighthouse, and on the north side of Fishing Islands. Improvements are in progress to dredge the cove to a depth of 12 feet for an anchorage. **Logy Ledge**, in the entrance of the cove, has 4 feet over it and is marked on its southwest side by a buoy (spar, red and black horizontal stripes).

A small vessel can anchor at the mouth of **Spruce Creek** eastward of Jamaica Island. The entrance is marked on the east side by a red spar buoy (No. 6) and a red spindle with cage, and on the west side by black spar buoy No. 7. Enter between the red buoy and Clark Island, pass midway between the red spindle and the black buoy, and steer 3° true (**N** by **E** ⅝ **E** mag.) for the western end of the bridge over Spruce Creek. Anchor about 300 yards from the spindle, bearing 160° true (**S** ½ **E** mag.), with the bare rock northeastward of the spindle bearing 116° true (**SE** ⅜ **E** mag.). Small craft can anchor as far up as the bridge, being careful to avoid the shoal, bare at low water only, which makes out a little over 100 yards on the west side at the mouth of the creek, and to give the shores a berth of about 60 yards.

Newcastle is a village on the south side of the harbor westward of Fort Constitution. It is reached from Portsmouth by crossing several bridges which connect the islands on the south side of the harbor.

Portsmouth has a large trade in coal, carried principally in the larger coasting vessels and barges, which are taken alongside the wharves from the anchorage by towboats; it is connected with the town of Kittery by a drawbridge. The **least depth** in the channel entering the harbor is about 6½ fathoms, but above Fort Constitution the depths range from 8 to 12½ fathoms and the tidal currents have great velocity. Vessels of 23 feet draft can lie afloat at the principal wharves in the city.

Kittery is a small town on the north side of the harbor opposite Portsmouth; it is connected with the navy yard by a drawbridge. There is an electric road to York.

Dover is an important manufacturing city on the Cocheco River, about 12 miles above Portsmouth; coal is brought to the city at high water in vessels of 10 feet draft. The channel is narrow and crooked, and requires local knowledge and the assistance of steam. There is about 4 feet of water alongside the wharves at low water, and the mean rise of tides is about 6½ feet. A bridge with a draw 38 feet wide has to be passed just above Portsmouth.

South Newmarket and **Exeter** are two manufacturing towns on the Exeter River, the former about 17 miles and the latter 22 miles above Portsmouth; they have some trade in coal and can be reached at high water by vessels of 10 feet draft. The channel through Great Bay and in Exeter River is narrow and crooked, and is navigable only for vessels assisted by steam. Three bridges have to be passed; the least width of the draws is about 30 feet. Vessels when loaded must lie aground at the wharves at low water.

Pilots.—There are branch pilots for Portsmouth Harbor and Piscataqua River; sailing vessels, if bound to the wharves at Portsmouth or any of the towns on the Piscataqua River or its branches, take a towboat from the anchorage. A pilot to the anchorage is not necessary in clear weather when the aids can be seen. For pilotage laws see Appendix II.

Towboats are on the lookout for vessels expected to arrive, and if the tide is slack will tow alongside the wharves without any delay. A vessel desiring a towboat while outside Whaleback lighthouse can obtain one by making the usual signal (flag in rigging). From the anchorage steamers generally take a towboat when going to the wharves or to the navy yard.

Anchorages.—The anchorage is anywhere on the east and north sides of the channel between **Wood Island**, the island north of Whaleback lighthouse, and **Clark Island**, the small island on the north side about ¾ mile above Fort Constitution, in 8 to 11 fathoms. With a southerly wind the best anchorage is above Fort Constitution on the south side of the channel, in 8 to 10 fathoms, bottom generally clay. There is no anchorage above Clark Island. See also the description of Little Harbor, Pepperell Cove, and Spruce Creek preceding.

Harbor regulations.—The harbor master of the city of Portsmouth has authority to regulate any controversy among the vessels in the harbor. (See Harbor Regulations, Appendix II.)

Quarantine regulations.—The board of health of the city of Portsmouth has jurisdiction over the harbor of Portsmouth. (See Quarantine, Appendix II.)

Marine hospital.—Medical attendance is furnished seamen by an acting assistant surgeon of the United States Public Health and Marine-Hospital Service, under regulations for stations of Class III. (See Appendix IV.)

Supplies.—Coal can be obtained at the wharves, water from a water boat or alongside the wharves, provisions and a limited supply of ship-chandler's stores in Portsmouth.

Repairs.—There is a small marine railway at Portsmouth that will take out small craft not over 50 feet long. Vessels requiring repairs to hull or machinery usually go to Portland or Boston.

Storm warning displays of the United States Weather Bureau are made at Portsmouth, the navy yard, and Wood Island.

Ice.—In ordinary winters Portsmouth Harbor is free from ice, but during severe winters there is considerable drift ice which comes down the river with the ebb current; it is seldom an obstruction to navigation and never interferes with vessels at anchor below Clark Island.

Tidal currents.—The tidal currents have great velocity and require special care. It is slack water about 1½ hours after high and low waters at Portland, and the duration of the stand is about 10 minutes. The current attains its maximum velocity about 1½ hours before high and low waters at Portland. The mean maximum velocity of the flood and ebb current, above Fort Constitution, is about 3 miles: but during spring tides it is much greater, probably 6 miles.

Tides.—The mean rise and fall of tides is 8.7 feet. (See also table, p. 24.)

SAILING DIRECTIONS, PORTSMOUTH HARBOR.

These directions, if closely followed, will lead to the anchorage with a least depth of 6½ fathoms; this depth is found in spots in the channel westward and southwestward from Whaleback lighthouse. Directions for the coast between Portland and Cape Ann are given on page 27.

From northeastward.—From York Ledge whistling buoy steer 210° true (**SW** mag.) for 2½ miles until Whaleback lighthouse bears 286° true (*NW* by *W* ¼ *W* mag.). Then steer 275° true (**WNW** ¼ **W** mag.) for 3¾ miles to a position ¼ mile southward of Kitts Rocks whistling buoy.

Pass nearly ⅜ mile westward of Kitts Rocks whistling buoy, steer 342° 30′ true (**N** ¼ **W** mag.) for Portsmouth Harbor (Newcastle) lighthouse, and pass a little over ¼ mile westward of Whaleback lighthouse. When Whaleback lighthouse bears 98° true (*ESE* mag.), steer 356° 30′ true (**N** by **E** mag.) and pass 350 yards eastward of Portsmouth Harbor lighthouse. When the latter lighthouse bears well abaft the beam, steer between 334° true (**N** by **W** mag.) and 300° true (**NW** mag.), and anchor on the north side of the channel in 8 to 13 fathoms, clay bottom.

From southward.—From White Island whistling buoy, lying 1¾ miles southwestward from Isles of Shoals lighthouse, steer 340° true (**N** ½ **W** mag.) for 6½ miles, heading for Portsmouth Harbor (Newcastle) lighthouse, passing ½ mile eastward of Gunboat Shoal buoy, and to a position ¼ mile westward of Kitts Rocks whistling buoy. Then bring Portsmouth Harbor (Newcastle) lighthouse to bear 342° 30′ true (**N** ¼ **W** mag.), steer for it and proceed as directed in the preceding paragraph.

Dangers.—**York Ledge** is about ¾ mile long and partly bare at three-quarters ebb. It lies 2⅜ miles from the coast and 4 miles 176° 30′ true (**S** by **W** mag.) from Cape Neddick lighthouse, and is marked by a spindle with cage. The sunken part of the ledge extends about ½ mile northeastward and ¼ mile westward from the spindle. A red whistling buoy (YL 24) is moored 1¼ miles south-southeastward from the spindle.

The Triangles is an extensive shoal area, nearly 1 mile in diameter, with 4 to 6 fathoms. **Murray Rock**, with 6 feet over it, is near the southeastern side of The Triangles, and lies 1½ miles 209° true (**SW** ⅛ **S** mag.) from York Ledge spindle and 4 miles 78° true (**E** ¼ **S** mag.) from Whaleback lighthouse. It is marked by a buoy (nun, red and black horizontal stripes) placed about 100 yards south-southeastward from the shoalest part of the rock. Vessels coming from northward should pass at least ½ mile eastward of this buoy. There are spots with 4 to 6 fathoms over them between Murray Rock and York Ledge, and with 2¾ to 6 fathoms between Murray Rock and the northern point at the entrance to Portsmouth Harbor.

A number of rocks and ledges, some of them bare at low water, extend in a broken line about 1½ miles eastward of Whaleback lighthouse and about ¾ mile from shore. They are known, respectively, as **East Sister, West Sister, Phillips Rocks, White Island Reef,** and **Kitts Rocks**, and are avoided by giving the shore a berth of 1 mile. West Sister buoy (spar, red, No. 2) is placed close southeastward of a rock with 6 feet over it, and lies nearly 1¼ miles 87°

true (**E** by **S** mag.) from Whaleback lighthouse. Kitts Rocks whistling buoy is placed at the south end of broken ground, with 11 to 19 feet on it, and lies ⅝ mile 158° true (**S** ⅝ **E** mag.) from Whaleback lighthouse.

Gunboat Shoal, with 3½ fathoms over it, is about ¼ mile long, and lies 1 mile from shore southward from Portsmouth Harbor entrance. It is marked off its northeast end by a black, bell buoy, which lies a little over 2 miles 180° true (**S** by **W** ⅜ **W** mag.) from Whaleback lighthouse. Lying ¾ mile northward of Gunboat Shoal buoy is the end of a ledge, with 28 to 30 feet over its outer part, which extends ⅝ mile from shore. Between this ledge and the entrance of Little Harbor the shore should be given a berth of about ⅜ mile.

Between Whaleback lighthouse and Wood Island the eastern edge of the channel is marked by Wood Island buoy (nun, red, No. 2), which lies nearly ¼ mile northwestward of the lighthouse. Shoals extend 250 yards westward of **Wood Island**. Ledges extend 400 yards from the eastern shore between Wood Island and **Fishing Islands**. The latter are two small rocky islets on the eastern edge of the channel, northeastward from Portsmouth Harbor lighthouse. A buoy (spar, red, No. 4) is placed on the northwest side of the ledge which extends 100 yards westward from Fishing Islands, and marks the south point at the entrance of Pepperell Cove.

From abreast Whaleback lighthouse to Portsmouth Harbor lighthouse the western shore should be given a berth of ¼ mile. **Stielman Rocks** buoy (can, black, No. 3) marks the western edge of the channel ¼ mile southward of Portsmouth Harbor lighthouse.

Cod Rock, with 16 feet over it, lies 300 yards northward from Portsmouth Harbor lighthouse, and is marked on its northeast side by a buoy (spar, black, No. 5).

The following are the principal dangers and aids between the anchorage and the wharves at Portsmouth:

Goat Island Ledge, known also as **Pull-and-be-damned Point**, makes off about 150 yards northward from the eastern end of Goat Island. It is marked on its northern end by a buoy (can, black, No. 9). This ledge is particularly dangerous on the ebb current, which sets directly on it. The buoy sometimes tows under water during the strength of the current.

South Beacon Shoal extends about 160 yards eastward from the stone beacon, with mast and shape on top, which is on the south side of the harbor, southwestward from the navy yard. The eastern end of the shoal is marked by a buoy (spar, black, No. 11). About 70 yards north-northeastward of the beacon is a 17-foot spot, and **Gangway Rock**, with 19 feet over it, lies 180 yards in the same direction from the beacon.

Seward Rocks lie westward of the stone beacon on the south side of the harbor; they are marked near their northern side by a buoy (spar, black, No. 13).

The northern side of the harbor, between the navy yard and Willey Ledge spindle, is full of shoals, which extend nearly 100 yards southward of Pumpkin Island beacon (red mast with diagonal braces and lozenge-shaped figure on top).

ISLES OF SHOALS.[1]

This group of islands lies from 5 to 6 miles offshore southeastward of Portsmouth Harbor entrance. It comprises seven islands and a number of rocks and ledges. The group is about 3 miles long in a northeasterly direction, and is marked at its southwest end by **Isles of Shoals lighthouse**. There are several channels between the islands, but they are used only by local fishermen, who sometimes seek shelter there in easterly winds.

Duck Island, the northernmost of the group, is low, rocky, and surrounded by ledges, and should be given a berth of ½ mile. In 1910 there was a large skeleton tripod beacon near the middle of the island.

Appledore Island, the largest of the group, lies about 1 mile southwestward of Duck Island. It is high and has several summer cottages and hotels near the middle of the island, and a landing on its western side. The channel between Duck and Appledore Islands has depths of 6¾ to 15 fathoms, irregular bottom. There is a small 8-foot spot marked by a buoy (spar, black, No. 1) 300 yards northwestward from the island.

Smuttynose Island lies southward of Appledore Island, with a narrow channel between them having a depth of 3¼ fathoms. There are several houses near the western end of this island and a small cove, **Haley Cove**, where boats lie aground at low water.

Cedar Island is southward of Smuttynose, and is connected with it by a breakwater; westward of this breakwater is **Gosport Harbor**, a small anchorage used by fishermen during easterly winds. Another breakwater is building between Cedar and Star Islands.

Star Island westward of Cedar Island has on its northern side several hotels and a steamboat landing for the steamer plying to Portsmouth.

Lunging Island is a low, bare, rocky islet, surrounded by ledges and lying ½ mile westward of Star Island. The channel between these islands is obstructed by rocks which are marked by a buoy.

White Island is the southernmost of the group and is marked by Isles of Shoals lighthouse; ledges extend ¼ mile southwestward and westward from the island.

Anderson Ledge, bare at half tide and marked by a spindle, lies 1 mile 107° 30′ true (**SE** by **E** ⅛ **E** mag.) from Isles of Shoals lighthouse, and is the farthest outlying danger. The ledge is about 200 yards in diameter and has good water around it.

[1] Shown on charts **108**, scale $\frac{1}{80,000}$, price $0.50; **330**, scale $\frac{1}{20,000}$, price $0.20.

Cedar Island Ledge shows bare at low water and lies ⅜ mile southeastward from Cedar Island; it is about 300 yards long east and west, and is surrounded by deep water.

REMARKS ON APPROACHING AND PASSING ISLES OF SHOALS.

The islands can be seen a distance of 10 miles on a clear day, the hotels being most prominent, and vessels passing westward can avoid all danger by giving them a berth of ½ mile. Passing eastward care should be taken to avoid Cedar Island and Anderson Ledges; giving the islands a berth of 1¼ miles leads well clear. Isles of Shoals lighthouse covers the entire horizon, but the hotels on the islands northward shut the light out occasionally when approaching the islands from that direction. A stranger desiring to land on the islands should be guided by chart 330.

COAST FROM PORTSMOUTH TO CAPE ANN.[1]

From Portsmouth Harbor entrance to Hampton Harbor, a distance of about 10 miles, the coast has a general southwesterly trend, with no marked indentations; it presents the appearance of a succession of sand beaches separated by ledges extending out about ½ mile, with occasional hotels and summerhouses back of the high-water line.

Wallis Sands, 2¾ miles southwestward of Whaleback lighthouse, is marked by the yellow building of a life-saving station where storm-warning displays are made. At the southern end of the beach is a summer resort, from which **Foss Ledges**, partly bare at low water, extend ½ mile offshore.

Rye Harbor is a small cove, almost entirely bare at low water. About ⅝ mile southwestward of the cove is Rye Beach life-saving station, where storm-warning displays are made. **Rye Beach** is a summer resort extending about 1 mile southwestward from the station. At the southern end of the beach, **Rye Ledge**, partly bare at high water, extends over ⅜ mile from shore.

Little Boar Head is a yellow bluff 7 miles southwestward of Whaleback lighthouse. A summer resort of the same name extends over ½ mile northeastward from the bluff. A bare ledge lies ⅜ mile off the bluff.

Great Boar Head is a bluff point making out ¼ mile at the southern end of Hampton Beach and 9½ miles southwestward of Whaleback lighthouse. The summer resort of **Hampton Beach** extends northward and southward from the point. On the point is a prominent, tall standpipe, which is the best mark for this part of the coast. A ledge partly bare at low water extends 400 yards off the point.

Hampton Harbor, or **Hampton River**, a shallow stream used only by very small local craft, lies 1½ miles southwestward from Great Boar Head. There is a trestle across the mouth of the river. A bar and ledges make off from the river to **Old Cellar Rock**. The latter is a reef, ¾ mile long and partly awash at high water, the northeast end of which lies ⅞ mile from shore. **Hampton Shoal Ledge**, with 19 feet over it, lies 2½ to 2¾ miles from shore off Hampton River, and 131° true (**SE** by **S** mag.) from Great Boar Head.

From Hampton Harbor the coast extends 4½ miles in a southerly direction to the entrance of Merrimac River and is known as **Salisbury Beach**. **Cushing**, a summer resort, extends along the beach from the life-saving station southward to the entrance of the river, a distance of nearly 2½ miles. A ledge, with a reported depth of 3 feet over it, lies ¾ mile off shore eastward from the station, and is marked at its northeast end by a buoy (spar, red, No. 2).

Merrimac River (Newburyport Harbor) is described under a separate heading.

From Merrimac River entrance the coast is sand dunes and trends southward about 7½ miles to the entrance of Plum Island Sound and Ipswich River. There are no outlying dangers along this beach, and a depth of over 5 fathoms will be carried 1 mile from the shore. Ipswich lighthouse, on the southern side of the entrance to Ipswich River, is prominent.

Ipswich Bay is the bight between the northern point of Cape Ann and Plum Island Beach. Between these points it is about 6 miles wide and makes in southward about 3 miles. The bay is the approach to Ipswich, Essex, and Annisquam Rivers, and has a depth of 4 to 15 fathoms except in its southern and southwestern sides, where the shore should be given a berth of a little over 1 mile to avoid the shoals off the river entrances.

Plum Island Sound and **Ipswich River** have a common entrance, marked by Ipswich light and range light and by buoys. The channel is over a shifting bar, with a depth of about 6 feet, and is not safe for strangers. With northeasterly winds the sea breaks on the bar at the entrance. By communication with Ipswich, arrangements may be made to have a pilot come off to a vessel outside the entrance. **Ipswich**, a town on Ipswich River about 3 miles above the lighthouse, can be reached through a narrow dredged channel which has about 3 feet at low water in several places. There is an inside passage used by launches at high water through Plum Island Sound and River to Merrimac River. These waters are frequented only by small local craft and launches. The mean rise and fall of tides at the entrance is 8.7 feet.

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[1] Shown on chart **108**, scale $\frac{1}{80,000}$, price $0.50.

Essex River [1] lies midway between Ipswich and Annisquam lighthouses. Its entrance is over a shifting bar, over which a depth of about 3 or 4 feet can be carried at low water through a narrow buoyed channel. The river is navigable to the town of **Essex**, 4 miles above its mouth, through a dredged channel 60 feet wide and 4 feet deep at low water. Vessels of 12 feet draft, with local knowledge, have been taken over the bar to an anchorage inside the entrance. By communication with Essex, arrangements may be made to have a pilot come off to a vessel outside the entrance; a pilot or towboat may be had at Gloucester. There are shipyards at Essex where wooden vessels are built, and otherwise there is no traffic except by local fishermen and launches.

Annisquam River [1] is the easternmost harbor in Ipswich Bay, and is marked by Annisquam lighthouse. The entrance is over a bar with a depth of 7 feet. For a distance of 1½ miles southward from Annisquam lighthouse the channel has a width of 300 to 400 feet, with depths greater than 6 feet. Thence southward the channel is much narrower in places and winding, and is prolonged by a dredged channel 50 feet wide and 6 feet deep to Gloucester Harbor. The least width in the dredged channel is 40 feet through the two drawbridges, and at these points the tidal currents have considerable velocity. Vessels of 10 feet draft are towed through the dredged channel and Annisquam River at high water. On the south side of the village of **Annisquam** is **Lobster Cove**, where an anchorage basin 200 to 350 feet wide and 6 feet deep has been dredged close to the wharves; the dredged channel from Annisquam River into this basin is 100 to 200 feet wide and 6 feet deep, and is marked on its north side by a stone beacon. There is communication by electric road from Gloucester around Cape Ann, through Rockport, Lanesville, and Annisquam.

Small craft of about 5 feet draft can enter Annisquam River from northward between the red and black buoys outside the bar on a 165° true (**S** mag.) course for Annisquam lighthouse. Pass 100 yards westward of the lighthouse, steer 195° true (**SSW** ⅝ **W** mag.), and pass 50 yards westward of Lobster Rocks beacon (square, black, openwork, granite structure). Pass **Babson Point** (southwest end of Annisquam) at a distance of 75 to 100 yards, and anchor in the channel southward of the point; or go through the dredged channel, which lies close southward of a stone beacon and the wharves along the south side of Annisquam, and anchor in Lobster Cove. Local knowledge is necessary for the navigation of Annisquam River and the dredged channel to Gloucester Harbor. A pilot or towboat can be had from Gloucester.

