YACHTSMAN'S COASTERS

REFERENCE BOOK

THE YACHTMAN AND COASTER'S

BOOK OF REFERENCE,

GIVING COURSES AND DISTANCES, WITH THE RELATIVE BEARINGS OF THE LIGHT HOUSES AND LIGHT SHIPS, FROM CAPE HATTERAS TO ST. JOHN'S, N. B., WITH RELIABLE SAILING DIRECTIONS FOR SEVENTY-FIVE HARBORS AND PORTS.

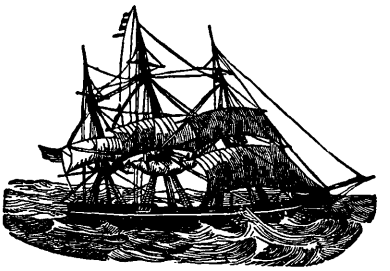
AS COMPILED FROM THE LATEST U. S. COAST SURVEYS.

REVISED AND CORRECTED.

BY

WM. A. PRATT,

DEEP RIVER, CONN.



F. W. LINCOLN JR. & CO.,

AGENTS FOR BOSTON AND EASTWARD.

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JUNE, 1881.

IMPORTANT NOTICE.

Since this book was first issued in 1878 the Lighthouse department have made many changes in the character of the lights, new ones have been established, buoys changed, automatic buoys placed, and fog signals located, all of which the author has tried to keep pace with from year to year in each new edition. Additions have been made to the book, some errors corrected, and some directions changed, so that this book of 1881 is a more valuable work than those of any other date. The Lighthouse department have resolved to change all the buoys in all the inland passages on the eastern coast, so that all *red buoys* will be starboard hand when going west, which will reverse the position of them in Fox Island passage, Deer Island, York Narrows, and Eggemoggin Reach. (*Observe the foot notes below these directions.*) In view of these many changes, I have concluded to exchange this book for that of any former edition for half price, 75 cents, by applying to F. W. Lincoln & Co., 126 Commercial street, Boston, or to C. H. Pratt, No. 34 Burling Slip, New York. The old book must be delivered at the time of exchange.

WM. A. PRATT.

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WM. A. PRATT.
1878.

INTRODUCTION.

THE author of this work, in an experience of nearly thirty years coasting and yachting, has often, in common with every other coast sailing master, felt the need of some suitable reference-book which would correctly answer the multitude of questions that are constantly arising with reference to courses, distances, bearings, etc., on the part of yachtmen and amateur sailors. The work is the result of the most careful and thorough research and study of the latest and best United States coast surveys, confirmed in nearly every important feature from his own personal experience and observation. He has aimed at correctness and simplicity, rather than finish and polish, hence has no apology to offer for any want of literary merit which the critical may readily discover.

I expect this book to be appreciated by my fellow-craftsmen the yachtmen and coasters, for the convenient form in which this information is packed, giving, as it does, the distances in all cases, with the courses and bearings from one point to another. It will be found a very desirable companion at night, when it is almost impossible to get a light to bear on a chart.

All men of experience know how hastily and imperfectly these things are taken off at night, even when it is possible to do it at all; and there are times when wet with fog or rain, that to handle a chart with any degree of correctness is almost impossible; thus having these matters principally in my mind when compiling these Descriptions, Directions, Courses, and Bearings, I have tried to talk with those whom I would direct, in a manner so plain as not to be misunder-

stood. The book is worth all that it will cost as an educator of the *eye* in judging distances. This is a faculty that every captain should cultivate, and as I here give distances with the courses and bearings, by making it a subject of comparison with your own judgment, a person can become very accurate in their estimation of distances.

Hoping, therefore, that this book will meet the approval of those for whom it is designed, I now commit it into the hands of the toilers and pleasure-hunters of the *deep*.

WM. A. PRATT.

All Courses and Bearings given are Magnetic; the Distances are given in Nautical Miles.

A Nautical Mile is 6,082 feet.

A Statute Mile is 5,280 feet.

The velocity of sound moves at the rate of 1142 feet per second.

DESIGNATIONS ON CHARTS AND BUOY LISTS.

R., red buoys, Nos. 2, 4, 6, etc., starboard.

B., black buoys, Nos. 1, 3, 5, etc., port.