Bay View [1] is a village on a small cove ¾ mile northeastward from Annisquam lighthouse. The north point of the cove is a stone breakwater; on the south side of the breakwater is a pier with 16 to 18 feet alongside its outer part where vessels load granite.

Lanes Cove [1] is a basin formed by stonewalls at the entrance, and lies 1⅜ miles northeastward from Annisquam lighthouse. The narrow entrance to the basin has a depth of about 12 feet. The greater part of the basin is shoal, and it can be used only by very small craft. **Lanesville** is the village at the basin. A black buoy marks a ledge which extends 350 yards from shore southwestward of it.

Sandy Bay and Rockport Harbor are described under a separate heading.

Cape Ann lighthouses, on **Thatcher Island**, lie a little over 1½ miles southward from Straitsmouth lighthouse. Two small, unimportant coves make into the eastern shore of Cape Ann between them. The passage between Thatcher Island and Cape Ann is about ½ mile wide, but is obstructed by shoals and only used by local craft of light draft. Storm warning displays are made on Gap Head, westward of Straitsmouth Island.

The Londoner is a ledge about ⅜ mile long in a northeasterly direction; it has general depths of 7 to 11 feet over it, and lies ½ mile east-southeastward from Cape Ann lighthouses. Near the southern part of the ledge, on a cluster of rocks which show bare at low water, is a red spindle with cage. There is a passage with 5¾ fathoms between The Londoner and Thatcher Island, which should not be attempted by a stranger.

MERRIMAC RIVER AND NEWBURYPORT HARBOR.[2]

Merrimac River is the largest and most important river in the eastern part of Massachusetts; it is the approach by water to the cities of Newburyport and Haverhill, and the towns of Salisbury and Bradford, and is navigable for vessels of 10 feet draft at high water up to Haverhill, and 15 feet draft at high water to Newburyport. The river is seldom entered for refuge, but the towns on its banks have some trade, mostly coastwise. The entrance (Newburyport Harbor) is obstructed by a shifting bar, with 9 to 12 feet over it (according to the condition of the bar), which is dangerous to cross in heavy weather; it is marked by Newburyport lighthouse on its southern side and two range lights on its northern side. The range does not always lead in the best water across the bar. Under the supervision of the United States Engineers, jetties with an opening 1,000 feet wide between the ends have been built from both

[1] Cape Ann from Gloucester to the entrance of Ipswich River is shown on chart **243**, scale $\frac{1}{20,000}$.

[2] Shown on chart **108**, scale $\frac{1}{80,000}$, price $0.50; **331**, scale $\frac{1}{20,000}$, price $0.25.

points at the entrance out to the bar. The channel between the entrance and the head of tide water, about 1¼ miles above Haverhill, is narrow and crooked in places; it has been improved by the removal of some rocks and by dredging. Several drawbridges cross the river between Newburyport and Haverhill; the width of the draws is 40 to 72 feet.

Newburyport is a city on the south bank of the river, about 2½ miles above the entrance; it has considerable coastwise and some foreign trade. The deepest draft that can cross the bar at high water under favorable conditions is 17 feet. The usual draft is 15 feet; there is 12 to 15 feet at low water alongside some of the wharves. The city is on the line of the eastern division of the Boston and Maine Railroad.

Haverhill is a manufacturing city on the south bank of the river, about 15½ miles above its mouth. Vessels bound to Haverhill usually tow up the river at high water. The mean rise and fall of tides at the city is about 4½ feet.

The best and usual **anchorage** in the river is in the channel just above Black Rock beacon in 15 to 16 feet.

Pilots.—Strangers entering the river should take a pilot, and it is advisable for all vessels over 9 feet draft to take one, as the channel over the bar changes after heavy easterly gales. Vessels bound up the river above Newburyport should take a pilot or towboat. Pilots can be had by making signal outside the bar, standing off and on outside the whistling buoy until boarded. Pilotage is compulsory for all vessels except steam vessels regulated by the laws of the United States and carrying a pilot commissioned by United States Commissioners, vessels regularly employed in the coasting trade, fishing vessels other than whalers, and vessels of less than 7 feet draft of water.

The rates for outward pilotage are: From 7 to 12 feet draft, 65 cents per foot; from 12 to 15 feet, inclusive, 85 cents per foot; upward of 15 feet, $1.05 per foot.

The rates for summer inward pilotage are: From 7 to under 12 feet draft, 95 cents per foot; from 12 to 15 feet, inclusive, $1.25 per foot; over 15 feet, $1.60 per foot.

The rates for winter inward pilotage are: From 7 to 12 feet draft, $1.25 per foot; from 12 to 15 feet, inclusive, $1.65 per foot; over 15 feet, $2.10 per foot.

Vessels not spoken until within the bar shall pay only half pilotage; if not spoken until within the Black Rocks shall pay no compulsory pilotage.

Towboats can be had at Newburyport; sailing vessels bound up the river usually take one.

Supplies.—Coal in large quantities can be obtained in Newburyport alongside the wharf or in lighters. The water in the river is fresh for about 7 months in the year. Provisions, fresh water, and some ship-chandler's stores can be had at Newburyport.

Harbor regulations.—The harbor master has control of the anchorage and the berthing of vessels at Newburyport.

Quarantine regulations.—The board of health may from time to time establish the quarantine to be performed by vessels arriving within the harbor. The **Quarantine anchorage** is at Black Rock, above which no vessel with contagious or infectious disease on board is allowed to pass without permission from the board of health.

Storm warning displays are made at Newburyport.

Freshets occur sometimes in the spring, but as a rule they do not interfere with navigation.

Ice seldom obstructs navigation as far up as Newburyport; drift ice may sometimes interfere with vessels under sail, but steamers and vessels assisted by towboats can usually work their way through. Westerly winds carry the drift ice out to sea; during their continuance the flood current has no effect upon the local formations or drift ice. With the wind from any other direction the flood current will prevent the drift ice from leaving the river.

(For **tides** see table, page 24.)

SAILING DIRECTIONS, NEWBURYPORT HARBOR.

These directions lead up to the whistling buoy off the bar. Strangers wishing to enter the river should take a pilot. The bar can not be crossed in easterly gales, and vessels should make either Gloucester or Portsmouth Harbors for an anchorage until the sea will allow them to cross the bar.

Approaching from northward.—When southward of Isles of Shoals, bring the lighthouse astern on a 216° true (**SW ½ W** mag.) course, and keep about 1 mile offshore when Newburyport lighthouse is approached. When Newburyport lighthouse bears about 273° true (*WNW* ⅜ *W* mag.), the whistling buoy off the entrance should be in line with it. Keep outside the whistling buoy until boarded by a pilot.

Approaching from southward.—Pass 1 mile or more eastward of Cape Ann lighthouses and steer 356° 30′ true (**N** by **E** mag.). Leave the beacon on the Dry Salvages about ⅝ mile on the port hand, and when it is in range with Straitsmouth lighthouse bearing 236° true (*WSW* ⅜ *W* mag.), steer 306° true (**NW ½ N** mag.). When approaching Merrimac River entrance, keep about 1 mile offshore and outside the whistling buoy until boarded by a pilot.

SANDY BAY AND ROCKPORT HARBOR.[1]

Sandy Bay is the large bight in the northeastern shore of Cape Ann, between Straitsmouth Island on the east and Andrew Point on the west. Between these points the bay is 2 miles wide and about 1½ miles long to its head (Rockport Harbor). Under the supervision of the United States Engineers improvements are in progress to make this bay a harbor of refuge. A breakwater is being built which is to extend 1,200 yards from Avery Ledge in a northerly direction to Abner Ledge; in 1910 this breakwater had been finished to mean low water. The breakwater extending northwestward from Abner Ledge toward Andrew Point was level with mean high water for a distance of 400 feet from Abner Ledge, and for an additional distance of 700 yards was level with mean low water. When completed, the breakwater will protect an anchorage of 1,377 acres, with depths ranging from 7 to 15 fathoms. The uncompleted part of the breakwater is generally marked by stakes and buoys, and its northwest end by Sandy Bay Breakwater gas buoy, No. 3.

The channel between Straitsmouth Island and Avery Ledge has a width of about 250 yards, with a depth greater than 4 fathoms, and a depth of 4½ fathoms is found in the middle of this channel. From northward the bay is entered westward of the northern arm of the breakwater, and the depths are 10 to 13 fathoms.

Pigeon Cove bears 300° true (**NW** mag.) from Straitsmouth lighthouse. It affords shelter for a limited number of small vessels of not more than 10 feet draft behind a breakwater which extends out from its northern side.

Lying ⅜ and ½ mile southward of Pigeon Cove are two breakwaters built out from the shore, on the south side of which are piers where vessels load granite.

Rockport Harbor, at the southwest end of Sandy Bay, is used as a harbor by small local craft. The entrance is about 200 feet wide between two breakwaters and has a depth of 6 to 12 feet, the deeper water favoring the north breakwater. The channel in the harbor has a width of 200 to 300 feet, and is limited by ledges and rocks making out from the shores, especially between the breakwater and first wharf on the north side. There is a depth of about 6 feet at the ends of the wharves, and 9 feet is about the deepest draft taken in. The anchorage with best swinging room is about 200 feet southeastward or east-southeastward from the end of the first wharf on the north side, and 300 feet from the south side of the harbor, in 10 to 11 feet. At the southwest end of the harbor is a basin 100 by 130 yards between the second and third wharves; the basin is almost all dry at low water, and small craft enter at high water and lie aground alongside the wharves. **Rockport,** the town on the harbor, has communication with Gloucester by electric road; anthracite and bituminous coal can be obtained.

To enter Rockport Harbor, pass at least 100 yards eastward and 75 to 100 yards southward of Harbor Rock buoy, steer 240° true (**WSW** ⅝ **W** mag.) through the middle of the entrance between the breakwaters, or favor the north breakwater, and continue the course through the harbor heading for the entrance of the basin between the second and third wharves. When in the harbor, go nothing northward of a line from the end of the north breakwater to the end of the first wharf, and go nothing southward of a line from the end of the south breakwater to the south side of the third wharf (marked by a coal bunker).

The following are the principal dangers in Sandy Bay and approaches:

Dodge, Bartlett, and **Mitchell Rocks** lie in a cluster nearly ¼ mile from the western shore of Sandy Bay between the two breakwaters southward of Pigeon Cove. **Dodge Rock** is bare at low water and is marked by a red spindle with cage. The western end of the rocks lies 100 yards eastward of the south breakwater. The south rock has 14 feet over it and lies 275 yards southward of the spindle. **Mitchell Rock,** with 4 feet over it, and another, with 16 feet over it, lie 230 and 350 yards, respectively, northward of the spindle and 250 yards eastward of the north breakwater.

Sandy Bay Ledge is partly bare at high water and extends 300 yards from the western shore of Sandy Bay southward of the south breakwater.

Harbor Rock, with 3 feet over it, lies 150 yards northeastward from the end of the north breakwater at the entrance of Rockport Harbor, and is marked on its southeast side by a buoy (spar, red, No. 4). Inside the rock a shelving ledge extends 75 yards east-northeastward from the end of the north breakwater.

Twelve-foot Rock, with deep water around it, lies 400 yards from the south shore of Sandy Bay and nearly ⅝ mile west-northwestward from Straitsmouth lighthouse. The rock is marked on its north side by a buoy (spar, black, No. 3).

Ledges extend 300 yards eastward and northeastward from **Straitsmouth lighthouse.**

Avery Ledge, with 4 feet over it, lies nearly ⅜ mile north-northeastward from Straitsmouth lighthouse, and is marked on its southwest side by a bell buoy (red, No. 2). Sandy Bay Breakwater extends northward from the ledge.

[1] Shown on charts **108,109,** scale $\frac{1}{80,000}$, price of each $0.50; **243,** scale $\frac{1}{20,000}$.

Flat Ground is a dangerous ledge, ½ mile long with 2 to 12 feet over it, lying ⅞ to 1⅜ miles north-northeastward from Straitsmouth lighthouse and ¼ to ⅝ mile northeastward from Sandy Bay Breakwater. The ledge is marked by two buoys, a red spar at its south end and a black can at its north end.

Dry Salvages is a bare ledge near the middle of a reef about ¼ mile long in a northerly direction. The ledge is marked by a large red tripod beacon, which lies a little over 1 mile east-northeastward from Straitsmouth lighthouse.

Little Salvages is a ledge showing well bare at low water; it lies about ¼ mile westward of Dry Salvages. Shoal water extends out a little more than 200 yards from the western side of the bare part of the ledge, and a rock, bare at lowest tides, lies between it and Dry Salvages.

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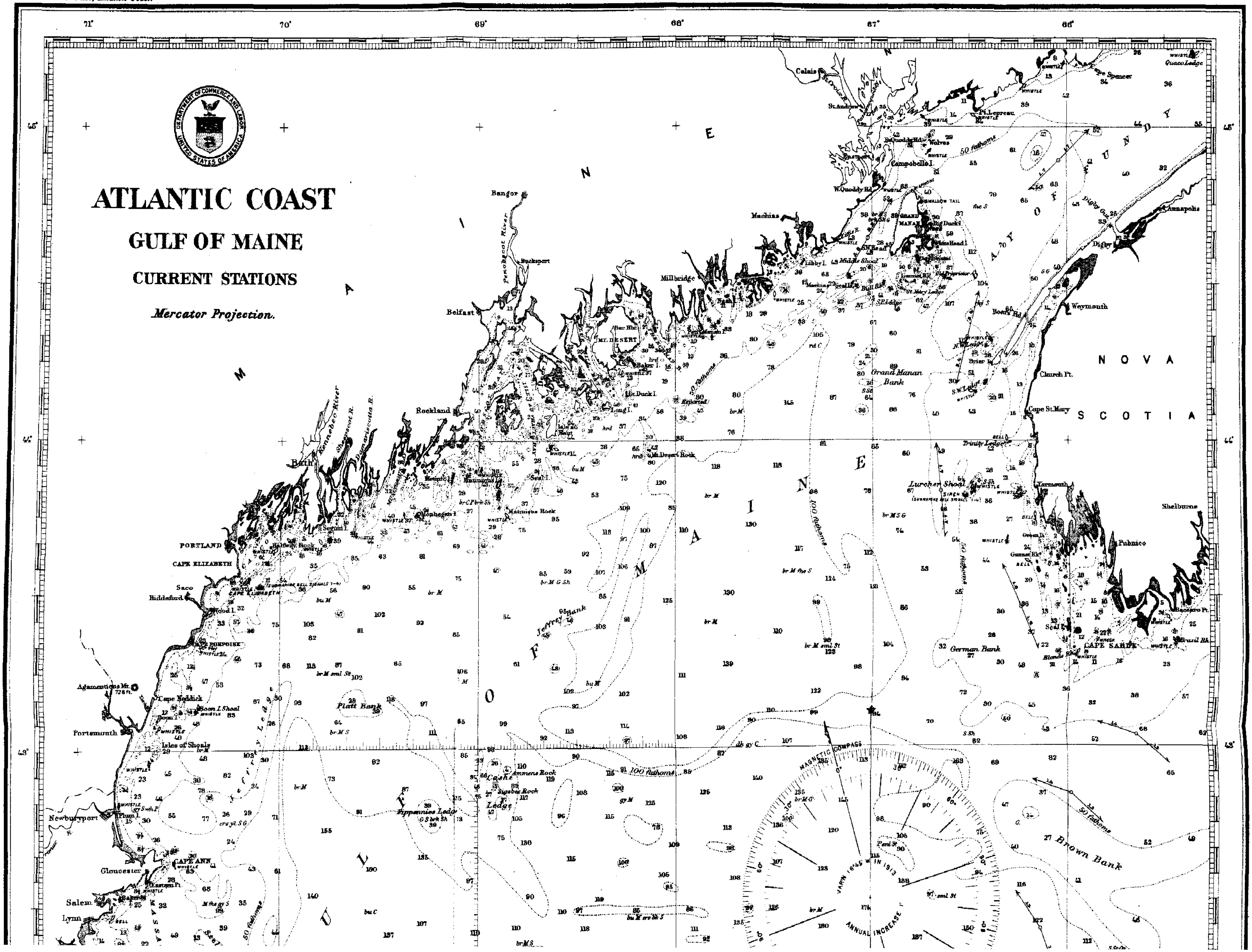
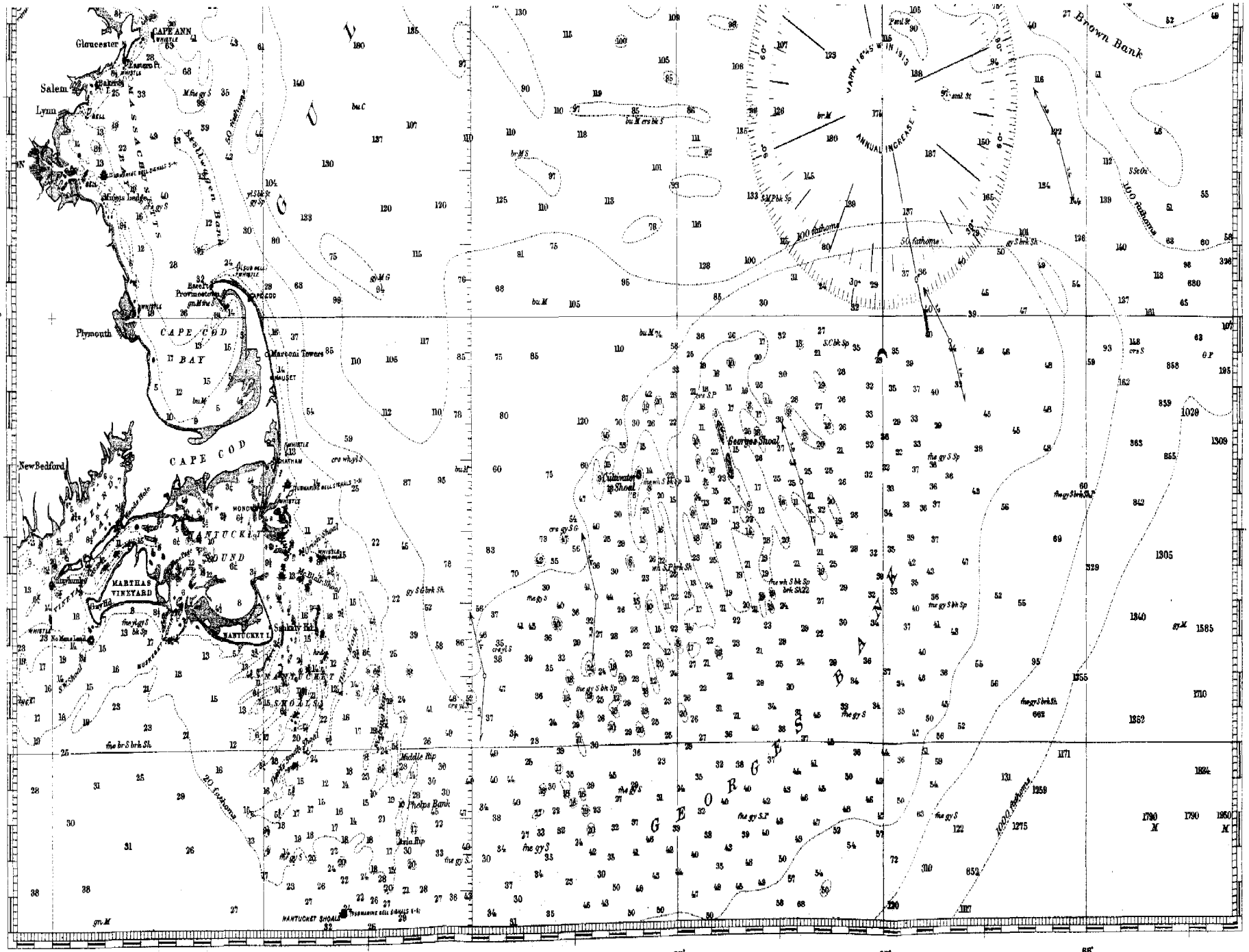

ATLANTIC COAST
GULF OF MAINE
CURRENT STATIONS
Mercator Projection.
DEPARTMENT OF COMMERCE AND LABOR
UNITED STATES OF AMERICA
71°
70°
69°
68°
67°
66°
45°
44°
43°
GULF OF MAINE
BAY OF FUNDY
NOVA SCOTIA
Calais
St. Andrews
Machias
Millbridge
Bangor
Penobscot River
Bucksport
Belfast
Rockland
Bath
Kennebec River
Sheepscot R.
Damariscotta R.
PORTLAND
CAPE ELIZABETH
Saco
Biddeford
Agamenticus Mt. 728 ft.
Cape Neddick
Boon I. Shoal
Portsmouth
Isles of Shoals
Newburyport
Plum I.
CAPE ANN
Gloucester
Salem
Lynn
MT. DESERT
Bar Hbr.
Mt. Desert Rock
Monhegan I.
Seguin I.
Matinicus Rock
Jeffreys Bank
Platt Bank
Jeffreys Ledge
Fippennies Ledge
Cashes Ledge
Ammens Rock
Sigsbee Rock
Grand Manan Bank
GRAND MANAN
Campobello I.
W. Quoddy Hd.
Libby I.
Lurcher Shoal
German Bank
CAPE SABLE
Seal I.
Brown Bank
Digby
Annapolis
Weymouth
Church Pt.
Cape St. Mary
Yarmouth
Pubnico
Shelburne
Pt. Lepreau
Cape Spencer
Quaco Ledge
Trinity Ledge
Brier I.
Boars Hd.
Digby Gut
50 fathoms
100 fathoms
MAGNETIC COMPASS
VAR'N 16°45' W IN 1913
ANNUAL INCREASE


CAPE ANN
Gloucester
Eastern Pt.
Salem
Lynn
Minots Ledge
Plymouth
CAPE COD BAY
Provincetown
Marconi Towers
CAPE COD
New Bedford
NANTUCKET SOUND
MARTHAS VINEYARD
NANTUCKET I.
Sankaty Hd.
NANTUCKET SHOALS
Middle Rip
Phelps Bank
Aria Rip
Georges Shoal
Nantucket Shoal
Brown Bank
JAPAN 16°45' W IN 1913
ANNUAL INCREASE
100 fathoms
50 fathoms
30 fathoms
1000 fathoms
42°
41°
71°
70°
69°
68°
67°
66°

APPENDIX I.

TIDAL CURRENTS, GULF OF MAINE.

Observations show that the tidal currents of this locality are of sufficient strength to render their consideration in the reckoning, especially of sailing vessels, highly important. A chart of the Gulf of Maine, showing the positions of the stations at which the observations were made, will be found facing page 9.

The simplest statement that can be made respecting these currents is the following:

GENERAL RULE.

Along the whole line between Nantucket Shoals and Cape Sable Bank the ebb current runs southwardly during the first five hours after the upper or lower transit of the moon; and the flood current northwardly from the sixth to the eleventh hour after the upper or lower transit of the moon. The time of turning on Georges Bank corresponds nearly with the time of high or low water at Boston and Portland; but in the channel westward of the bank it is later, and eastward earlier.

Of the two following tables, No. 1 gives the direction and rates of the tidal currents for four divisions of the belt examined between Nantucket Shoals and Cape Sable Bank; but the times given in it are subject to variations of 22 minutes each way, and the rates of the currents to variations up to one-fifth by reason of the tidal inequalities. If, however, the navigator has the "*Tide Tables for the Atlantic Coast,*" issued by the Coast and Geodetic Survey (in which high-water for Boston is given for every day of the year), table No. 2 will be found more convenient and accurate for practical use, since no corrections of time for tidal inequalities are required. In this table (No. 2) the hours at the heads of the columns are tidal hours, or twelfths of the time between any two consecutive high waters, one high-water being assumed to occur at **O**^{h} and the next at **XII**^{h}. The rates given are those for an ordinary tide of 9.6 feet range at Boston, and must be increased or diminished proportionally with the range of the tide.

All of the directions are true.

TABLE 1.

Locality of Station.	Time of Turning After Moon's Transit.		First Quarter.		Strength.				Third Quarter.		Remarks.
	Flood to ebb.	Ebb to flood.	Set.	Drift.	Times after moon's transit.		Set.	Drift.	Set.	Drift.	
	h. m.	*h. m.*		*Miles.*	*h. m.*	*h. m.*		*Miles.*		*Miles.*	
Great South Channel (between Nantucket Shoals and Georges Bank).	12 05	.....	160°	1.1	2 45	.....	180°	1.6	198°	1.1	Ebb.
	.....	5 55	340°	1.1	.....	9 00	0°	1.6	18°	1.1	Flood.
Georges Shoal	11 30	.....	155°	1.6	2 10	.....	172°	2.1	192°	1.6	Ebb.
	.....	5 20	335°	1.6	.....	8 25	352°	2.1	12°	1.6	Flood.
Great Eastern Channel (between Georges Bank and Brown Bank).	11 10	.....	115°	1.2	1 50	.....	134°	1.6	154°	1.2	Ebb.
	.....	5 00	295°	1.2	.....	8 05	314°	1.6	334°	1.2	Flood.
Northern Channel (between Brown Bank and Cape Sable Bank).	10 50	.....	98°	1.0	1 35	.....	116°	1.5	135°	1.0	Ebb.
	.....	4 40	278°	1.0	.....	7 50	296°	1.5	315°	1.0	Flood.

TABLE II.

RATE AND DIRECTION OF CURRENT FOR EACH TIDAL HOUR AFTER TIME OF HIGH WATER AT BOSTON.

Locality.	O^h		I^h		II^h		III^h	
	Rate, miles.	Direction.	Rate, miles.	Direction.	Rate, miles.	Direction.	Rate, miles.	Direction.
Great South Channel	0.5	50°	0.5	125°	1.1	160°	1.5	170°
Georges Shoal	0.9	82°	1.4	145°	1.9	162°	2.1	172°
Great Eastern Channel	0.7	60°	1.1	115°	1.5	130°	1.6	135°
Northern Channel	0.6	60°	1.1	100°	1.5	110°	1.5	120°
	IV^h		V^h		VI^h		VII^h	
Great South Channel	1.5	183°	1.1	200°	0.5	230°	0.5	305°
Georges Shoal	1.9	185°	1.4	198°	0.9	262°	1.4	325°
Great Eastern Channel	1.4	215°	0.9	170°	0.7	240°	1.1	295°
Northern Channel	1.1	225°	0.6	174°	0.6	240°	1.1	280°
	VIII^h		IX^h		X^h		XI^h	
Great South Channel	1.1	340°	1.5	350°	1.5	3°	1.1	20°
Georges Shoal	1.9	342°	2.1	352°	1.9	5°	1.4	18°
Great Eastern Channel	1.5	310°	1.6	315°	1.4	325°	0.9	350°
Northern Channel	1.5	290°	1.5	300°	1.1	315°	0.6	354°

CURRENTS IN THE BAY OF FUNDY.

In the Bay of Fundy flood current begins to run from 30 minutes to 1 hour after low water, and ebb from 30 minutes to 1 hour after high water at St. John, New Brunswick. The velocity is from 1½ to 2½ miles.

In Table III, the velocities given are for an ordinary tide of 21 feet at St. John, and should be increased or diminished proportionally with the range of tide. This table is based chiefly upon data from the Canadian current tables for the Bay of Fundy.

TABLE III.

RATE AND DIRECTION OF CURRENT FOR EACH TIDAL HOUR AFTER TIME OF HIGH WATER AT ST. JOHN, NEW BRUNSWICK.

Locality.	O^h		I^h		II^h		III^h	
	Rate, miles.	Direction.	Rate, miles.	Direction.	Rate, miles.	Direction.	Rate, miles.	Direction.
German Bank	0.3	335°	0.5	155°	1.2	155°	1.6	155°
Lurcher Shoal	0.4	355°	0.4	175°	1.1	175°	1.7	175°
Northwest Ledge	0.8	15°	0.4	195°	1.5	195°	2.3	195°
Grand Manan Channel	0.7	35°	0.4	215°	1.4	215°	2.0	215°
Off Digby Gut	0.6	50°	0.2	230°	0.9	230°	1.5	230°
	IV^h		V^h		VI^h		VII^h	
German Bank	1.5	155°	1.0	155°	0.2	155°	0.6	335°
Lurcher Shoal	1.6	175°	1.2	175°	0.4	175°	0.4	355°
Northwest Ledge	2.4	195°	1.7	195°	0.6	195°	0.5	15°
Grand Manan Channel	2.2	215°	1.6	215°	0.7	215°	0.4	35°
Off Digby Gut	1.7	230°	1.4	230°	0.6	230°	0.2	50°
	VIII^h		IX^h		X^h		XI^h	
German Bank	1.2	335°	1.6	335°	1.5	335°	0.9	335°
Lurcher Shoal	1.2	355°	1.7	355°	1.0	355°	1.2	355°
Northwest Ledge	1.6	15°	2.3	15°	2.4	15°	1.7	15°
Grand Manan Channel	1.4	35°	2.0	35°	2.2	35°	1.6	35°
Off Digby Gut	1.0	50°	1.6	50°	1.7	50°	1.3	50°

CURRENTS ON STELLWAGEN BANK AND VICINITY.

Over Stellwagen Bank, and in the channel between it and Cape Cod, the current of the ebb (easterly) begins to run from half an hour to one hour *before* the time of high water at Boston. Three hours *after* that high water the *strength* of the current of ebb is reached; and then (at that time) it runs ¾ mile an hour, about 65° true (**E** by **N** mag.). About six hours *after* the time of high water at Boston the ebb slacks, and soon after the current turns in the opposite direction. Three hours later (between the ninth and tenth hours *after* the time of high water at Boston) the *strength* of the current of flood is reached, with a velocity of nearly ¾ mile in a 267° true (**W** by **N** mag.) direction.

CURRENTS ON THE EASTERN COAST OF CAPE COD.

On the outside (eastern) coast of Cape Cod the tidal currents run generally parallel with the shore. Ebb and flood are of unequal velocity and duration, the former usually predominating.

The *strength* of the ebb current (running southward) is reached at the *transit of the moon;* that of the flood current (running northward) about six hours *later*.

Off Chatham lights *two miles* per hour, and off Cape Cod light *one mile* may be expected at *strength*.

TABLE IV.

RATE AND DIRECTION OF CURRENT FOR EACH TIDAL HOUR AFTER TIME OF HIGH WATER AT BOSTON.

Locality.	0h		Ih		IIh		IIIh	
	Rate, miles.	Direction.	Rate, miles.	Direction.	Rate, miles.	Direction.	Rate, miles.	Direction.
Channel between Race Point and Stellwagen Bank	0.4	52°	0.7	68°	0.8	63°	0.8	63°
On Stellwagen Bank	0.6	52°	0.7	57°	0.7	57°	0.8	63°
Ten miles southward of Cape Ann	0.2	276°	0.3	322°	0.2	322°	0.2	6°
	IVh		Vh		VIh		VIIh	
Channel between Race Point and Stellwagen Bank	0.7	57°	0.5	12°	0.2	63°	0.4	226°
On Stellwagen Bank	0.7	74°	0.3	85°	0.2	119°	0.5	232°
Ten miles southward of Cape Ann	0.3	6°	0.4	12°	0.2	12°	0.2	96°
	VIIIh		IXh		Xh		XIh	
Channel between Race Point and Stellwagen Bank	0.5	226°	0.7	260°	0.6	254°	0.3	96°
On Stellwagen Bank	0.6	248°	0.6	271°	0.6	310°	0.6	350°
Ten miles southward of Cape Ann	0.4	232°	0.5	232°	0.6	254°	0.4	276°

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APPENDIX II.

PILOTAGE, HARBOR CONTROL, QUARANTINE, ETC.

MAINE.

Extracts from the Revised Statutes of Maine, 1903.

TITLE III. CHAPTER 38.

PILOTS.

Sec. 1. The governor, with the advice and consent of council, may appoint pilots for any port, * * *; and such pilots shall, before entering upon said duties, give bond to the treasurer of State in the sum of five thousand dollars for the faithful performance thereof.

Sec. 2. Such pilots shall take charge of all vessels, drawing nine feet of water and upwards, bound into, and of all such vessels, except coasting and fishing vessels, bound to sea out of any of said ports, and shall pilot them into or out of the port assigned them, first showing the master thereof their branch and informing him of their fees; but any master may pilot his own vessel without being subject to pay therefor.

Sec. 4. If any vessel while under the charge of such pilot, is lost, run aground, or cast away, through his fault, he is liable to pay the owner or insurer a just compensation for any damages thereby sustained.

TITLE III. CHAPTER 38.

PORT WARDENS.

Sec. 23. Port wardens shall be elected in any city or town situated on navigable waters, upon the petition of ten or more citizens engaged in commercial pursuits therein.

Sec. 28. When requested by any person interested, port wardens shall proceed on board of any vessel on her arrival in port, and survey her hatches * * *. They shall also examine the condition and stowage of the cargo of any vessel, * * * they shall examine goods, wares or merchandise of any description, in any warehouse or store, or on any wharf or at any place where the same are; provided, that said goods, wares or merchandise are part of the cargo, and are claimed to be damaged; * * *.

Sec. 29. When requested in writing by any person interested, port wardens shall also survey the cargo of any vessel arriving in port in distress; * * *.

Sec. 30. When requested in writing by any person interested, they shall also survey any vessel which may have suffered wreck or damage, or which may be deemed unseaworthy; * * *.

TITLE I. CHAPTER 4.

HARBOR MASTERS.

Sec. 100. Selectmen of towns, on request by any person desiring mooring privileges for boats or vessels, shall annually appoint a harbor master, who shall be subject to all the duties and liabilities of said office as prescribed by law.

Sec. 102. Such rules and regulations as may be made by such municipal authorities shall be enforced and carried out by the harbor master of said town, who may appoint a deputy to act in case of his absence or disability.

Sec. 103. Such harbor master shall, upon complaint to him by the master, owner or agent of any vessel, cause any other vessel or vessels obstructing the free movement or safe anchorage of such vessel to remove to a position to be designated by him, and to cause, without any complaint being made to him, any vessels anchoring within the channel lines as established by the municipal authorities * * * to remove to such anchorage as he may designate.

Sec. 106. If such vessel has no crew on board, or if the master or other person in charge neglects or refuses to move such vessel as directed by the harbor master, then and in that case such harbor master may put a suitable crew on board and move such vessel to a suitable berth at a wharf or anchorage at the cost and risk of the owners thereof, and shall charge two dollars, to be paid by the master or owner of such vessel, which charge together with the cost of the crew for removing such vessel the harbor master may collect by suit.

Sec. 107. Harbor masters may arrest, and deliver to the police authorities on shore, any person committing an assault upon them or another person acting under their authority.

TITLE II. CHAPTER 18.

QUARANTINE.

Sec. 66. If a master, seaman, or passenger of a vessel, in which there is, has lately been, or is suspected to have been, any infection, or which has come from a port where any infectious distemper prevails, dangerous to the public health, refuses to answer, on oath, such questions as are asked him relating to such infection or distemper, by the local board of health of the town to which such vessel comes, which oath any member of said board may administer, he shall forfeit not exceeding two hundred dollars or be imprisoned not more than six months.

Sec. 67. When a vessel arrives at a port having on board any person infected with a malignant disease the master, commander, or pilot shall anchor it at some convenient place below the town of such port at a distance safe for the inhabitants thereof and the persons on board other vessels in said port; and no person or thing on board shall be brought on shore until the local board of health give its written permit.

Sec. 68. For the willful violation of the preceding section such master or commander forfeits not exceeding two hundred and the pilot not exceeding fifty dollars for each offense.

Sec. 69. The local board of health of a seaport town may cause vessels arriving there to perform quarantine at such place and under such regulations as they judge expedient, when they think that the safety of the inhabitants require it; and whoever neglects or refuses to obey such orders and regulations shall forfeit not exceeding five hundred dollars or be imprisoned not exceeding six months.

Sec. 72. The local board of health of every seaport town requiring vessels to perform quarantine shall provide, at the expense of such town, a suitable number of red flags at least three yards in length; and the master of every vessel ordered to perform quarantine shall, during the term thereof, cause one of them to be continually kept at the head of the mainmast of his vessel; and no person shall board such vessel during said term unless by permission of said local board of health; if he does he shall be thereafter held liable to the same regulations and restrictions as those belonging to said vessel; and shall there be detained by force, if necessary, until discharged by said local board.

Sec. 74. Expenses incurred on account of any person, vessel or goods, under quarantine regulations, shall be paid by such person, or the owner of the vessel or goods, as the case may be.

REGULATIONS FOR THE PORT OF BANGOR.

Extract from a pamphlet edition (1909).

Be it enacted by the senate and house of representatives in legislature assembled.

Sec. 1. The city council of the city of Bangor are hereby authorized and empowered to make and ordain from time to time such by-laws not repugnant to the constitution and laws of the State, as they may deem necessary or expedient, for the location and regulation of vessels, boats, scows and rafts, in the harbor of said city, embracing the Penobscot River, from the north line of Hampden to the Bangor Bridge, and the Kenduskeag stream, from its mouth to the Kenduskeag Bridge, and to affix penalties for the breach of such by-laws, not exceeding twenty dollars for any offense, to be recovered upon complaint by the harbor master, hereinafter named, before the police court of said city. Approved April 17, 1852.

City ordinance.

The harbor master shall, as soon as practicable after the arrival of any vessel or steamer in port, board her for the purpose of exhibiting to the master the regulations of the port, and directing the vessel where to lay, if necessary.

No vessel, steamboat or raft shall be allowed to anchor or lay in the main channel of the river, between the Bangor Bridge and the north line of Hampden, so as to obstruct the free passage of vessels, boats or rafts up and down the river.

No vessel, boat or raft shall be allowed to anchor or lay between the mouth of Kenduskeag stream and the Kenduskeag Bridge, in such a manner as to obstruct the free passage of vessels, boats or rafts up and down said stream.

No vessel, boat or raft shall anchor or lay in the usual track of the ferry boats between Bangor and Brewer, nor in such manner as to obstruct the free passage of steamboats by their usual track, to and from their usual wharves.

If any owner or owners, or master of any vessel, or any other person, shall cast or throw, or cause or suffer to be cast or thrown from their vessels or from any other place, any stone, sand, or any other ballast, or any other thing, in the channel of said river or stream, whereby the navigation of the same may be injured, he or they shall forfeit and pay for each offense a sum not less than five nor more than twenty dollars.

If any person or persons shall cast or throw, or cause or suffer to be cast or thrown, from any wharf or dock in said port of Bangor, into the water of said river or stream, any stone, sand, cinders, or anything which may decrease the depth of water at said wharf, or dock, he or they shall forfeit and pay for each offense a sum not less than five nor more than twenty dollars.

Vessels shall not lie more than one tier deep from City Point to the Bangor Bridge, nor at any wharf in the city of Bangor after the master or owner of such vessel shall have been directed to remove the same by said harbor master.

All vessels coming to wharves shall have their anchors hanging at their catheads or hawse pipes.

The harbor master is hereby authorized and it shall be his duty to remove, or cause to be removed, any vessel or boat from any wharf in said port, at the request or direction of the owner of said wharf; and if any vessel, boat, or raft shall anchor or lie contrary to any of the regulations in any of the preceding sections, said harbor master shall forthwith give notice to the owner or master thereof, or the persons having care of the same, to remove the same, and if said notice be not complied with without delay, the harbor master shall make or cause said removal at the expense of the vessel, boat, or raft.

The master, owner, or owners of any vessel, boat, or raft, or any other person who shall violate any of the provisions of this ordinance, shall for each offence forfeit and pay a sum not less than five dollars nor more than twenty dollars; and it shall be the duty of the harbor master, immediately upon the violation of any of said provisions, to cause the person or persons offending to be prosecuted for the penalty or penalties thereby incurred.

REGULATIONS FOR THE HARBOR AND PORT OF ROCKLAND, 1887.

An ordinance.

Be it ordained by the city council of Rockland, as follows:

Sec. 1. * * * The harbor master may board any vessel arriving in port for the purpose of exhibiting to the master thereof the ordinance and regulations of the port and direct the vessels where to lay, if he deem it necessary.

Sec. 2. If the owner, owners, or master of any vessel, or any other person, shall cast or throw, or cause to be thrown from their vessels or from any other place, any stone, sand, coal, lime, or other thing, at or near any of the wharves, whereby the depth of water is decreased or the navigation to and from the same obstructed or injured, he or they shall forfeit and pay for each offence a sum not less than one or more than five dollars.

Sec. 3. A harbor master shall annually be elected by the city council. * * * Said harbor master is hereby authorized, and it shall be his duty, to remove, or cause to be removed, any vessel, boat, or raft from any wharf in said port of Rockland, at the request or direction of the owner of said wharf; and if any vessel, boat, or raft shall anchor or lie contrary to any of the regulations in any of the preceding sections, said harbor master shall forthwith give notice to the owner or master thereof, or the person having the care of same, to remove the same, and if said notice be not complied with, without delay, the harbor master shall make or cause said removal at the expense of the owner or owners of such vessel, boat, or raft.