P. S., white and black perpendicular stripes, without numbers, in mid-channel.

H. S., red and black horizontal stripes (on obstructions), without numbers.

The Author has carefully revised this book since Jan. 1881, and has made a note of all changes in Lights, Fog Signals, Buoys, &c.; and made additions of other important matters. It is desirable that the book shall be correct, and the Author will feeel very thankful to any one who will furnish him the information, if they find any direction that will be dangerous to follow.

INDEX.

The Index to this Book is embraced in the alphabetical arrangement of the Lighthouses and Light Ships that are mentioned in writing out these Directions and Bearings. As it is often necessary to refer to one light several times when writing out these Directions, this Index will serve a four-fold purpose, viz.: Character of Light shown, its Order of Lens, Height above the Sea, and the Fog Signal in use.

REFERENCES.

F. W., - - - -	Fixed white.
F. R., - - - -	Fixed red.
Flg. W., - - - -	Flashing white.
Flg. R., - - - -	Flashing red.
Flg. R. & W., - - -	Flashing red and white.
F. V. W. F., - - -	Fixed white, varied by white flashes.
F. V. R. F., - - -	Fixed white, varied by red flashes.
F. V. R. & W. F., - -	Fixed white, varied by red and white flashes.
F. R. V. R. F., - -	Fixed red, varied by red flashes.
[1 ⊙], - - - -	First-order lens apparatus.
[2 ⊙], - - - -	Second-order lens apparatus.
[3 ⊙], - - - -	Third-order lens apparatus.
[4 ⊙], - - - -	Fourth-order lens apparatus.
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Sankaty Head, Mass., [2 ⊙], F. V. W. F., 150 feet, - 32
Shovelfull Shoal, or Butler's Hole Light Ship, Mass., F. R., 40 feet. Bell and Horn, - - - - - - - 37, 40
Succonnessett Shoal Light Ship, Mass., F. W., 40 feet. Bell and Horn, - - - - - - - - - - - 37
Sabin's Point, R. I., [6 ⊙], F. W., 51 feet, - - - 28
Sassafras Point, R. I., [6 ⊙], F. R., 25 feet, - - - 30
Sandy Point, or Prudence Island, R. I., [5 ⊙], F. W., 30 feet, - - - - - - - - - - - - - 28
Stonington, Conn., [6 ⊙], F. W., 59½ feet, - - - 23
Shinnecock, L. I., [1 ⊙], F. W., 160 feet, - - - 84
Saybrook, Conn., [4 ⊙], F. W., 73 feet. Bell, - - 18, 19
South-west Ledge, or New Haven, [4 ⊙], F. W., 57 feet, 16, 17
Stratford Point, Conn., [3 ⊙], Flg. W., 53 feet, - - 15, 16
Stratford Shoal, [4 ⊙], Flg. W, 63 ft. Steam Fog Trumpet, giving blast of 6 seconds at intervals of 21 seconds, - 14, 16