Sec. 4. The master, owner, or owners of any vessel, boat, or raft, or any other person who shall violate any of the provisions of this ordinance, shall for each offence forfeit and pay a sum not less than one nor more than five dollars; and it shall be the duty of the harbor master immediately upon violation of any of said provisions to cause the person or persons offending to be prosecuted for such violations. The harbor master shall be entitled to demand and receive a reasonable compensation for any service performed by him at the request of any person in carrying into effect any of the provisions of this ordinance; such compensation shall be paid in advance to said harbor master by the person requesting such service, and shall in no case exceed one dollar.

REGULATIONS OF THE PORT OF BATH.

Sec. 1. The city council of the city of Bath are hereby authorized to make such by-laws or ordinances as they may deem expedient for the location and regulation of vessels in the port of Bath, and to impose penalties for breach of same, not exceeding ten dollars for one offense; * * *.

Sec. 2. The municipal authorities of the city of Bath may appoint a harbor master for the port of Bath, * * * whose duty it shall be to enforce the observance of the by-laws or ordinances aforesaid and to exercise such powers as may be conferred upon him by the ordinances of the city.

(Approved February 6, 1877.)

CHAPTER XXV.

An ordinance relating to the harbor and harbor master.

Sec. 1. There shall be appointed annually by the municipal authorities, * * * an able and discreet person, to be styled the harbor master, * * *.

Sec. 3. No person shall throw or deposit, or cause to be thrown or deposited, in said harbor any ballast, stones, gravel, cinders, ashes, dirt, mud, or other substances which may in any way tend to injure the navigation thereof. Any person violating the provisions of this section shall for each offence forfeit and pay a sum not less than five nor more than ten dollars.

Sec. 4. The following rules and regulations are hereby adopted for the management of vessels in said harbor:

1st. No vessel, boat, or raft shall anchor or lie in the usual track of any ferryboat or in such manner as to obstruct the free passage of steamboats by their usual track to or from their respective landing places; nor shall any tugboat or other steamer leave any vessel, boat, or raft in such position as may obstruct any steamer as aforesaid.

2d. No vessel shall lie at any wharf or berth in such manner as to obstruct the free passage of other vessels coming in or going out or being hauled from one wharf to another.

3d. All vessels at anchor in the harbor shall keep a clear and distinct light suspended at least six feet above the deck from sunset to sunrise.

4th. It shall be the duty of the harbor master to cause the removal of any vessel, boat, or raft from any wharf in said harbor at the request of the owner of said wharf or his agent. The harbor master shall at once notify the master or owner or person in charge of any vessel, boat, or raft anchored or lying contrary to any of the rules or regulations of this chapter to remove the same forthwith; and if such notice is not complied with said harbor matser shall immediately cause said vessel, boat, or raft to be moved at the expense of the owner thereof. Upon neglect or refusal of the owner or master thereof to pay the expense of such removal, including two dollars and fifty cents for the harbor master's fee, on demand of the harbor master therefor, said owner or master shall be liable to a penalty for such neglect or refusal of not exceeding ten dollars in addition to such expense.

Sec. 5. Any person violating, or the master or owner of any vessel, boat, or raft by which are violated, any of the provisions of this ordinance shall for each offence forfeit and pay a sum of not less than five nor more than ten dollars; and it shall be the duty of the harbor master immediately upon such violation to cause the person or persons liable to be prosecuted for the penalties thereby incurred.

ANCHORAGE LIMITS, PORT OF BATH.

TREASURY DEPARTMENT, *November 19, 1900.*

Pursuant to the act of Congress approved June 6, 1900, the following-described anchorage grounds for vessels in the Kennebec River, at or near Bath, Me., are hereby defined and established, and the following rules and regulations governing the same are published for the guidance of the owner, master, or pilot of any vessel, or the person having charge of a steam vessel towing or otherwise conducting such vessel to an anchorage in the Kennebec River at or near Bath, Me.

Any violation of the rules and regulations herein promulgated will subject the owner, master, or person in charge of the vessel so offending to a penalty of $100.

L. J. GAGE, *Secretary.*

Vessels may anchor within the following specified limits only:

1. To the northward of a line drawn from the north side of Passmore's wharf in Bath to a mark erected on the shore in Woolwich, 500 feet north of the Maine Central Railroad ferry slip.

2. To the southward of a line drawn from the derrick on the Bath Iron Works wharf to Sassanoa Point, in Woolwich.

3. One vessel may be anchored between the Maine Central Railroad ferry slip on the Bath side of the river and the line of the Maine Water Company's pipe; provided that such vessel's anchor be not less than 500 feet from the water-pipe line, and that the vessel be so anchored as not to swing below the north side of the entrance to the ferry slip.

4. Vessels in the north anchorage must be so anchored as to leave a clear fairway 150 feet outside of the established harbor lines at Bath and a clear fairway 200 feet from the east, or Woolwich, shore for the passage of steamers, tows, rafts, etc.

5. Nothing in these rules and regulations shall prevent the launching of any vessel into the waters between the anchorage limits thus defined for the protection of the ferries, water-pipe and cable lines, or the bringing up of such vessels by their anchors; provided that the vessels so launched shall not endanger the water-pipe and cable lines, and that they shall be removed therefrom within twelve hours from the time of anchoring.

6. Vessels passing through this part of the Kennebec River, within which anchoring is prohibited, must be "under command" of either sail or steam or be in tow. Dropping with the current will not be permitted. Vessels not so under command will be subject to the same penalty as if anchored therein.

PORTLAND HARBOR.

Extracts from a pamphlet edition, 1909.

Be it enacted by the people of the State of Maine, as follows:

Sec. 1. No owner, master, pilot, or other person having charge of any vessel, and no owner, master, pilot, or other person having charge of any vessel towing or otherwise conducting another vessel to anchorage in the harbor and bay of Portland, shall place such vessel in anchor-

age in said harbor and bay in any anchorage ground other than that hereinafter described, and all persons shall conform to the following rules and regulations:

Sec. 2. Vessels not exceeding five hundred tons burden may be anchored on the southerly side of the line ranging with the white buoy off the breakwater, and a white buoy on a westerly course, thence on a line ranging with said white buoy and the draw pier of Portland Bridge, but not west of a line drawn from the northerly end of the slip of the Portland and South Portland ferry, Portland, to the northerly end of said ferry company's wharf at South Portland.

Vessels of larger tonnage may also be anchored on the above-described grounds provided the anchorage grounds designated for such vessels shall be crowded, but not so as to obstruct the free entrance or egress of regular lines of steamers to or from their docks on the northerly side of the harbor.

Sec. 3. Vessels not exceeding one hundred and fifty tons may anchor to the westward of above lines drawn from northerly end of the ferry wharves and south of line ranging from the white buoy above mentioned with southeasterly end of draw of Portland Bridge.

Sec. 4. Vessels exceeding five hundred tons shall be anchored easterly of a line drawn from the southeasterly end of the Portland Company's wharf as now built and the westerly end of the Bay View wharf at Peaks Island. This line shall be marked by three white buoys.

Sec. 5. Vessels anchoring within above-described limits must anchor entirely within said boundaries so that no portion of the hull, spars, or booms shall extend beyond said boundaries after veering chain or when riding to the tide.

Sec. 6. Permits may be granted by the harbor master of the city of Portland to wrecking plants to anchor outside of the above limits for the purpose of recovering sunken property subject to his supervision. Such plants must comply with all the navigation laws in regard to lights, fog signals, and other requirements, and must move in ample season to give safe and clear passage to arriving and departing regular lines of steamers.

Sec. 7. Vessels may be anchored south of a line ranging with the Spring Point lighthouse and the white buoy off the breakwater.

Sec. 8. All vessels at anchor in the harbor shall display a distinct white light forward not less than six feet above the forecastle deck during the night. All vessels at anchor shall keep their foresails and jibs furled during the night. Anchor watch shall be kept and fog signals sounded in fogs or thick weather.

Sec. 9. Vessels ordered to quarantine shall be anchored on the northeasterly side of a line ranging with the United States Marine Hospital and Fort Gorges, which anchorage shall be designated as the quarantine anchorage.

Sec. 10. All steamers passing up and down the harbor, near the ends of the wharves, shall run at a slow rate of speed.

Sec. 11. Vessels lying across the end of a wharf and projecting over to obstruct free passage to adjoining wharves or docks must move when necessary, to allow free passage to such docks. All vessels lying across ends or at sides of wharves must have their anchors at cathead or hawse pipes and booms hauled in and boats at davits hauled inboard.

Sec. 12. Vessels lying at the side of wharves, so as to obstruct the passage to adjoining wharves, or to the same wharf, must move when necessary to accommodate other vessels entering or leaving the docks.

Sec. 13. Light vessels lying alongside of a wharf and not taking in or discharging cargo, must make way for, and permit other vessels that want to load or unload cargo, to come inside next to the wharf.

Sec. 14. No warp or line shall be passed across a channel or dock so at to obstruct vessels passing along same.

Sec. 15. If any vessel occupying a berth at any wharf, either with or without the consent of the wharfinger or owner thereof, shall fail vacate such berth upon notice from such wharfinger or his agent, to the master or those having such vessel in charge for the time being, in a reasonable time, to be adjudged by the harbor master, the harbor master shall then cause such vessel to be moved to some other berth or proper anchorage at the risk of owners of the vessel, the expense thereof to be paid by the owners of said vessel.

Sec. 16. No vessel shall make fast or lie to the end or side of any wharf where such action shall interfere with the free access to or departure from an adjoining dock of any regular line of steamers or ferryboat, when notice forbidding such making fast or lying moored shall have been given by signs or other displayed notice.

Sec. 17. No vessel shall be anchored in Portland Harbor so as to obstruct the free passage of the regular lines of steamers running to and from this port, the island steamers, the ferryboats, or the entrance to the marine railway.

Sec. 18. No person shall throw, sweep, or cause to be thrown or swept into the waters of Portland Harbor or into the waters adjacent thereto any ashes, dirt, stones, gravel, mud, ballast, logs, planks, or any other substance tending to obstruct the navigation of said harbor or waters adjacent thereto or to shoal the depth of said harbor or pollute the waters thereof.

Sec. 19. The harbor master of the city of Portland shall have the authority to move or direct the moving of any vessel at anchor in the harbor or moored at any wharf or dock in violation of above rules, and such vessels shall be moved at the risk and expense of said vessel or of the owner or owners of said vessel.

Sec. 20. Whoever violates any of the provisions of this act or refuses to obey the lawful orders of the said harbor master or resists him in the execution of his duties, shall be punished by a fine of not less than twenty dollars, or by imprisonment for not more than thirty days, or both.

Sec. 21. The three buoys defining the anchorage in the lower harbor shall be on a line drawn from the Portland Company's wharf in Portland to Bay View wharf, Peaks Island. The most easterly buoy "A" to lie three hundred yards northeasterly of House Island; the next buoy "B" to lie eight hundred and seventy-five yards west-northwest from "A"; buoy "C" to lie twelve hundred and fifty yards west-northwest from "B" and be seven hundred yards northeast five-sixteenths east from Portland Breakwater lighthouse. The three buoys defining the anchorage in the upper harbor shall be on a line drawn southwest by west one-half west through the draw pier of Portland Bridge. The upper one of these buoys, "F," to lie on this latter line at a distance of nine hundred and fifty yards northeast by east one-half east from the draw pier above named; the next buoy, "E," to lie on the same line six hundred yards from buoy "F;" the third buoy, "D," to lie on the same line six hundred yards from buoy "E."

NEW HAMPSHIRE.

Extracts from the public statutes of New Hampshire, 1901.

CHAPTER 120.

PILOTAGE.

Sec. 1. The governor and council may appoint three suitable persons to be commissioners of pilotage of the harbor and river of Piscataqua, who shall hold their office during the pleasure of the governor and council.

Sec. 2. The commissioners may make such ordinances, rules, and regulations touching pilots and pilotage. * * *

Sec. 3. They may prescribe the qualifications of pilots, and from time to time appoint and commission, under their hands and seals, so many pilots as they may judge necessary, and remove the same at pleasure. * * *

Sec. 4. The governor and council * * * shall fix the fees of pilotage. * * * A table of such fees shall be attached to the commission of each pilot. * * *

Sec. 5. Any pilot appointed by the commissioners, who has given security for the faithful discharge of his duties, may take charge of any vessel, except coasting and fishing vessels of the United States of one hundred and fifty registered or enrolled tons and under, and except as provided in section six, and shall pilot such vessel into or out of the river and harbor of Piscataqua, first showing to the master thereof his appointment, if requested.

Sec. 6. Any master or owner may pilot his own vessel into and out of the Piscataqua River and harbor; but if a pilot shall speak and offer service to a vessel, excepting registered or enrolled vessels of the United States bound into said river or harbor, south of a line drawn east and west from Whale's-back lighthouse, or shall offer service to a vessel bound out of said river and harbor, excepting registered or enrolled vessels of the United States, before they leave the wharf, he shall be entitled to one-half of the fees specified in his warrant in case the master or owner declines to employ him, and, on refusal of payment, may sue for and recover the same.

HARBOR CONTROL.

Sec. 7. If any person shall unlade, cast, or throw out of any ship, vessel, or boat, or from the shore, or any wharf, any ballast, rubbish, gravel, earth, stones, dirt, ashes, or filth into the harbor or river of the Piscataqua between the lighthouse at the entrance of said harbor and the Boiling Rock, so called, up said river, or aid and assist therein, he shall forfeit not more than ten dollars, for the use of any person who will sue for the same.

HARBOR MASTERS.

Sec. 8. The city of Portsmouth shall annually choose a harbor master, whose duty it shall be to oversee said harbor and river, and to inquire into and prosecute for all offences under the preceding section.

Sec. 9. The harbor master of the city of Portsmouth, when called upon to decide any question or controversy arising between the officers of the different vessels which may be lying at anchor in the harbor, or at the wharves of the city of Portsmouth, shall be entitled to a fee of not less than one dollar for his services, and the same shall be paid him by the officer of the vessel against whom he may decide.

CHAPTER 111.

QUARANTINE.

Sec. 1. The power to establish quarantine in this State shall be vested in the State board of health, * * *.

Sec. 4. The master and officers of every vessel arriving at a port in this State having on board any person infected with the plague, smallpox, or any malignant, infectious, or pestilential

disease, or who has been so infected during the voyage, or having on board any goods which may be reasonably supposed to have any infection of such disease, shall forthwith give notice thereof to the health officers or selectmen; and if the master or officers shall neglect to give such information, he shall be fined not exceeding five hundred dollars, or be imprisoned not exceeding three months, or both.

Sec. 5. The health officers shall require all such vessels having on board any person infected with * * * malignant, infectious, or contagious disease, or who shall have been so infected during the voyage, or having on board any goods reasonably supposed to have any infection of such disease, to perform quarantine at such place as they shall appoint * * *.

Sec. 6. Any owner, master, super-cargo, officer, seaman, consignee, or other person who shall refuse to obey the orders and regulations of the health officers in regard to quarantine or the purification and cleansing of the vessel and cargo, shall be fined not exceeding five hundred dollars, or be imprisoned not exceeding three months, or both.

Sec. 7. A red flag at least six feet in length shall be hoisted from sunrise to sunset at the head of the mainmast of any vessel ordered for quarantine, until the vessel shall be entirely cleansed * * *.

Sec. 8. If any * * * person knowing such vessel to be subject to quarantine, shall bring the same or suffer the same to be brought to or near a wharf, or near a dwelling house or store, or shall make a false declaration as to the port or place from which she came, or shall cause, or aid, or permit the landing of any person or property of any kind from the vessel without permission of the health officers, he shall be fined not exceeding five hundred dollars, or be imprisoned not exceeding three months, or both.

Sec. 9. If any such vessel shall not be removed to the place of quarantine agreeably to the directions of the health officers, * * * the health officers shall cause the vessel to be forthwith removed to the place, * * *. The expense of removal shall be paid by the master, owner, or consignee, who shall be severally liable therefor, and may be recovered by the health officers in the name of the town, with double costs.

Sec. 10. The health officers may seize any goods landed from the vessel without their permission, and remove and keep the same until they shall have caused them to be thoroughly cleansed. The expenses of the purification of the vessel and her cargo shall be paid by the master, owner, or consignee of the vessel, and they shall be severally liable therefor.

Sec. 12. If any person shall come on shore from a vessel infected, or justly suspected to be so, or subject to or ordered for quarantine, or performing it, or shall leave the place appointed for the sick or for purification, being employed or placed there by the health officers, without their permission, he shall be punished by a fine of one hundred dollars, or by imprisonment for three months.

CITY OF PORTSMOUTH.

Extracts from the compiled ordinances of the city of Portsmouth, 1886.

CHAPTER 27.

HARBOR CONTROL.

Sec. 1. The master, commander, or owners of every vessel shall, as soon as practicable after having hauled to the end of any wharf, cause his lower yards to be cockbilled, and her jib boom to be rigged in, so that the said jib boom may not annoy any other vessel or vessels going in or out of the adjoining docks; and the lower yards and jib boom shall be kept so arranged while such vessel lies at the end of the wharf as aforesaid, and until she is preparing immediately to leave her berth; and for every offence against any of the provisions of this section the master, commander, or owners, or either of them, of any such vessel, shall be subject to a penalty not exceeding ten dollars.

Sec. 2. No warp or line shall be passed across the mouth of any dock for any purpose, if the owners or occupants thereof object, unless the harbor master shall have decided it to be necessary; and for every offence against this provision, the master, commander, or owners of such vessel shall be subject to a penalty not exceeding five dollars.

Sec. 3. The harbor master shall have authority to regulate the mooring of all vessels in the harbor of Portsmouth, and when necessary to order the removal of such vessels, and to cause the same to be removed in obedience to such order at the expense of the master or owners thereof; and if any person shall obstruct said harbor master in the performance of any of his duties as prescribed by this ordinance, or shall neglect or refuse to obey any lawful order made by said harbor master, he shall be liable to a penalty not exceeding twenty dollars for each offence.

Sec. 4. No person shall throw or deposit in any part of the harbor of Portsmouth any stones, gravel, ballast, cinders, ashes, dirt, mud, or other substance which may in any respect tend to injure the navigation thereof; and whoever shall offend against the provisions of this section shall be subject to a penalty not exceeding ten dollars nor less than five dollars. And whenever any person on board of any vessel shall violate the provisions of this section, the

master or owners of said vessel shall be liable to the penalty herein prescribed, as well as the person so offending.

Sec. 5. All the several penalties mentioned in this ordinance may be recovered by complaint before the police court of this city, to the use of any person who may make such complaint.

CHAPTER II.

QUARANTINE.

Sec. 1. For the preservation of the public health, and to prevent the introduction of contagious and malignant diseases into this city, there shall be a regular system of quarantine established, and all vessels liable thereto, as designated in the succeeding sections, shall perform said quarantine in that part of the harbor of Piscataqua lying within a line drawn from Fort Constitution to the northwardmost of the Fishing Islands and a line drawn due west from Wood Island; and all such vessels on entering the harbor shall be brought to anchor on said grounds, and there wait the orders of the health officers.

Sec. 2. A quarantine shall be performed by all vessels, officers, crews, passengers, and cargoes which shall arrive within the harbor of the river Piscataqua and port of Portsmouth, on and after the thirty-first day of May, and until the first day of November, in each year, from any port or place between the latitude of Georgetown in South Carolina and the Tropic of Capricorn; or from any other port or place where the malignant cholera, malignant fever, or other malignant or contagious diseases shall prevail, and by all vessels on board of which any sickness may have prevailed during their homeward passages. But no quarantine will be exacted of vessels coming from beyond the Cape of Good Hope or of vessels from the Cape de Verd Islands laden wholly with salt, unless contagious diseases were known to have prevailed at those places at the time of their departure, or unless such vessels have had sickness on board during their voyage home.

Sec. 3. The board of health shall from time to time appoint a suitable person whose duty it shall be to board any vessel liable to perform quarantine, and to deliver to the master thereof a copy of the ordinances of this city relating to quarantine * * * for which service or permit he shall be entitled to receive three dollars from the master of such vessel.

Sec. 4. All vessels having on board any person infected with smallpox, plague, pestilential or malignant fever, or other malignant, infectious or contagious disease, or who shall have been so infected during the voyage, or have on board any goods reasonably supposed to have any infection of such disease, shall perform quarantine at the place named in the first section of this chapter; and the master of any such vessel shall proceed with and anchor her at such place, there to be purified and cleansed, as the health officers may direct; and a suitable place on shore shall be prescribed and properly limited by the health officers for the purification of the cargo of such vessel.

Sec. 8. A red flag of at least six feet in length shall be hoisted and displayed, day and night, at the head of the mainmast of any vessel ordered for quarantine, until such vessel shall be entirely cleansed * * *.

Sec. 9. All pilots of the harbor of Piscataqua shall be duly notified of these regulations by the health officers, and said pilots shall make known these regulations to the masters of all vessels they shall board or to whom they shall have opportunity to communicate the same. * * *.

Sec. 11. All fines and forfeitures for the violation of these regulations shall, on complaint of the health officers, be recovered by prosecution against the offenders * * *.

Sec. 12. The physician of the board of health shall be entitled to receive five dollars for each visit necessarily made to any vessel at quarantine needing to be cleansed, or on board of which shall be any person sick with any malignant, infectious, or contagious disease, and each of the other members of the board shall be entitled to receive three dollars for each such visit, to be paid by the master of such vessel; but no member shall receive pay for more than one visit on any one day.

APPENDIX III.

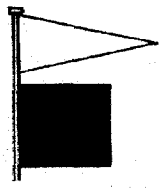
STORM WARNING DISPLAYS OF THE U. S. WEATHER BUREAU.

STORM DISPLAYS ALONG THE SEACOAST.

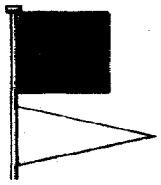
A red flag with a black center indicates that the storm is expected to be of marked violence.

The pennants displayed with the flags indicate the direction of the wind; red, easterly (from north through east to south); white, westerly (from south through west to north). The pennant above the flag indicates that the wind is expected to blow from the northerly quadrant; below, from the southerly quadrant.

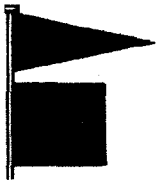
STORM WARNING FLAGS.



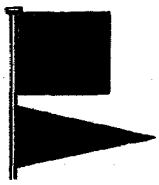
Northwesterly winds.



Southwesterly winds.

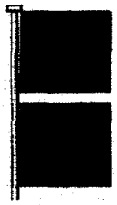


Northeasterly winds.



Southeasterly winds.

By night a red light will indicate easterly winds and a white light below a red light will indicate westerly winds.



Hurricane.

The "**Hurricane Display**" denotes the expected approach of a hurricane or of one of the severe and dangerous storms that occasionally move across the Gulf of Mexico and along the Atlantic Coast.

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APPENDIX IV.

REGULATIONS U. S. PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

(*Extracts.*)

DUTIES OF COMMISSIONED OFFICERS.

PROFESSIONAL DUTIES.

116. The professional duties of commissioned officers are to examine all applicants for relief, to prescribe for and furnish out-patient or hospital treatment as may be required, and to make physical examinations of the seamen of the several Government services and the merchant marine, under such regulations as shall hereinafter appear.

117. Commissioned officers will, upon the application of the United States shipping commissioner, or of the master or owner of any United States vessel engaged in the foreign, coastwise, or inland navigation trade, examine as to his physical condition any seaman brought to them for that purpose, and will give a certificate as to his fitness or unfitness for service. They will physically examine, in accordance with existing regulations governing physical examinations, any foreign seamen sent them for that purpose by the duly authorized agent of a foreign line or by the consul representing the nation to which the vessel belongs. A fee of one dollar will be charged for each examination of a foreign seaman, and fees so received will be deposited with the collector of customs in the same manner as donations to the marine-hospital fund. Officers will also, upon the application of the proper authority, examine cadets, enlisted men, and persons desiring to enlist in the Revenue-Cutter, Life-Saving, Coast Survey, and Lighthouse Services, or to instruct them in the mode of resuscitating persons apparently drowned. No fee will be charged for this service. They will also examine alien immigrants when detailed for that purpose. They will also, when officially requested, furnish to commanding officers of revenue cutters certificates as to the physical condition of enlisted men of the Revenue-Cutter Service who may be under treatment in hospital or as out-patients. * * *

119. Whenever officially requested by the local inspectors of steam vessels or other proper officers, commissioned officers will examine applicants for pilot's license as to sense of hearing, color perception, and general visual capacity, and will give a certificate accordingly.

120. No fee will be charged by any officer of the Public Health and Marine-Hospital Service for the medical examination or professional treatment of seamen of the United States merchant marine or for making a certificate as to their physical condition, and no officer shall accept a fee for professional service relating to the public service.

SANITARY DUTIES.

123. It shall be the duty of commissioned officers to enforce the national health and quarantine laws and regulations; but no additional compensation shall be allowed said officers by reason of such service as they may be required to perform except actual and necessary traveling expenses.

127. Upon the outbreak of smallpox at or near a relief station, commissioned officers will vaccinate such seamen as may come to the marine-hospital office for the purpose; and officers are authorized at all times to visit vessels to examine and vaccinate crews.

RELIEF STATIONS.

404. A relief station of the Public Health and Marine-Hospital Service is a port or place where an officer of the service is on duty to extend relief to seamen, or where an officer of the customs service is specifically authorized to extend said relief.

405. Relief stations shall be divided into the following classes:

Class I. United States marine hospitals.

Class II. All other stations under command of a commissioned officer.

Class III. All stations under charge of an acting assistant surgeon where there is a contract for the care of sick and disabled seamen.

Class IV. All other relief stations not included in the above classes.

406. At all relief stations where the number of patients warrants, an officer of the service will be assigned to the command of the station, and whenever practicable the patients of the service will be treated in hospitals maintained exclusively for their benefit. * * *

408. At each relief station of the first and second class, and whenever practicable at each relief station of the third class where an acting assistant surgeon of the service is on duty, there shall be a marine-hospital office, where applicants for relief shall be received and examined, and the necessary action taken according to the regulations.

409. The marine-hospital office shall be located at the customhouse whenever practicable, and suitable office room for that purpose shall be set apart by the custodian of the customhouse building, subject to the approval of the Secretary of the Treasury.

BENEFICIARIES.

411. The persons entitled to the benefits of the Public Health and Marine-Hospital Service are those employed on board in the care, preservation, or navigation of any registered, enrolled, or licensed vessel of the United States, or in the service on board of those engaged in such care, preservation, or navigation. Officers and crews of the Lighthouse Establishment, officers and crews of the Revenue-Cutter Service, seamen employed on the vessels of the Mississippi River Commission, seamen employed on the vessels of the Engineer Corps of the Army, and keepers and crews of the United States Life-Saving Service are entitled to the facilities of the hospitals and relief stations under special rules hereinafter prescribed.

412. Officers on vessels of the Coast and Geodetic Survey, and seamen thereon who are not enlisted men from the Navy, are entitled to the benefits of the service.

413. Seamen employed on yachts are entitled to treatment, provided the said yachts are enrolled, licensed, or registered as vessels of the United States.

414. Seamen employed on United States Army transports or other vessels belonging to the Quartermaster's Department, United States Army, when not enlisted men of the Army, are entitled to the benefits of the service.

415. No person employed in or connected with the navigation, management, or use of canal boats engaged in the coasting trade shall, by reason thereof, be entitled to any benefit or relief from the service.

417. Seamen taken from wrecked vessels of the United States are entitled to the benefits of the service if sick or disabled, and will be furnished care and treatment without reference to the length of time they have been employed.

418. Seamen employed on merchant vessels of the United States returned to the United States from foreign ports by United States consular officers, if sick or disabled at the time of their arrival in a port of the United States, shall be entitled to the benefits of the service without reference to length of service.

419. A sick or disabled seaman, in order to obtain the benefits of the service, must apply in person, or by proxy if too sick or disabled so to do, at the office of the Public Health and Marine-Hospital Service, to an officer of that service, or to the proper customs officer acting as the agent of the said service at stations where no medical officer is on duty, and must furnish satisfactory evidence that he is entitled to relief under the regulations.

420. Master's certificates and discharges from United States shipping commissioners, made out and signed in proper form, showing that the applicant for relief has been employed for sixty days of continuous service "in a registered, enrolled, or licensed vessel of the United States," a part of which must have been during the sixty days immediately preceding his application for relief, shall entitle him to treatment. The phrase "sixty days continuous service" shall not be held to exclude seamen whose papers show brief intermission between short services that aggregate the required sixty days.

421. The certificate of the owner or accredited commercial agent of a vessel as to the facts of the employment of any seamen on said vessel may be accepted as evidence in lieu of the master's certificate in cases where the latter is not procurable.

422. Masters of documented vessels of the United States shall, on demand, furnish any seaman who has been employed on such vessel a certificate, Form 1915, of the length of time said seaman has been so employed, giving the dates of such employment. This certificate will be filed in the marine-hospital office or office of the customs officer when application is made for relief, if relief is furnished.

423. Any master of a vessel or other person who shall furnish a false certificate of service, with intent to procure the admission of a seaman into any marine hospital, shall be immediately reported to the nearest United States attorney for prosecution.

424. When an interval has occurred in the applicant's seafaring service by reason of the closure of navigation on account of ice or low water, such interval shall not be considered as excluding him from relief unless the sickness or injury for which he applies for relief be the direct result of employment on shore.

425. During the season when navigation is closed at any port, by reason of ice or low water, seamen applying for relief at such ports shall be entitled to same, provided they present the documentary evidence required in paragraph 420, which must show that the applicants

were employed within sixty days immediately preceding the said closure of navigation, and provided it does not appear that the disease or injury is the result of employment on shore or the result of vicious habits.

426. The time during which a seaman has been under treatment in hospital as a patient of the service shall not be reckoned as absence from vessel in respect to debarring him from further relief.

427. Whenever an applicant for relief presents himself at the marine-hospital office or the customhouse without a master's certificate or shipping commissioner's discharge and it is impracticable to obtain such certificate, the affidavit of the applicant as to the facts of his last employment, stating names of vessels and dates of service, may be accepted as evidence in support of his claim for the benefits of the service.

428. When the period of the seaman's service as shown by his certificate on last vessel is less than sixty days, his affidavit as to previous service may be accepted.

431. When a seaman applies for relief after an absence of sixty days or more from his last vessel, and it satisfactorily appears that such absence was due to sickness or injury acquired in the line of duty, and that it was impracticable for him to apply to the proper officer for treatment, a statement of the facts, together with a copy of the application and other papers in support of same, shall be forwarded, with the recommendation of the medical officer, to the Surgeon General for decision.

432. Any seaman who is able to write will be expected to sign his name upon the face of the master's certificate issued to him before said certificate is signed by the master of the vessel. * * *

434. When a seaman who has received continuous treatment at the out-patient office for a period of two months applies for further treatment he must, to entitle him to treatment, furnish a new certificate of service, showing that he is still following his vocation as seaman, or give satisfactory evidence that such service has been prevented by closure of navigation or by sickness, the latest dates of service and, in case of lack of recent service, its explanation, to appear in each new relief certificate.

435. The expenses of caring for sick and disabled seamen incurred during a voyage will not be paid by the service.

436. The expenses for the care and treatment of seamen suffering from contagious diseases, who are entitled to the benefits of the service, and who, in accordance with the State or municipal health laws and regulations are taken to quarantine or other hospitals under charge of the local health authorities, will not be paid unless such seamen were admitted at the time by the request of an officer of the service.

437. In no case shall money be paid to a seaman or to his family or friends by the service as reimbursement for expenses incurred during his sickness or disability.

439. Seamen who may be injured in street brawls or while committing a breach of the peace, and are therefore confined in jail or taken to civil hospitals by the local authorities for such acts, shall not receive treatment at the expense of the Service.

440. Seamen taken sick or injured while actually employed on a documented vessel shall be entitled to treatment at relief stations without reference to the length of their service.

441. A certificate of discharge may, at the discretion of the officer in charge of the case, be given to a hospital patient, but such certificate when presented at another relief station shall not be taken as sufficient evidence of the applicant's title to marine-hospital relief, but may be considered as collateral to other satisfactory data submitted by the seaman.

442. Temporary relief only is contemplated, and admission to hospital is not intended to permit an indefinite residence therein for cause other than actual disease or injury.

THE REVENUE-CUTTER SERVICE.

444. The officers and crews of the Revenue-Cutter Service will receive hospital or out-patient treatment, as hereinafter provided, on certificate signed by the commanding officer or executive officer of a revenue cutter, without regard to length of service. The certificate shall contain a description of the applicant for relief. Officers on leave or waiting orders may sign their own certificate.

THE ENGINEER CORPS, UNITED STATES ARMY.

453. Seamen employed on vessels under the charge of the Engineer Corps of the United States Army shall be admitted to the benefits of the Marine-Hospital Service without charge at stations of the first, second, and third class upon the written request of the commanding officers of said vessels.

THE LIGHTHOUSE SERVICE.

460. Officers and crews of the several vessels belonging to the Lighthouse Establishment, including lightships, may be admitted to the benefits of the Public Health and Marine-Hospital Service upon the application of their respective commanding officers. No charge will be made for care and treatment.

THE COAST AND GEODETIC SURVEY.

460*a*. Officers and seamen on vessels of the Coast and Geodetic Survey shall be entitled to relief under the same regulations governing the treatment of seamen on documented vessels (see par. 412), except as hereinafter provided.

460*b*. When immediate medical aid is considered absolutely essential for any number of the crew of a vessel of the Coast and Geodetic Survey, and the services of the Public Health and Marine-Hospital Service can not be procured, the commanding officer of the vessel may, for the time being, until the services of the Public Health and Marine-Hospital Service can be obtained, avail himself of the most suitable local facilities, provided the charges are reasonable, and shall immediately report his action to the Superintendent of the Coast and Geodetic Survey, forwarding, as a part of the report, the statement of the attending physician, certifying the necessity for immediate treatment and the probable duration of same, said report and certificate to be forwarded to the Surgeon General. Vouchers covering the expenses of such services and the necessary medicines, properly certified and accompanied by a full statement of the circumstances, shall be forwarded to the Superintendent of the Coast and Geodetic Survey, who will forward the vouchers, with all papers relating thereto, to the Surgeon General for approval and settlement. This paragraph shall not be construed to authorize relief at the expense of the Public Health and Marine-Hospital Service in foreign ports or in ports of the Philippine Islands.

UNITED STATES ARMY AND NAVY.

461. Officers and enlisted men of the United States Army and Navy and civilian officers and crews of naval auxiliary vessels, may be admitted for care and treatment as patients of the service only upon the written request of their respective commanding officers. Every such admission shall be immediately reported to the Surgeon General by the officer in charge of the station, on a daily report (Form 1957) or relief certificate (Form 1916), accompanied by a copy of the request upon which such officer or man was admitted. They will be furnished treatment at stations of the first, second, and third class only. The rate of charge to be made for the care and treatment of the said officers and men will be fixed by the department at the beginning of each fiscal year, and will be announced to officers and others in the annual circular entitled "Contracts for care of seamen." Patients of the above-named class are not subject to the provisions requiring transportation to marine hospitals.

FOREIGN SEAMEN.

462. The accommodations provided for the care and treatment of the patients of the Public Health and Marine-Hospital Service are also available to foreign seamen at relief stations of the first, second, and third class upon the application of the consular officer of the nation under whose flag they are sailing; or upon the application of the masters of the vessels upon which said seamen serve, provided satisfactory written security is given for the payment of the expenses of such care and treatment, at rates fixed annually by the department.

463. A bill (Form 1928) in duplicate must be rendered by the officer of the service * * *. One copy of this bill shall be delivered to the collector of customs, who shall at once collect the amount * * *.

464. Customs officers acting as agents of the Public Health and Marine-Hospital Service shall collect all bills for the care and treatment of seamen of the classes enumerated in paragraphs 461 and 462 * * *.

465. Collectors of customs will notify the commanding officer of the vessel of the class enumerated in paragraphs 461 and 462, upon whose request the seaman was admitted, of the amount of the bill, and when paid will give a receipt therefor. * * *

466. The rate of charge to be made for the care and treatment of foreign seamen will be fixed by the department at the beginning of each fiscal year, and will be announced to officers and others in the annual circular entitled "Contracts for care of seamen." Foreign seamen are not subject to the provision of paragraphs 493 and 501 requiring transportation to marine hospitals.

RELIEF.

OUT-PATIENT RELIEF.

467. Sick and disabled seamen entitled under these regulations to the benefits of the service whose diseases or injuries are of such a nature that they can properly be relieved by medicines, dressings, or advice, without admission to hospital, shall be treated as out-patients, and furnished medicines, dressings, surgical appliances, or advice, as the case may require.

468. Seamen will not be furnished relief at their own homes, except by special authority from the Surgeon General, and then only an allowance for medical attendance and medicines will be made at rates fixed by the Treasury Department.

HOSPITAL RELIEF.

480. A sick or disabled seaman entitled to the benefits of the service shall be admitted to hospital only in cases where the gravity of the disease or injury from which he suffers is such as to require hospital treatment in the opinion of an officer of the service or of a reputable physician designated by the department to act at a place where no officer is stationed.

STATIONS OF THE FIRST CLASS.

483. A bed ticket (Form 1919) shall be prepared and delivered to the applicant for relief in a sealed envelope addressed to the officer or other person authorized to receive the patient. The seaman should at the same time be informed that unless presented on the day it is issued the ticket will be invalid.

STATIONS OF THE SECOND CLASS.

491. A bed ticket (Form 1919) shall be prepared and delivered to the applicant for relief in a sealed envelope addressed to the officer or other person authorized to receive the patient. The seaman should at the same time be informed that unless presented on the day it is issued the ticket will be invalid.

STATIONS OF THE THIRD CLASS.

499. Customs officers, or acting assistant surgeons, when in charge of the station by special authority of the bureau, shall issue hospital permits for the care and treatment of such applicants as may be found to be entitled to the benefits of the service and to require hospital treatment. The period for which treatment is authorized by the permit * * * should in no case exceed twenty days.

STATIONS OF THE FOURTH CLASS.

512. Customs officers, or acting assistant surgeons, when in charge of the station by special authority of the bureau, shall issue hospital permits for the care and treatment of such applicants as may be found to be entitled to the benefits of the service and to require hospital treatment. The period for which treatment is authorized by the permit * * * should in no case exceed twenty days.

515. The hospital permit, before being delivered to the applicant for relief, must be inclosed in an envelope, sealed, and addressed to the person authorized to receive the patient. The seaman should at the same time be informed that unless presented on the day it is issued the permit will be invalid.

479. Foreign seamen or employees of the various Government services, not beneficiaries, shall not be treated.

INSANE SEAMEN.

531. Insane seamen entitled to the benefits of the service may be admitted to the Government Hospital for the Insane, Washington, D. C., upon the order of the Secretary of the Treasury.

DECEASED SEAMEN.

538. On the death of a patient while under the charge of the service, notice to receive his effects shall be given by letter or otherwise to his nearest known relative. * * *

539. The necessary expenses of a plain burial for deceased patients of the service will be paid, but no part of the expenses of the burial of any deceased seaman will be paid for at the expense of the Marine-Hospital Service unless said seaman was at the time of his death a patient of the service. When friends or relatives of a deceased seaman claim the body and assume charge of the funeral arrangements, no part of the expenses of the same will be paid by the Marine-Hospital Service.

NATIONAL QUARANTINES.

QUARANTINE LAWS.

AN ACT Granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service.

(*Extracts.*)

[Approved February 15, 1893, and amended August 18, 1894, and March 2, 1901.]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be unlawful for any merchant ship or other vessel from any foreign port or place of [to] enter any port of the United States except in accordance with the

provisions of this act and with such rules and regulations of State and municipal health authorities as may be made in pursuance of, or consistent with, this act; and any such vessel which shall enter, or attempt to enter, a port of the United States in violation thereof shall forfeit to the United States a sum, to be awarded in the discretion of the court, not exceeding five thousand dollars, which shall be a lien upon said vessel, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States district attorney for such district shall appear on behalf of the United States; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

SEC. 2. That any vessel at any foreign port clearing for any port or place in the United States shall be required to obtain from the consul, vice consul, or other consular officer of the United States at the port of departure, or from the medical officer where such officer has been detailed by the President for that purpose, a bill of health, in duplicate, in the form prescribed by the Secretary of the Treasury, setting forth the sanitary history and condition of said vessel, and that it has in all respects complied with the rules and regulations in such cases prescribed for securing the best sanitary condition of the said vessel, its cargo, passengers, and crew; and said consular or medical officer is required, before granting such duplicate bill of health, to be satisfied that the matters and things therein stated are true; and for his services in that behalf he shall be entitled to demand and receive such fees as shall by lawful regulation be allowed, to be accounted for as is required in other cases.