Page.
Sands' Point, L. I., [4 ⊙], Flg. W., 68 feet, - - - 13, 14
Stepping Stones, [5 ⊙], F. R., 49 feet. Bell, - - - 13
Staten Island, N. Y., [4 ⊙], F. W., 90 feet, - - - 79, 80
Sandy Hook Point, [4 ⊙], F. W., 48 feet. A first-order steam Fog Syren, giving blasts of 6 seconds, at intervals of 40 seconds, - - - - - - - - 80
Sandy Hook North-west Light, [3 ⊙], F. W., 45 feet, - 83
Sandy Hook Southern Light, [3 ⊙], F. W., 90 feet, - 83
Sandy Hook Light Ship, 2 lights, F. R., 45 feet. A Bell and a Thier's Automatic Fog Horn, - - - - 82, 84
Scotland Light Ship, 2 lights, F. W., 45 feet. Bell, - - 82, 83
Ship John Shoal, Delaware Bay, [4 ⊙], F. R., 53 feet. Bell, - - - - - - - - - - - - 88
Smith's Island, Va., [1 ⊙], Flg. W., 160 feet. Bell, - 91
Stingray Point, Va., [6 ⊙], F. R., 36 feet. Bell, - -
Smith's Point, Va., [4 ⊙], Flg. W., 38 feet. Bell, - - 92, 94
Sharp's Island, Md., [5 ⊙], F. W., 35 feet, - - - 93
Sandy Point, Md., [5 ⊙], F. V. W. F., 50 feet. Bell, - 93
Seven Foot Knoll, Md., [4 ⊙], F. R., 43 feet. Bell, - 96
Tennants' Harbor, Me., [5 ⊙], Flg. R., 69 feet, - - 62
Ten Pound Island, Mass., [6 ⊙], F. W., 50 feet, - - 48, 49
Tarpaulin Cove, Mass., [4 ⊙], F. V. W. F., 80 feet, - 36, 40
Throgg's Point, N. Y., [5 ⊙], F. W., 66 feet. Bell, - 13
Tucker's Beach, or Little Egg Harbor, [4 ⊙], F. V. R. F., 50 feet, - - - - - - - - - - 84
Thimble Shoal, Va., [4 ⊙], F. V. R., and W. F., 45 feet. Two Bells, struck simultaneously, - - - - 91, 92
Too's Marsh, Va., [5 ⊙], F. W., 43 feet, - - - 93
Thomas Point Shoal, Md., [4 ⊙], Flg. R., 43 feet. Bell, 93
Vineyard Sound, or Sow and Pigs Light Ship, 2 lights, F. W. A first-class steam Syren, giving blasts of 6 seconds, followed by intervals of 45 seconds, - - - - 32, 40
West Quoddy Head, Me., [3 ⊙], F. W., 133 feet. A steam Fog Whistle, giving blasts of 8 seconds, at intervals of 52 seconds, - - - - - - - - 73
Winter Harbor, Me., [5 ⊙], F. W., 37 feet, - - -
White Head, Me., [3 ⊙], F. W., 79 feet. A steam Fog Whistle, giving blasts of 8 seconds, at intervals of 52 seconds, - - - - - - - - - - 62, 64
Wood Island, Me., [4 ⊙], Flg. R., 62 feet. Bell, - - 53

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White Island, N. H., [2 ⊙], Flg. R. and W., 87 feet, - 49, 52
Whale's Back, N. H., [4 ⊙], F. V. W. F., 65 feet. A Daboll Trumpet, giving blasts of 8 seconds' duration, at intervals of 22 seconds, - - - - - - - 49, 52
Wood End, Mass., [5 ⊙], Flg. R., 45 feet, - - - 42
Wing's Neck, Mass., [5 ⊙], F. W., 44 feet, - - - 34
Warwick Neck, R. I., [4 ⊙], F. W., 54 feet, - - - 26, 31
Watch Hill, Conn., [4 ⊙], F. W., 62 feet, - - - 23, 24
Wreck of the Scotland Light Ship, 2 lights, F. W. Bell, - 82, 83
Wilson and Point Comfort Beacon Range Lights, N. J., [3 ⊙], F. W., 45 and 76 feet, - - - - - - 78, 79
Wilmington, Del., [4 ⊙], F. W., 28 feet, - - - 88
West Point, N. Y., [6 ⊙], F. W., 40 feet, - - - 77
Winter Quarter Shoal Light Ship, F. R. Bell and Horn, 89, 91
Wolf Trap, Va., [4 ⊙], F. V. W. F., 38 feet. Bell and Horn, - - - - - - - - - - - - 93, 95
Windmill Point, Va., [5 ⊙], F. W., 38 feet. Bell, - 93, 95
Watt's Island, Va., [5 ⊙], F. V. W. F., 50 feet, - -
York Spit, Va., [4 ⊙], F. R., 38 feet. Bell or Horn, - 92, 94

NOTE.

If any doubt arises as to which Light is meant, as there are several of the same name, it will only be necessary to look at the page given in the Index, and it will give the position of the Light so that there need be no mistake as to the character or position of any Light referred to in the book. It would hardly be possible to arrange these Lights in a more convenient form for a ready reference than the plan here given.

Whoever will study the Book carefully, will find very little to mystify, and an amount of information that every man sailing the coast desires to know.

W. A. P.

BUOYS AND BEACONS ON THE NORTH SHORE OF LONG ISLAND SOUND, FROM THROGG'S POINT TO NEW LONDON, WITH REMARKS RELATIVE TO POSITION AND THE DANGERS THEY MARK.

Old Tom Rock Buoy (Red) lies about $\frac{1}{8}$ of a mile SW. from the end of City Island; it is a Starboard hand buoy for the main channel and for Pelham Bay. There is good water East of it by keeping nearer the Island than the buoy.