The President, in his discretion, is authorized to detail any medical officer of the Government to serve in the office of the consul at any foreign port for the purpose of furnishing information and making the inspection and giving the bills of health hereinbefore mentioned. Any vessel clearing and sailing from any such port without such bill of health, and entering any port of the United States, shall forfeit to the United States not more than five thousand dollars the amount to be determined by the court, which shall be a lien on the same, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States district attorney for such district shall appear on behalf of the United States; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

The provisions of this section shall not apply to vessels plying between foreign ports on or near the frontiers of the United States and ports of the United States adjacent thereto; but the Secretary of the Treasury is hereby authorized, when, in his discretion, it is expedient for the preservation of the public health, to establish regulations governing such vessels.

SEC. 5. That the Secretary of the Treasury shall from time to time issue to the consular officers of the United States and to the medical officer serving at any foreign port, and otherwise make publicly known, the rules and regulations made by him, to be used and complied with by vessels in foreign ports, for securing the best sanitary condition of such vessels, their cargoes, passengers, and crew, before their departure for any port in the United States, and in the course of the voyage; and all such other rules and regulations as shall be observed in the inspection of the same on the arrival thereof at any quarantine station at the port of destination, and for the disinfection and isolation of the same, and the treatment of cargo and persons on board, so as to prevent the introduction of cholera, yellow fever, or other contagious or infectious diseases; and it shall not be lawful for any vessel to enter said port to discharge its cargo, or land its passengers, except upon a certificate of the health officer at such quarantine station certifying that said rules and regulations have in all respects been observed and complied with, as well on his part as on the part of the said vessel and its master, in respect to the same and to its cargo, passengers, and crew; and the master of every such vessel thall produce and deliver to the collector of customs at said port of entry, together with the other papers of the vessel, the said bills of health required to be obtained at the port of departure and the certificate herein required to be obtained from the health officer at the port of entry; and that the bills of health herein prescribed shall be considered as part of the ship's papers, and when duly certified to by the proper consular officer or other officer of the United States, over his official signature and seal, shall be accepted as evidence of the statements therein contained in any court of the United States.

SEC. 6. That on the arrival of an infected vessel at any port not provided with proper facilities for treatment of the same, the Secretary of the Treasury may remand said vessel, at its own expense, to the nearest national or other quarantine station, where accommodations and appliances are provided for the necessary disinfection and treatment of the vessel, passengers, and cargo; and after treatment of any infected vessel at a national quarantine station, and after certificate shall have been given by the United States quarantine officer at said station that the vessel, cargo, and passengers are each and all free from infectious disease, or danger of conveying the same, said vessel shall be admitted to entry to any port of the United States named within the certificate. But at any ports where sufficient quarantine provision has been made by State or local authorities the Secretary of the Treasury may direct vessels bound for said ports to undergo quarantine at said State or local station.

SEC. 7. That whenever it shall be shown to the satisfaction of the President that by reason of the existence of cholera or other infectious or contagious diseases in a foreign country there is serious danger of the introduction of the same into the United States, and that notwithstanding

the quarantine defense this danger is so increased by the introduction of persons or property from such country that a suspension of the right to introduce the same is demanded in the interest of the public health, the President shall have power to prohibit, in whole or in part, the introduction of persons and property from such countries or places as he shall designate, and for such period of time as he may deem necessary.

SEC. 10. That the Supervising Surgeon General, with the approval of the Secretary of the Treasury, is authorized to designate and mark the boundaries of the quarantine grounds and quarantine anchorages for vessels which are reserved for use at each United States quarantine station; and any vessel or officer of any vessel, or other person, other than State or municipal health or quarantine officers, trespassing or otherwise entering upon such grounds or anchorages in disregard of the quarantine rules and regulations, or without permission of the officer in charge of such station, shall be deemed guilty of a misdemeanor and subject to arrest, and upon conviction thereof be punished by a fine of not more than three hundred dollars or imprisonment for not more than one year, or both, in the discretion of the court. Any master or owner of any vessel, or any person violating any provision of this act or any rule or regulation made in accordance with this act, relating to inspection of vessels or relating to the prevention of the introduction of contagious or infectious diseases, or any master, owner, or agent of any vessel making a false statement relative to the sanitary condition of said vessel or its contents or as to the health of any passenger or person thereon, shall be deemed guilty of a misdemeanor and subject to arrest, and upon conviction thereof be punished by a fine of not more than five hundred dollars or imprisonment for not more than one year, or both, in the discretion of the court.

SEC. 11. That any vessel sailing from any foreign port without the bill of health required by section two of this act, and arriving within the limits of any collection district of the United States, and not entering or attempting to enter any port of the United States shall be subject to such quarantine measures as shall be prescribed by regulations of the Secretary of the Treasury, and the cost of such measures shall be a lien on said vessel, to be recovered by proceedings in the proper district court of the United States and in the manner set forth above as regards vessels from foreign ports without bills of health and entering any port of the United States.

QUARANTINE REGULATIONS.[1]

(*Extracts.*)

4. Under the act of Congress approved August 18, 1894, vessels plying between Canadian ports on the St. Croix River * * * and ports in the United States; also vessels plying between Mexican ports on the Rio Grande River and adjacent ports in the United States are exempt from the provisions of section 2 of the act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service, approved February 15, 1893, which requires vessels clearing from a foreign port for a port in the United States to obtain from the consular or medical officer a bill of health. During the prevalence of any of the quarantinable diseases at the foreign port of departure vessels above referred to are hereby required to obtain from the consular officer of the United States, or from the medical officer of the United States, when such officer has been detailed by the President for this purpose, a bill of health, or a supplemental bill of health, in duplicate, in the form prescribed by the Secretary of the Treasury.

INSPECTION OF VESSELS LEAVING FOREIGN PORTS AND PORTS IN THE POSSESSIONS OR OTHER DEPENDENCIES OF THE UNITED STATES FOR PORTS IN THE UNITED STATES OR ITS POSSESSIONS OR OTHER DEPENDENCIES.

5. The officer issuing the bill of health shall satisfy himself, by inspection if necessary, that the conditions certified to therein are true, and is authorized, in accordance with the law, to withhold the bill of health or the supplemental bill of health until he is satisfied that the vessel, the passengers, the crew, and the cargo have complied with all the quarantine laws and regulations of the United States.

6. Inspection is required of—

(*a*) All vessels from ports at which cholera, yellow fever, or plague in men or rodents prevails, or at which smallpox or typhus fever prevails in epidemic form, and at which a medical officer is detailed.

(*b*) All vessels carrying steerage passengers; but need only include the inspection of such passengers and their living apartments, if sailing from a healthful port.

7. Inspection of the vessel is such an examination of the vessel, cargo, passengers, crew, personal effects of same, including examination of manifests and other papers, food and water supply, the ascertainment of its relations with the shore, the manner of loading and possibilities of invasion by rats and insects as will enable the inspecting officer to determine if these regulations have been complied with.

[1] These regulations are subject to change.

8. When an inspection is required, it should be made by daylight, as late as practicable before sailing. The vessel should be inspected before the passengers go aboard, the passengers just before embarkation, and the crew on deck; and no communication should be had with the vessel after such inspection except by permission of the officer issuing the bill of health.

INSPECTION.

60. Every vessel subject to quarantine inspection entering a port of the United States, its possessions or dependencies, shall be considered in quarantine until given free pratique. Such vessel shall fly a yellow flag at the foremast head from sunrise to sunset, and shall observe all the other requirements of vessels actually quarantined.

61. Vessels arriving at ports of the United States under the following conditions shall be inspected by a quarantine officer prior to entry:

(*a*) All vessels from foreign ports except those covered by paragraph 4, provided the latter are not inspected.

(*b*) Any vessel with sickness on board.

(*c*) Vessels from domestic ports where cholera, plague, or yellow fever prevails, or where smallpox or typhus fever prevails in epidemic form.

(*d*) Vessels from ports suspected of infection with yellow fever, having entered a port north of the southern boundary of Maryland without disinfection, shall be subjected to a second inspection before entering any ports south of said latitude during the quarantine season of such port.

62. The inspections of vessels required by these regulations shall be made between sunrise and sunset, except in case of vessels in distress. * * *

63. In making the inspection of a vessel, the bill of health and clinical record of all cases treated during the voyage, crew and passengers' lists and manifests, and, when necessary, the ship's log shall be examined. The crew and passengers shall be mustered and examined and compared with the lists and manifests and any discrepancies investigated. * * *

65. No person except the quarantine officer, his employees, United States customs officers, or pilots shall be permitted to board any vessel subject to quarantine inspection until after the vessel has been inspected by the quarantine officer and granted free pratique, and all such persons so boarding such vessel shall, in the discretion of the quarantine officer, be subject to the same restrictions as the personnel of the vessel.

66. Towboats or any other vessels having had communication with vessels subject to inspection shall themselves be subject to inspection.

QUARANTINE.

69. Vessels arriving under the following conditions shall be placed in quarantine:

(*a*) With quarantinable disease on board or having had such disease on board during the voyage.

(*b*) Any vessel which the quarantine officer considers infected with quarantinable disease.

(*c*) A vessel arriving at a port south of the southern boundary of Virginia in the season of close quarantine, April 1 to November 1, from a tropical American port, unless said port is known to be free from yellow fever.

(*d*) Vessels arriving at ports north of this line, and south of the southern boundary of Maryland, between May 15 and October 1, if from a tropical American port, unless said port is known to be free from yellow fever.

(*e*) Vessels arriving at a southern port, referred to in paragraphs (*c*) and (*d*) during the season of close quarantine for such ports, via a northern port, when from a port known to be infected with yellow fever, unless six days have elapsed since the fumigation of the vessel in such northern port and certificate be presented from the quarantine officer at such northern port, or an accredited medical officer of the United States.

(*f*) In the case of vessels arriving at a northern port without sickness on board from ports where yellow fever prevails, the personnel shall be detained under observation at quarantine to complete six days from the port of departure.

(*g*) Towboats and other vessels having had communication with vessels subjected to quarantine shall themselves be quarantined if they have been exposed to infection.

70. Vessels engaged in the fruit trade may be admitted to entry without detention, provided that they have complied in all respects with the special rules and regulations made by the Secretary of the Treasury with regard to vessels engaged in said trade.

GENERAL REQUIREMENTS AT QUARANTINE.

72. No direct communication shall be allowed between any vessel in quarantine and any person or place outside, and no communication whatever between quarantine or any vessel in quarantine and any person or place outside except under the supervision of the quarantine officer.

76. Vessels detained at any national quarantine will be subject to such additional rules and regulations as may be promulgated from time to time by the Surgeon General.

SPECIAL REGULATIONS RELATING TO NAVAL VESSELS.

146. Vessels of the United States Navy may be granted the hereinafter-stated exemptions from quarantine regulations, but are subject to quarantine inspection upon arrival at a port of the United States.

147. The certificates of the medical officers of the United States Navy as to the sanitary history and condition of the vessel and its personnel may be accepted for naval vessels by the quarantine officer boarding the vessel in lieu of an actual inspection.

148. Vessels of the United States Navy having entered the harbors of infected ports, but having held no communication which is liable to convey infection, may be exempted from the disinfection and detention imposed on merchant vessels from such ports.

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APPENDIX V.

RULES TO PREVENT COLLISIONS OF VESSELS.

[Compiled for insertion in volumes of the U. S. Coast Pilot.]

AN ACT In regard to collisions at sea.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in every case of collision between two vessels it shall be the duty of the master or person in charge of each vessel, if and so far as he can do so without serious danger to his own vessel, crew, and passengers (if any), to stay by the other vessel until he has ascertained that she has no need of further assistance, and to render to the other vessel, her master, crew, and passengers (if any), such assistance as may be practicable and as may be necessary in order to save them from any danger caused by the collision, and also to give to the master or person in charge of the other vessel the name of his own vessel and her port of registry, or the port or place to which she belongs, and also the name of the ports and places from which and to which she is bound.

If he fails so to do, and no reasonable cause for such failure is shown, the collision shall, in the absence of proof to the contrary, be deemed to have been caused by his wrongful act, neglect, or default.

SEC. 2. That every master or person in charge of a United States vessel who fails, without reasonable cause, to render such assistance or give such information as aforesaid shall be deemed guilty of a misdemeanor, and shall be liable to a penalty of one thousand dollars, or imprisonment for a term not exceeding two years; and for the above sum the vessel shall be liable and may be seized and proceeded against by process in any district court of the United States by any person; one-half such sum to be payable to the informer and the other half to the United States.

SEC. 3. That this act shall take effect at a time to be fixed by the President by proclamation issued for that purpose.

Approved September 4, 1890. Proclamation dated November 18, 1890, to take effect December 15, 1890.

INTERNATIONAL RULES.

I.—ENACTING CLAUSE, SCOPE, AND PENALTY.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following regulations for preventing collisions at sea shall be followed by all public and private vessels of the United States upon the high seas and in all waters connected therewith navigable by sea-going vessels.

ART. 30. Nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbor, river, or inland waters.

PRELIMINARY DEFINITIONS.

In the following rules every steam vessel which is under sail and not under steam is to be considered a sailing vessel, and every vessel under steam, whether under sail or not, is to be considered a steam vessel.

The words "steam vessel" shall include any vessel propelled by machinery.

A vessel is "under way" within the meaning of these rules when she is not at anchor, or made fast to the shore, or aground.

II.—LIGHTS AND SO FORTH.

The word "visible" in these rules when applied to lights shall mean visible on a dark night with a clear atmosphere.

ART. 1. The rules concerning lights shall be complied with in all weathers from sunset to sunrise, and during such time no other lights which may be mistaken for the prescribed lights shall be exhibited.

STEAM VESSELS—MASTHEAD LIGHT.

ART. 2. A steam vessel when under way shall carry—(*a*) On or in front of the foremast or if a vessel without a foremast, then in the fore part of the vessel, at a height above the hull of not less than twenty feet, and if the breadth of the vessel exceeds twenty feet, then at a height above the hull not less than such breadth, so, however, that the light need not be carried at a greater height above the hull than forty feet, a bright white light, so constructed as to show an unbroken light over an arc of the horizon of twenty points of the compass, so fixed as to throw the light ten points on each side of the vessel, namely, from right ahead to two points abaft the beam on either side and of such a character as to be visible at a distance of at least five miles.

STEAM VESSELS—SIDE LIGHTS.

(*b*) On the starboard side a green light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side, and of such a character as to be visible at a distance of at least two miles.

(*c*) On the port side a red light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side, and of such a character as to be visible at a distance of at least two miles.

(*d*) The said green and red side lights shall be fitted with inboard screens projecting at least three feet forward from the light, so as to prevent these lights from being seen across the bow.

STEAM VESSELS—RANGE LIGHTS.

(*e*) A steam vessel when under way may carry an additional white light similar in construction to the light mentioned in subdivision (*a*). These two lights shall be so placed in line with the keel that one shall be at least fifteen feet higher than the other, and in such a position with reference to each other that the lower light shall be forward of the upper one. The vertical distance between these lights shall be less than the horizontal distance.

STEAM VESSELS WHEN TOWING.

ART. 3. A steam vessel when towing another vessel shall, in addition to her side lights, carry two bright white lights in a vertical line one over the other, not less than six feet apart, and when towing more than one vessel shall carry an additional bright white light six feet above or below such light, if the length of the tow measuring from the stern of the towing vessel to the stern of the last vessel towed exceeds six hundred feet. Each of these lights shall be of the same construction and character, and shall be carried in the same position as the white light mentioned in article two (*a*), excepting the additional light, which may be carried at a height of not less than fourteen feet above the hull.

Such steam vessel may carry a small white light abaft the funnel or aftermast for the vessel towed to steer by, but such light shall not be visible forward of the beam.

SPECIAL LIGHTS.

ART. 4. (*a*) A vessel which from any accident is not under command shall carry at the same height as a white light mentioned in article two (*a*), where they can best be seen, and if a steam vessel in lieu of that light, two red lights, in a vertical line one over the other, not less than six feet apart, and of such a character as to be visible all around the horizon at a distance of at least two miles; and shall by day carry in a vertical line one over the other, not less than six feet apart, where they can best be seen, two black balls or shapes, each two feet in diameter.

(*b*) A vessel employed in laying or in picking up a telegraph cable shall carry in the same position as the white light mentioned in article two (*a*), and if a steam vessel in lieu of that light three lights in a vertical line one over the other not less than six feet apart. The highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character as to be visible all around the horizon, at a distance of at least two miles. By day she shall carry in a vertical line one over the other, not less than six feet apart, where they can best be seen, three shapes not less than two feet in diameter, of which the highest and lowest shall be globular in shape and red in color, and the middle one diamond in shape and white.

(*c*) The vessels referred to in this article, when not making way through the water, shall not carry the side lights, but when making way shall carry them.

(*d*) The lights and shapes required to be shown by this article are to be taken by other vessels as signals that the vessel showing them is not under command and can not therefore get out of the way.

These signals are not signals of vessels in distress and requiring assistance. Such signals are contained in article thirty-one.

LIGHTS FOR SAILING VESSELS AND VESSELS IN TOW.

ART. 5. A sailing vessel under way and any vessel being towed shall carry the same lights as are prescribed by article two for a steam vessel under way, with the exception of the white lights mentioned therein, which they shall never carry.

LIGHTS FOR SMALL VESSELS.

ART. 6. Whenever, as in the case of small vessels under way during bad weather, the green and red side lights can not be fixed, these lights shall be kept at hand, lighted and ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side nor the red light on the starboard side, nor, if practicable, more than two points abaft the beam on their respective sides. To make the use of these portable lights more certain and easy the lanterns containing them shall each be painted outside with the color of the light they respectively contain, and shall be provided with proper screens.

LIGHTS FOR SMALL STEAM AND SAIL VESSELS AND OPEN BOATS.

ART. 7. Steam vessels of less than forty, and vessels under oars or sails of less than twenty tons gross tonnage, respectively, and rowing boats, when under way, shall not be required to carry the lights mentioned in article two (*a*), (*b*), and (*c*), but if they do not carry them they shall be provided with the following lights:

First. Steam vessels of less than forty tons shall carry—

(*a*) In the fore part of the vessel or on or in front of the funnel, where it can best be seen, and at a height above the gunwale of not less than nine feet, a bright white light constructed and fixed as prescribed in article two (*a*), and of such a character as to be visible at a distance of at least two miles.

(*b*) Green and red side lights constructed and fixed as prescribed in article two (*b*) and (*c*), and of such a character as to be visible at a distance of at least one mile, or a combined lantern showing a green light and a red light from right ahead to two points abaft the beam on their respective sides. Such lanterns shall be carried not less than three feet below the white light.

Second. Small steamboats, such as are carried by seagoing vessels, may carry the white light at a less height than nine feet above the gunwale, but it shall be carried above the combined lantern mentioned in subdivision one (*b*).

Third. Vessels under oars or sails of less than twenty tons shall have ready at hand a lantern with a green glass on one side and a red glass on the other, which, on the approach of or to other vessels, shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side nor the red light on the starboard side.

Fourth. Rowing boats, whether under oars or sails, shall have ready at hand a lantern showing a white light which shall be temporarily exhibited in sufficient time to prevent collision.

The vessels referred to in this article shall not be obliged to carry the lights prescribed by article four (*a*) and article eleven, last paragraph.

LIGHTS FOR PILOT VESSELS.

ART. 8. Pilot vessels when engaged on their station on pilotage duty shall not show the lights required for other vessels, but shall carry a white light at the masthead, visible all around the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals, which shall never exceed fifteen minutes.

On the near approach of or to other vessels they shall have their side lights lighted, ready for use, and shall flash or show them at short intervals, to indicate the direction in which they are heading, but the green light shall not be shown on the port side, nor the red light on the starboard side.

A pilot vessel of such a class as to be obliged to go alongside of a vessel to put a pilot on board may show the white light instead of carrying it at the masthead, and may, instead of the colored lights above mentioned, have at hand, ready for use, a lantern with a green glass on the one side and a red glass on the other, to be used as prescribed above.

Pilot vessels when not engaged on their station on pilotage duty shall carry lights similar to those of other vessels of their tonnage.

A steam pilot vessel, when engaged on her station on pilotage duty and in waters of the United States and not at anchor, shall, in addition to the lights required for all pilot boats, carry at a distance of eight feet below her white masthead light a red light, visible all around the horizon and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles, and also the colored side lights required to be carried by vessels when under way.

When engaged on her station on pilotage duty and in waters of the United States, and at anchor, she shall carry in addition to the lights required for all pilot boats the red light above mentioned, but not the colored side lights. When not engaged on her station on pilotage duty, she shall carry the same lights as other steam vessels.

LIGHTS, ETC., OF FISHING VESSELS.

ART. 9. Fishing vessels and fishing boats, when under way and when not required by this article to carry or show the lights hereinafter specified, shall carry or show the lights prescribed for vessels of their tonnage under way.

(*a*) Open boats, by which is to be understood boats not protected from the entry of sea water by means of a continuous deck, when engaged in any fishing at night, with outlying tackle extending not more than one hundred and fifty feet horizontally from the boat into the seaway, shall carry one all-around white light.

Open boats, when fishing at night, with outlying tackle extending more than one hundred and fifty feet horizontally from the boat into the seaway, shall carry one all-round white light, and in addition, on approaching or being approached by other vessels, shall show a second white light at least three feet below the first light and at a horizontal distance of at least five feet away from it in the direction in which the outlying tackle is attached.

(*b*) Vessels and boats, except open boats as defined in subdivision (*a*), when fishing with drift nets, shall, so long as the nets are wholly or partly in the water, carry two white lights where they can best be seen. Such lights shall be placed so that the vertical distance between them shall be not less than six feet and not more than fifteen feet, and so that the horizontal distance between them, measured in a line with the keel, shall be not less than five feet and not more than ten feet. The lower of these two lights shall be in the direction of the nets, and both of them shall be of such a character as to show all around the horizon, and to be visible at a distance of not less than three miles.

Within the Mediterranean Sea and in the seas bordering the coasts of Japan and Korea sailing fishing vessels of less than twenty tons gross tonnage shall not be obliged to carry the lower of these two lights. Should they, however, not carry it, they shall show in the same position (in the direction of the net or gear) a white light, visible at a distance of not less than one sea mile, on the approach of or to other vessels.

(*c*) Vessels and boats, except open boats as defined in subdivision (*a*), when line fishing with their lines out and attached to or hauling their lines, and when not at anchor or stationary within the meaning of subdivision (*h*), shall carry the same lights as vessels fishing with drift nets. When shooting lines, or fishing with towing lines, they shall carry the lights presrcibed for a steam or sailing vessel under way, respectively.

Within the Mediterranean Sea and in the seas bordering the coasts of Japan and Korea sailing fishing vessels of less than twenty tons gross tonnage shall not be obliged to carry the lower of these two lights. Should they, however, not carry it, they shall show in the same position (in the direction of the lines) a white light, visible at a distance of not less than one sea mile on the approach of or to other vessels.

(*d*) Vessels when engaged in trawling, by which is meant the dragging of an apparatus along the bottom of the sea—

First. If steam vessels, shall carry in the same position as the white light mentioned in article two (*a*) a tri-colored lantern so constructed and fixed as to show a white light from right ahead to two points on each bow, and a green light and a red light over an arc of the horizon from two points on each bow to two points abaft the beam on the starboard and port sides, respectively; and not less than six nor more than twelve feet below the tri-colored lantern a white light in a lantern, so constructed as to show a clear,uniform,and unbroken light all around the horizon.

Second. If sailing vessels, shall carry a white light in a lantern, so constructed as to show a clear, uniform, and unbroken light all around the horizon, and shall also, on the approach of or to other vessels, show where it can best be seen a white flare-up light or torch in sufficient time to prevent collision.

All lights mentioned in subdivision (*d*) first and second shall be visible at a distance of at least two miles.

(*e*) Oyster dredgers and other vessels fishing with dredge nets shall carry and show the same lights as trawlers.

(*f*) Fishing vessels and fishing boats may at any time use a flare-up light in addition to the lights which they are by this article required to carry and show, and they may also use working lights.

(*g*) Every fishing vessel and every fishing boat under one hundred and fifty feet in length, when at anchor, shall exhibit a white light visible all around the horizon at a distance of at least one mile.

Every fishing vessel of one hundred and fifty feet in length or upward, when at anchor, shall exhibit a white light visible all around the horizon at a distance of at least one mile, and shall exhibit a second light as provided for vessels of such length by article eleven.

Should any such vessel, whether under one hundred and fifty feet in length or of one hundred and fifty feet in length or upward, be attached to a net or other fishing gear, she shall on the approach of other vessels show an additional white light at least three feet below the anchor light, and at a horizontal distance of at least five feet away from it in the direction of the net or gear.

(*h*) If a vessel or boat when fishing becomes stationary in consequence of her gear getting fast to a rock or other obstruction, she shall in daytime haul down the day signal required by subdivision (*k*); at night show the light or lights prescribed for a vessel at anchor; and during fog, mist, falling snow, or heavy rain storms make the signal prescribed for a vessel at anchor. (See subdivision (*d*) and the last paragraph of article fifteen.)

(*i*) In fog, mist, falling snow, or heavy rain storms drift-net vessels attached to their nets, and vessels when trawling, dredging, or fishing with any kind of drag net, and vessels line fishing with their lines out, shall, if of twenty tons gross tonnage or upward, respectively, at intervals of not more than one minute make a blast; if steam vessels, with the whistle or siren, and if sailing vessels, with the fog horn, each blast to be followed by ringing the bell. Fishing vessels and boats of less than twenty tons gross tonnage shall not be obliged to give the above-mentioned signals; but if they do not, they shall make some other efficient sound signal at intervals of not more than one minute.

(*k*) All vessels or boats fishing with nets or lines or trawls, when under way, shall in daytime indicate their occupation to an approaching vessel by displaying a basket or other efficient signal where it can best be seen. If vessels or boats at anchor have their gear out, they shall, on the approach of other vessels, show the same signal on the side on which those vessels can pass.

The vessels required by this article to carry or show the lights hereinbefore specified shall not be obliged to carry the lights prescribed by article four (*a*) and the last paragraph of article eleven.

LIGHTS FOR AN OVERTAKEN VESSEL.

ART. 10. A vessel which is being overtaken by another shall show from her stern to such last-mentioned vessel a white light or a flare-up light.

The white light required to be shown by this article may be fixed and carried in a lantern, but in such case the lantern shall be so constructed, fitted, and screened that it shall throw an unbroken light over an arc of the horizon of twelve points of the compass, namely, for six points from right aft on each side of the vessel, so as to be visible at a distance of at least one mile. Such lights shall be carried as nearly as practicable on the same level as the side lights.

ANCHOR LIGHTS.

ART. 11. A vessel under one hundred and fifty feet in length when at anchor shall carry forward, where it can best be seen, but at a height not exceeding twenty feet above the hull, a white light in a lantern so constructed as to show a clear, uniform, and unbroken light visible all around the horizon at a distance of at least one mile.

A vessel of one hundred and fifty feet or upward in length, when at anchor, shall carry in the forward part of the vessel, at a height of not less than twenty and not exceeding forty feet above the hull, one such light, and at or near the stern of the vessel, and at such a height that it shall be not less than fifteen feet lower than the forward light, another such light.

The length of a vessel shall be deemed to be the length appearing in her certificate of registry.

A vessel aground in or near a fair-way shall carry the above light or lights and the two red lights prescribed by article four (*a*).

SPECIAL SIGNALS.

ART. 12. Every vessel may, if necessary in order to attract attention, in addition to the lights which she is by these rules required to carry, show a flare-up light or use any detonating signal that can not be mistaken for a distress signal.

NAVAL LIGHTS AND RECOGNITION SIGNALS.

ART. 13. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal-lights for two or more ships of war or for vessels sailing under convoy, or with the exhibition of recognition signals adopted by shipowners, which have been authorized by their respective Governments and duly registered and published.

STEAM VESSEL UNDER SAIL BY DAY.

ART. 14. A steam vessel proceeding under sail only, but having her funnel up, shall carry in daytime, forward, where it can best be seen, one black ball or shape two feet in diameter.

III.—SOUND SIGNALS FOR FOG, AND SO FORTH.

PRELIMINARY.

ART. 15. All signals prescribed by this article for vessels under way shall be given:

First. By "steam vessels" on the whistle or siren.

Second. By "sailing vessels" and "vessels towed" on the fog horn.

The words "prolonged blast" used in this article shall mean a blast of from four to six seconds' duration.

A steam vessel shall be provided with an efficient whistle or siren, sounded by steam or by some substitute for steam, so placed that the sound may not be intercepted by any obstruction, and with an efficient fog horn, to be sounded by mechanical means, and also with an efficient bell. (In all cases where the rules require a bell to be used a drum may be substituted on board Turkish vessels, or a gong where such articles are used on board small seagoing vessels.) A sailing vessel of twenty tons gross tonnage or upward shall be provided with a similar fog horn and bell. In fog, mist, falling snow, or heavy rain storms, whether by day or night, the signals described in this article shall be used as follows, namely:

STEAM VESSEL UNDER WAY.

(*a*) A steam vessel having way upon her shall sound, at intervals of not more than two minutes, a prolonged blast.

(*b*) A steam vessel under way, but stopped, and having no way upon her, shall sound, at intervals of not more than two minutes, two prolonged blasts, with an interval of about one second between.

SAIL VESSEL UNDER WAY.

(*c*) A sailing vessel under way shall sound, at intervals of not more than one minute, when on the starboard tack, one blast; when on the port tack, two blasts in succession, and when with the wind abaft the beam, three blasts in succession.

VESSELS AT ANCHOR OR NOT UNDER WAY.

(*d*) A vessel when at anchor shall, at intervals of not more than one minute, ring the bell rapidly for about five seconds.

VESSELS TOWING OR TOWED.

(*e*) A vessel when towing, a vessel employed in laying or picking up a telegraph cable, and a vessel under way, which is unable to get out of the way of an approaching vessel through being not under command, or unable to maneuver as required by the rules, shall, instead of the signals prescribed in subdivisions (*a*) and (*c*) of this article, at intervals of not more than two minutes, sound three blasts in succession, namely: One prolonged blast followed by two short blasts. A vessel towed may give this signal and she shall not give any other.

SMALL SAILING VESSELS AND BOATS.

Sailing vessels and boats of less than twenty tons gross tonnage shall not be obliged to give the above-mentioned signals, but, if they do not, they shall make some other efficient sound signal at intervals of not more than one minute.

SPEED IN FOG.

ART. 16. Every vessel shall, in a fog, mist, falling snow, or heavy rain storms, go at a moderate speed, having careful regard to the existing circumstances and conditions.

A steam vessel hearing, apparently forward of her beam, the fog signal of a vessel the position of which is not ascertained, shall, so far as the circumstances of the case admit, stop her engines, and then navigate with caution until danger of collision is over.

IV.—STEERING AND SAILING RULES.

PRELIMINARY.

Risk of collision can, when circumstances permit, be ascertained by carefully watching the compass bearing of an approaching vessel. If the bearing does not appreciably change, such risk should be deemed to exist.

SAILING VESSELS.

ART. 17. When two sailing vessels are approaching one another, so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, namely:

(*a*) A vessel which is running free shall keep out of the way of a vessel which is close-hauled.

(*b*) A vessel which is closehauled on the port tack shall keep out of the way of a vessel which is closehauled on the starboard tack.

(*c*) When both are running free, with the wind on different sides, the vessel which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free, with the wind on the same side, the vessel which is to the windward shall keep out of the way of the vessel which is to the leeward.

(*e*) A vessel which has the wind aft shall keep out of the way of the other vessel.

STEAM VESSELS.

ART. 18. When two steam vessels are meeting end on, or nearly end on, so as to involve risk of collision, each shall alter her course to starboard, so that each may pass on the port side of the other.

This article only applies to cases where vessels are meeting end on, or nearly end on, in such a manner as to involve risk of collision, and does not apply to two vessels which must, if both keep on their respective courses, pass clear of each other.

The only cases to which it does apply are when each of the two vessels is end on, or nearly end on, to the other; in other words, to cases in which, by day, each vessel sees the masts of the other in a line, or nearly in a line, with her own; and by night, to cases in which each vessel is in such a position as to see both the side lights of the other.

It does not apply by day to cases in which a vessel sees another ahead crossing her own course; or by night, to cases where the red light of one vessel is opposed to the red light of the other, or where the green light of one vessel is opposed to the green light of the other, or where a red light without a green light, or a green light without a red light, is seen ahead, or where both green and red lights are seen anywhere but ahead.

TWO STEAM VESSELS CROSSING.

ART. 19. When two steam vessels are crossing, so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way of the other.

STEAM VESSEL SHALL KEEP OUT OF THE WAY OF SAILING VESSEL.

ART. 20. When a steam vessel and a sailing vessel are proceeding in such directions as to involve risk of collision, the steam vessel shall keep out of the way of the sailing vessel.

COURSE AND SPEED.

ART. 21. Where, by any of these rules, one of two vessels is to keep out of the way, the other shall keep her course and speed.

NOTE.—When, in consequence of thick weather or other causes, such vessel finds herself so close that collision can not be avoided by the action of the giving-way vessel alone, she also shall take such action as will best aid to avert collision. (See articles twenty-seven and twenty-nine.)

CROSSING AHEAD.

ART. 22. Every vessel which is directed by these rules to keep out of the way of another vessel shall, if the circumstances of the case admit, avoid crossing ahead of the other.

STEAM VESSEL SHALL SLACKEN SPEED OR STOP.

ART. 23. Every steam vessel which is directed by these rules to keep out of the way of another vessel shall, on approaching her, if necessary, slacken her speed or stop or reverse.

OVERTAKING VESSELS.

ART. 24. Notwithstanding anything contained in these rules, every vessel, overtaking any other, shall keep out of the way of the overtaken vessel.

Every vessel coming up with another vessel from any direction more than two points abaft her beam, that is, in such a position, with reference to the vessel which she is overtaking that at night she would be unable to see either of that vessel's side lights, shall be deemed to be an overtaking vessel; and no subsequent alteration of the bearing between the two vessels shall make the overtaking vessel a crossing vessel within the meaning of these rules, or relieve her of the duty of keeping clear of the overtaken vessel until she is finally passed and clear.

As by day the overtaking vessel can not always know with certainty whether she is forward of or abaft this direction from the other vessel, she should, if in doubt, assume that she is an overtaking vessel and keep out of the way.

NARROW CHANNELS.

ART. 25. In narrow channels every steam vessel shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such vessel.

RIGHT OF WAY OF FISHING VESSELS.

ART. 26. Sailing vessels under way shall keep out of the way of sailing vessels or boats fishing with nets, or lines, or trawls. This rule shall not give to any vessel or boat engaged in fishing the right of obstructing a fairway used by vessels other than fishing vessels or boats.

GENERAL PRUDENTIAL RULE.

ART. 27. In obeying and construing these rules, due regard shall be had to all dangers of navigation and collision, and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

SOUND SIGNALS FOR PASSING STEAMERS.

ART. 28. The words "short blasts," used in this article, shall mean a blast of about one second's duration.

When vessels are in sight of one another, a steam vessel under way, in taking any course authorized or required by these rules, shall indicate that course by the following signals on her whistle or siren, namely:

One short blast to mean, "I am directing my course to starboard."

Two short blasts to mean, "I am directing my course to port."

Three short blasts to mean, "My engines are going at full speed astern."

PRECAUTION.

ART. 29. Nothing in these rules shall exonerate any vessel, or the owner or master or crew thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper lookout, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

ART. 30. [Follows enacting clause.]

DISTRESS SIGNALS.

ART. 31. When a vessel is in distress and requires assistance from other vessels or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, namely:

In the daytime—

First. A gun or other explosive signal fired at intervals of about a minute.

Second. The international code signal of distress indicated by N. C.

Third. The distance signal, consisting of a square flag, having either above or below it a ball or anything resembling a ball.

Fourth. A continuous sounding with any fog-signal apparatus.

At night—

First. A gun or other explosive signal fired at intervals of about a minute.

Second. Flames on the vessel (as from a burning tar barrel, oil barrel, and so forth).

Third. Rockets or shells throwing stars of any color or description, fired one at a time, at short intervals.

Fourth. A continuous sounding with any fog-signal apparatus.

INLAND RULES.

NOTE.—*The paragraphs indicated by a vertical line are identically the same as corresponding paragraphs in the International Rules.*

I.—ENACTING CLAUSE, SCOPE, AND PENALTY.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following regulations for preventing collision shall be followed by all vessels navigating all harbors, rivers, and inland waters of the United States, except the Great Lakes and their connecting and tributary waters as far east as Montreal and the Red River of the North and rivers emptying into the Gulf of Mexico and their tributaries, and are hereby declared special rules duly made by local authority.

SEC. 2. That the supervising inspectors of steam vessels and the Supervising Inspector General shall establish such rules to be observed by steam vessels in passing each other and as to the lights to be carried by ferryboats and by barges and canal boats when in tow of steam vessels, not inconsistent with the provisions of this act, as they from time to time may deem necessary for safety, which rules when approved by the Secretary of Commerce and Labor, are hereby declared special rules duly made by local authority, as provided for in article thirty of chapter eight hundred and two of the laws of eighteen hundred and ninety. Two printed copies of such rules shall be furnished to such ferryboats and steam vessels, which rules shall be kept posted up in conspicuous places in such vessels.

SEC. 3. That every pilot, engineer, mate, or master of any steam vessel, and every master or mate of any barge or canal boat, who neglects or refuses to observe the provisions of this act, or the regulations established in pursuance of the preceding section, shall be liable to a penalty of fifty dollars, and for all damages sustained by any passenger in his person or baggage by such neglect or refusal: *Provided*, That nothing herein shall relieve any vessel, owner, or corporation from any liability incurred by reason of such neglect or refusal.

SEC. 4. That every vessel that shall be navigated without complying with the provisions of this act shall be liable to a penalty of two hundred dollars, one-half to go to the informer, for which sum the vessel so navigated shall be liable and may be seized and proceeded against by action in any district court of the United States having jurisdiction of the offense.

PRELIMINARY DEFINITIONS.

In the following rules every steam vessel which is under sail and not under steam is to be considered a sailing vessel, and every vessel under steam, whether under sail or not, is to be considered a steam vessel.

The words "steam vessel" shall include any vessel propelled by machinery.

A vessel is "under way," within the meaning of these rules, when she is not at anchor, or made fast to the shore, or aground.

II.—LIGHTS AND SO FORTH.

The word "visible" in these rules, when applied to lights, shall mean visible on a dark night with a clear atmosphere.

ART. 1. The rules concerning lights shall be complied with in all weathers from sunset to sunrise, and during such time no other lights which may be mistaken for the prescribed lights shall be exhibited.

STEAM VESSELS—MASTHEAD LIGHT.

ART. 2. A steam vessel when under way shall carry (*a*) on or in front of the foremast, or, if a vessel without a foremast, then in the forepart of the vessel, a bright white light so constructed as to show an unbroken light over an arc of the horizon of twenty points of the compass, so fixed as to throw the light ten points on each side of the vessel, namely, from right ahead to two points abaft the beam on either side, and of such a character as to be visible at a distance of at least five miles.

STEAM VESSELS—SIDE LIGHTS.

(*b*) On the starboard side a green light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side, and of such a character as to be visible at a distance of at least two miles.

(*c*) On the port side a red light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side, and of such a character as to be visible at a distance of at least two miles.

(*d*) The said green and red side lights shall be fitted with inboard screens projecting at least three feet forward from the light, so as to prevent these lights from being seen across the bow.

STEAM VESSELS—RANGE LIGHTS.

(*e*) A seagoing steam vessel when under way may carry an additional white light similar in construction to the light mentioned in subdivision (*a*). These two lights shall be so placed in line with the keel that one shall be at least fifteen feet higher than the other, and in such a position with reference to each other that the lower light shall be forward of the upper one. The vertical distance between these lights shall be less than the horizontal distance.

(*f*) All steam vessels (except seagoing vessels and ferryboats) shall carry in addition to green and red lights required by article two (*b*), (*c*), and screens as required by article two (*d*), a central range of two white lights; the after light being carried at an elevation at least fifteen feet above the light at the head of the vessel. The headlight shall be so constructed as to show an unbroken light through twenty points of the compass, namely, from right ahead to two points abaft the beam on either side of the vessel, and the after light so as to show all around the horizon.

STEAM VESSELS WHEN TOWING.

ART. 3. A steam vessel when towing another vessel shall, in addition to her side lights, carry two bright white lights in a vertical line one over the other, not less than three feet apart, and when towing more than one vessel shall carry an additional bright white light three feet above or below such lights, if the length of the tow, measuring from the stern of the towing

vessel to the stern of the last vessel towed exceeds six hundred feet. Each of these lights shall be of the same construction and character, and shall be carried in the same position as the white light mentioned in article two (*a*) or the after range light mentioned in article two (*f*).

Such steam vessels may carry a small white light abaft the funnel or aftermast for the vessel towed to steer by, but such light shall not be visible forward of the beam.

LIGHTS FOR SAILING VESSELS AND VESSELS IN TOW.

ART. 5. A sailing vessel under way or being towed shall carry the same lights as are prescribed by article two for a steam vessel under way, with the exception of the white lights mentioned therein, which they shall never carry.

LIGHTS FOR FERRYBOATS, BARGES, AND CANAL BOATS IN TOW.

See section 2, enacting clause, scope and penalty, preceding; also Pilot Rules, which are issued by the Steamboat-Inspection Service.

LIGHTS FOR SMALL VESSELS.

ART. 6. Whenever, as in the case of vessels of less than ten gross tons under way during bad weather, the green and red side lights can not be fixed, these lights shall be kept at hand, lighted and ready for use; and shall, on the approach of or to other vessels, be exhibited on their respective sides in sufficient time to prevent collision, in such manner as to make them most visible, and so that the green light shall not be seen on the port side nor the red light on the starboard side, nor, if practicable, more than two points abaft the beam on their respective sides. To make the use of these portable lights more certain and easy, the lanterns containing them shall each be painted outside with the color of the light they respectively contain, and shall be provided with proper screens.

ART. 7. Rowing boats, whether under oars or sail, shall have ready at hand a lantern showing a white light which shall be temporarily exhibited in sufficient time to prevent collision.

LIGHTS FOR PILOT VESSELS.

ART. 8. Pilot vessels when engaged on their station on pilotage duty shall not show the lights required for other vessels, but shall carry a white light at the masthead visible all around the horizon, and shall also exhibit a flare-up light or flare-up lights at short intervals which shall never exceed fifteen minutes.

On the near approach of or to other vessels they shall have their side lights lighted, ready for use, and shall flash or show them at short intervals, to indicate the direction in which they are heading, but the green light shall not be shown on the port side nor the red light on the starboard side.

A pilot vessel of such a class as to be obliged to go alongside of a vessel to put a pilot on board may show the white light instead of carrying it at the masthead, and may, instead of the colored lights above mentioned, have at hand, ready for use, a lantern with a green glass on the one side and a red glass on the other, to be used as prescribed above.

Pilot vessels, when not engaged on their station on pilotage duty, shall carry lights similar to those of other vessels of their tonnage.

A steam pilot vessel, when engaged on her station on pilotage duty and in waters of the United States, and not at anchor, shall, in addition to the lights required for all pilot boats, carry at a distance of eight feet below her white masthead light a red light, visible all around the horizon and of such a character as to be visible on a dark night with a clear atmosphere at a distance of at least two miles, and also the colored side lights required to be carried by vessels when under way.

When engaged on her station on pilotage duty and in waters of the United States, and at anchor, she shall carry in addition to the lights required for all pilot boats the red light above mentioned, but not the colored side lights.

When not engaged on her station on pilotage duty, she shall carry the same lights as other steam vessels.

LIGHTS, ETC., OF FISHING VESSELS.

ART. 9. (*a*) Fishing vessels of less than ten gross tons, when under way and when not having their nets, trawls, dredges, or lines in the water, shall not be obliged to carry the colored side lights; but every such vessel shall, in lieu thereof, have ready at hand a lantern with a green glass on one side and a red glass on the other side, and on approaching to or being approached by another vessel such lantern shall be exhibited in sufficient time to prevent collision, so that the green light shall not be seen on the port side nor the red light on the starboard side.

(*b*) All fishing vessels and fishing boats of ten gross tons or upward, when under way and when not having their nets, trawls, dredges, or lines in the water, shall carry and show the same lights as other vessels under way.

(*c*) All vessels, when trawling, dredging, or fishing with any kind of dragnets or lines, shall exhibit, from some part of the vessel where they can be best seen, two lights. One of these lights shall be red and the other shall be white. The red light shall be above the white light, and shall be at a vertical distance from it of not less than six feet and not more than twelve feet; and the horizontal distance between them, if any, shall not be more than ten feet. These two lights shall be of such a character and contained in lanterns of such construction as to be visible all around the horizon, the white light a distance of not less than three miles and the red light of not less than two miles.

LIGHTS FOR RAFTS OR OTHER WATER CRAFT.

(*d*) Rafts, or other water craft not herein provided for, navigating by hand power, horse power, or by the current of the river, shall carry one or more good white lights, which shall be placed in such manner as shall be prescribed by the Board of Supervising Inspectors of Steam Vessels.[1]

LIGHTS FOR AN OVERTAKEN VESSEL.

ART. 10. A vessel which is being overtaken by another, except a steam vessel with an after range light showing all around the horizon, shall show from her stern to such last-mentioned vessel a white light or a flare-up light.

ANCHOR LIGHTS.

ART. 11. A vessel under one hundred and fifty feet in length when at anchor shall carry forward, where it can best be seen, but at a height not exceeding twenty feet above the hull, a white light, in a lantern so constructed as to show a clear, uniform, and unbroken light visible all around the horizon at a distance of at least one mile.

A vessel of one hundred and fifty feet or upwards in length when at anchor shall carry in the forward part of the vessel, at a height not less than twenty and not exceeding forty feet above the hull, one such light, and at or near the stern of the vessel, and at such a height that it shall be not less than fifteen feet lower than the forward light, another such light.

The length of a vessel shall be deemed to be the length appearing in her certificate of registry.

SPECIAL SIGNALS.

ART. 12. Every vessel may, if necessary, in order to attract attention, in addition to the lights which she is by these rules required to carry, show a flare-up light or use any detonating signal that can not be mistaken for a distress signal.

NAVAL LIGHTS AND RECOGNITION SIGNALS.

ART. 13. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to additional station and signal lights for two or more ships of war or for vessels sailing under convoy, or with the exhibition of recognition signals adopted by shipowners, which have been authorized by their respective Governments, and duly registered and published.

STEAM VESSELS UNDER SAIL BY DAY.

ART. 14. A steam vessel proceeding under sail only, but having her funnel up, may carry in daytime, forward, where it can best be seen, one black ball or shape two feet in diameter.

III.—SOUND SIGNALS FOR FOG, AND SO FORTH.

PRELIMINARY.

ART. 15. All signals prescribed by this article for vessels under way shall be given:

1. By "steam vessels" on the whistle or siren.
2. By "sailing vessels" and "vessels towed" on the fog horn.

The words "prolonged blast" used in this article shall mean a blast of from four to six seconds duration.

A steam vessel shall be provided with an efficient whistle or siren, sounded by steam or by some substitute for steam, so placed that the sound may not be intercepted by any obstruction, and with an efficient fog horn; also with an efficient bell. A sailing vessel of twenty tons gross tonnage or upward shall be provided with a similar fog horn and bell.

In fog, mist, falling snow, or heavy rainstorms, whether by day or night, the signals described in this article shall be used as follows, namely:

[1] See Pilot Rules issued by the Steamboat Inspection Service.

STEAM VESSEL UNDER WAY.

(*a*) A steam vessel under way shall sound, at intervals of not more than one minute, a prolonged blast.

SAIL VESSEL UNDER WAY.

(*c*) A sailing vessel under way shall sound, at intervals of not more than one minute, when on the starboard tack, one blast; when on the port tack, two blasts in succession, and when with the wind abaft the beam, three blasts in succession.

VESSELS AT ANCHOR OR NOT UNDER WAY.

(*d*) A vessel when at anchor shall, at intervals of not more than one minute, ring the bell rapidly for about five seconds.

VESSELS TOWING OR TOWED.

(*e*) A steam vessel when towing, shall, instead of the signals prescribed in subdivision (*a*) of this article, at intervals of not more than one minute, sound three blasts in succession, namely, one prolonged blast followed by two short blasts. A vessel towed may give this signal and she shall not give any other.

RAFTS OR OTHER WATER CRAFT.

(*f*) All rafts or other water craft, not herein provided for, navigating by hand power, horse power, or by the current of the river, shall sound a blast of the fog horn, or equivalent signal, at intervals of not more than one minute.

SPEED IN FOG.

ART. 16. Every vessel shall, in a fog, mist, falling snow, or heavy rainstorms, go at a moderate speed, having careful regard to the existing circumstances and conditions.

A steam vessel hearing, apparently forward of her beam, the fog signal of a vessel the position of which is not ascertained shall, so far as the circumstances of the case admit, stop her engines, and then navigate with caution until danger of collision is over.

IV.—STEERING AND SAILING RULES.

PRELIMINARY.

Risk of collision can, when circumstances permit, be ascertained by carefully watching the compass bearing of an approaching vessel. If the bearing does not appreciably change, such risk should be deemed to exist.

SAILING VESSELS.

ART. 17. When two sailing vessels are approaching one another, so as to involve risk of collision, one of them shall keep out of the way of the other as follows, namely:

(*a*) A vessel which is running free shall keep out of the way of a vessel which is close-hauled.

(*b*) A vessel which is close-hauled on the port tack shall keep out of the way of a vessel which is close-hauled on the starboard tack.

(*c*) When both are running free, with the wind on different sides, the vessel which has the wind on the port side shall keep out of the way of the other.

(*d*) When both are running free, with the wind on the same side, the vessel which is to the windward shall keep out of the way of the vessel which is to the leeward.

(*e*) A vessel which has the wind aft shall keep out of the way of the other vessel.

STEAM VESSELS.

ART. 18. RULE I. When steam vessels are approaching each other head and head, that is, end on, or nearly so, it shall be the duty of each to pass on the port side of the other; and either vessel shall give, as a signal of her intention, one short and distinct blast of her whistle, which the other vessel shall answer promptly by a similar blast of her whistle, and thereupon such vessels shall pass on the port side of each other. But if the courses of such vessels are so far on the starboard of each other as not to be considered as meeting head and head, either vessel shall immediately give two short and distinct blasts of her whistle, which the other vessel shall answer promptly by two similar blasts of her whistle, and they shall pass on the starboard side of each other.

The foregoing only applies to cases where vessels are meeting end on, or nearly end on, in such a manner as to involve risk of collision; in other words, to cases in which, by day, each vessel

sees the masts of the other in a line, or nearly in a line, with her own, and by night to cases in which each vessel is in such a position as to see both the side lights of the other.

It does not apply by day to cases in which a vessel sees another ahead crossing her own course or by night to cases where the red light of one vessel is opposed to the red light of the other, or where the green light of one vessel is opposed to the green light of the other, or where a red light without a green light or a green light without a red light is seen ahead, or where both green and red lights are seen anywhere but ahead.

RULE III. If, when steam vessels are approaching each other, either vessel fails to understand the course or intention of the other, from any cause, the vessel so in doubt shall immediately signify the same by giving several short and rapid blasts, not less than four, of the steam whistle..

RULE V. Whenever a steam vessel is nearing a short bend or curve in the channel, where, from the height of the banks or other cause, a steam vessel approaching from the opposite direction can not be seen for a distance of half a mile, such steam vessel when she shall have arrived within half a mile of such curve or bend, shall give a signal by one long blast of the steam whistle, which signal shall be answered by a similar blast, given by any approaching steam vessel that may be within hearing. Should such signal be so answered by a steam vessel upon the farther side of such bend, then the usual signals for meeting and passing shall immediately be given and answered; but, if the first alarm signal of such vessel be not answered, she is to consider the channel clear and govern herself accordingly.

When steam vessels are moved from their docks or berths, and other boats are liable to pass from any direction toward them, they shall give the same signal as in the case of vessels meeting at a bend, but immediately after clearing the berths so as to be fully in sight they shall be governed by the steering and sailing rules.

RULE VIII. When steam vessels are running in the same direction, and the vessel which is astern shall desire to pass on the right or starboard hand of the vessel ahead, she shall give one short blast of the steam whistle, as a signal of such desire, and if the vessel ahead answers with one blast, she shall put her helm to port; or if she shall desire to pass on the left or port side of the vessel ahead, she shall give two short blasts of the steam whistle as a signal of such desire, and if the vessel ahead answers with two blasts, shall put her helm to starboard; or if the vessel ahead does not think it safe for the vessel astern to attempt to pass at that point, she shall immediately signify the same by giving several short and rapid blasts of the steam whistle, not less than four, and under no circumstances shall the vessel astern attempt to pass the vessel ahead until such time as they have reached a point where it can be safely done, when said vessel ahead shall signify her willingness by blowing the proper signals. The vessel ahead shall in no case attempt to cross the bow or crowd upon the course of the passing vessel.

RULE IX. The whistle signals provided in the rules under this article, for steam vessels meeting, passing, or overtaking, are never to be used except when steamers are in sight of each other, and the course and position of each can be determined in the daytime by a sight of the vessel itself, or by night by seeing its signal lights. In fog, mist, falling snow or heavy rainstorms, when vessels can not so see each other, fog-signals only must be given.

SUPPLEMENTARY REGULATIONS.

See section 2, enacting clause, scope and penalty, preceding.

TWO STEAM VESSELS CROSSING.

ART. 19. When two steam vessels are crossing, so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way of the other.

STEAM VESSEL SHALL KEEP OUT OF THE WAY OF SAILING VESSELS.

ART. 20. When a steam vessel and a sailing vessel are proceeding in such directions as to involve risk of collision, the steam vessel shall keep out of the way of the sailing vessel.

COURSE AND SPEED.

ART. 21. Where, by any of these rules, one of the two vessels is to keep out of the way, the other shall keep her course and speed. [See articles twenty-seven and twenty-nine.]

CROSSING AHEAD.

ART. 22. Every vessel which is directed by the rules to keep out of the way of another vessel shall, if the circumstances of the case admit, avoid crossing ahead of the other.

STEAM VESSEL SHALL SLACKEN SPEED OR STOP.

ART. 23. Every steam vessel which is directed by these rules to keep out of the way of another vessel shall, on approaching her, if necessary, slacken her speed or stop or reverse.

OVERTAKING VESSELS.

ART. 24. Notwithstanding anything contained in these rules, every vessel overtaking any other shall keep out of the way of the overtaken vessel.

Every vessel coming up with another vessel from any direction more than two points abaft her beam; that is, in such a position, with reference to the vessel which she is overtaking that at night she would be unable to see either of that vessel's side lights, shall be deemed to be an overtaking vessel; and no subsequent alteration of the bearing between the two vessels shall make the overtaking vessel a crossing vessel within the meaning of these rules, or relieve her of the duty of keeping clear of the overtaken vessel until she is finally past and clear.

As by day the overtaking vessel can not always know with certainty whether she is forward of or abaft this direction from the other vessel she should, if in doubt, assume that she is an overtaking vessel and keep out of the way.

NARROW CHANNELS.

ART. 25. In narrow channels every steam vessel shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such vessel.

RIGHT OF WAY OF FISHING VESSELS.

ART. 26. Sailing vessels under way shall keep out of the way of sailing vessels or boats fishing with nets, or lines, or trawls. This rule shall not give to any vessel or boat engaged in fishing the right of obstructing a fairway used by vessels other than fishing vessels or boats.

GENERAL PRUDENTIAL RULE.

ART. 27. In obeying and construing these rules, due regard shall be had to all dangers of navigation and collision, and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

SOUND SIGNALS FOR PASSING STEAMERS.

See article 18.

ART. 28. When vessels are in sight of one another a steam vessel under way whose engines are going at full speed astern shall indicate that fact by three short blasts on the whistle.

PRECAUTION.

ART. 29. Nothing in these rules shall exonerate any vessel, or the owner or master or crew thereof, from the consequences of any neglect to carry lights or signals or of any neglect to keep a proper lookout, or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

LIGHTS ON UNITED STATES NAVAL VESSELS AND REVENUE CUTTERS.

ART. 30. The exhibition of any light on board of a vessel of war of the United States or a revenue cutter may be suspended whenever, in the opinion of the Secretary of the Navy, the commander in chief of a squadron, or the commander of a vessel acting singly, the special character of the service may require it.

DISTRESS SIGNALS.

ART. 31. When a vessel is in distress and requires assistance from other vessels or from the shore, the following shall be the signals to be used or displayed by her, either together or separately, namely:

In the daytime—

A continuous sounding with any fog-signal apparatus, or firing a gun.

At night—

First. Flames on the vessel, as from a burning tar barrel, oil barrel, and so forth.

Second. A continuous sounding with any fog-signal apparatus, or firing a gun.

REGULATION OF MOTOR BOATS.

AN ACT To amend laws for preventing collisions of vessels and to regulate equipment of certain motor boats on the navigable waters of the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the words "motor boat" where used in this act shall include every vessel propelled by machinery and not more than sixty-five feet in length except tugboats and towboats propelled by steam. The length shall be measured from end to end over the deck, excluding sheer: *Provided,* That the engine, boiler, or other operating machinery shall

be subject to inspection by the local inspectors of steam vessels, and to their approval of the design thereof, on all said motor boats, which are more than forty feet in length, and which are propelled by machinery driven by steam.

SEC. 2. That motor boats subject to the provisions of this act shall be divided into classes as follows:

Class one. Less than twenty-six feet in length.

Class two. Twenty-six feet or over and less than forty feet in length.

Class three. Forty feet or over and not more than sixty-five feet in length.

SEC. 3. That every motor boat in all weathers from sunset to sunrise shall carry the following lights, and during such time no other lights which may be mistaken for those prescribed shall be exhibited.

(*a*) Every motor boat of class one shall carry the following lights:

First. A white light aft to show all around the horizon.

Second. A combined lantern in the fore part of the vessel and lower than the white light aft showing green to starboard and red to port, so fixed as to throw the light from right ahead to two points abaft the beam on their respective sides.

(*b*) Every motor boat of classes two and three shall carry the following lights:

First. A bright white light in the fore part of the vessel as near the stem as practicable, so constructed as to show an unbroken light over an arc of the horizon of twenty points of the compass, so fixed as to throw the light ten points on each side of the vessel, namely, from right ahead to two points abaft the beam on either side. The glass or lens shall be of not less than the following dimensions:

Class two. Nineteen square inches.

Class three. Thirty-one square inches.

Second. A white light aft to show all around the horizon.

Third. On the starboard side a green light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side. On the port side a red light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side. The glasses or lenses in the said side lights shall be of not less than the following dimensions on motor boats of—

Class two. Sixteen square inches.

Class three. Twenty-five square inches.

On and after July first, nineteen hundred and eleven, all glasses or lenses prescribed by paragraph (*b*) of section three shall be fresnel or fluted. The said lights shall be fitted with inboard screens of sufficient height and so set as to prevent these lights from being seen across the bow and shall be of not less than the following dimensions on motor boats of—

Class two. Eighteen inches long.

Class three. Twenty-four inches long:

Provided, That motor boats as defined in this act, when propelled by sail and machinery or under sail alone, shall carry the colored lights suitably screened but not the white lights prescribed by this section.

SEC. 4. (*a*) Every motor boat under the provisions of this act shall be provided with a whistle or other sound-producing mechanical appliance capable of producing a blast of two seconds or more in duration, and in the case of such boats so provided a blast of at least two seconds shall be deemed a prolonged blast within the meaning of the law.

(*b*) Every motor boat of class two or three shall carry an efficient foghorn.

(*c*) Every motor boat of class two or three shall be provided with an efficient bell, which shall be not less than eight inches across the mouth, on board of vessels of class three.

SEC. 5. That every motor boat subject to any of the provisions of this act, and also all vessels propelled by machinery other than by steam more than sixty-five feet in length, shall carry either life-preservers, or life belts, or buoyant cushions, or ring buoys or other device, to be prescribed by the Secretary of Commerce and Labor, sufficient to sustain afloat every person on board and so placed as to be readily accessible. All motor boats carrying passengers for hire shall carry one life-preserver of the sort prescribed by the regulations of the board of supervising inspectors for every passenger carried, and no such boat while so carrying passengers for hire shall be operated or navigated except in charge of a person duly licensed for such service by the local board of inspectors. No examination shall be required as the condition of obtaining such a license, and any such license shall be revoked or suspended by the local board of inspectors for misconduct, gross negligence, recklessness in navigation, intemperance, or violation of law on the part of the holder, and if revoked, the person holding such license shall be incapable of obtaining another such license for one year from the date of revocation: *Provided*, That motor boats shall not be required to carry licensed officers except as required in this act.

SEC. 6. That every motor boat and also every vessel propelled by machinery other than by steam, more than sixty-five feet in length, shall carry ready for immediate use the means of promptly and effectually extinguishing burning gasoline.

SEC. 7. That a fine not exceeding one hundred dollars may be imposed for any violation of this act. The motor boat shall be liable for the said penalty and may be seized and proceeded against, by way of libel, in the district court of the United States for any district within which such vessel may be found.

SEC. 8. That the Secretary of Commerce and Labor shall make such regulations as may be necessary to secure the proper execution of this act by collectors of customs and other officers of the Government. And the Secretary of the Department of Commerce and Labor, may upon application therefor, remit or mitigate any fine, penalty, or forfeiture relating to motor boats except for failure to observe the provisions of section six of this act.

SEC. 9. That all laws and parts of laws only in so far as they are in conflict herewith are hereby repealed: *Provided*, That nothing in this act shall be deemed to alter or amend acts of Congress embodying or revising international rules for preventing collisions at sea.

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