Gangway Rock Buoy (Black). It is rocky from this buoy to *Success Rock Spindle*, which lies about S.SE. from it, but you will not find less than six feet of water on the rock, and more between it and the *Spindle*.

Execution Reef Buoys are HS., one on each end of the reef, bearing NE. by N., and SW. by S. from the Light House, each distant from the Light little over $\frac{1}{4}$ of a mile.

Glover's Reef Buoy is Red; it lies about SW. by W. from *Captain's Island Light*. This buoy is near a 15-foot shoal, but there is from 16 to 18 feet of water north of it until nearly to Bluefish Reef.

Captain's Island Buoy is Red; it is to be left on your starboard hand when going in here, but it is very rocky in this bay, and strangers must be cautious.

East of Littlé Captain's Island there is a *Black Buoy*, to mark the west side of the passage into Greenwich or Coscob Harbor.

The Red Buoy off the west end of Greenwich Point marks the east side of this harbor. There is good anchorage in here, with from $3\frac{1}{2}$ fthms. to 10 feet of water at low tide.

The Cows' Buoy, a Red Can, lies $\frac{3}{4}$ of a mile South of Shippan Point.

To Enter Stamford.—When $\frac{3}{8}$ of a mile west of the Cows, steer N. $\frac{1}{2}$ W. until Shippan Point bears E.SE. a good berth, as the shore is rocky. It will then be best to get a Pilot.

Smith's Rock Buoy (Red) lies NE. by E., dist. 1⅞ miles from the Cows.

To Enter Darien River from just East of this buoy, steer NE. by N. ½ N. to the Red Buoy on the Middle, which you pass on the starboard hand, then look for a Pilot.

Peck's Ledge Buoy (Black) is East of the Norwalk Islands, and S.SW. from *Cockenoe's Island;* it is a port hand buoy for this entrance.

George's Rocks Buoy (Red) lies about E. by S., distant 1½ miles from *Cockenoe Island.* It is a Sound Buoy. You can with safety bring it to bear SW. by S., but it is not safe to pass between it and the Island.

Southport—See page 15.

If there is a Buoy off South of Penfield Reef Light, it is on the wreck of a Schooner.

For Black Rock and Bridgeport, see pages 15 *and* 16.

Stratford Point Shoal Buoy (Red) lies SW. from the Light, distant 1¾ miles; 9 feet of water is the least that will be found for some distance north of this buoy.

Stratford River is just east of this Light; a Black Buoy marks the port side of the entrance, also a Gray Beacon, both on west side of the channel. *A shoal-water place.*

Charles Island Buoy (Black) lies off the east end of the Island. Port hand buoy.

Welch's, or Cedar Point Buoy, is Red; Pond Point Buoy is Red; both near the north shore east of Charles Island.

Luddington Rock Buoy (HS.) lies about W.SW. from SW. Ledge Light, distant ¾ of a mile; 12 feet of water on the rock; good water all around it.

North of this there is a *Black Buoy;* it is one mile west of SW. Ledge; marks the port side of entrance to New Haven. *See page* 17.

Branford Beacon is about E. by S. ½ S., distant 5 miles from SW. Ledge Light. There is good water all around this Beacon, by giving it a little berth.

Negro Head Buoy (Red) lies N. by E. from Branford Beacon, distant one mile.

For Thimble Islands, see page 17.

Inner Reef Buoy is Red, to mark the Sound course when north of Wheaton's Reef, but it is a port hand buoy when going into *Thimble Islands.*

Wheaton's Reef Buoy (Black) bears about S.SW., distant one mile from the outer Thimble.

East Ledge Buoy (Red) bears from *Wheaton's Reef* about South, distant ½ a mile. It will not be best to go between these two buoys.

Faulkner's Island, north Point Buoy (Black), lies ½ a mile north of the Light. This point extends off quite a distance, and at night care must be taken not to get near the Island on this side of it.

Kimberly Reef Buoy HS. is 1¼ miles to the eastward of Faulkner's Island, 10 feet the least water on it, and good water all around it.

There are three Red Buoys about NE. from Faulkner's Island, distant from 2½ to 3½ miles. One is on Madison East Reef, one on Madison Mid Reef, and one on Charles Reef. There is good water north of these reefs, but give the buoys a good berth if you are north of them. The Sound is quite rocky in this vicinity, and if not much acquainted, it will be as well to keep outside of the line of Hammonesset Point and Sachem's Head.

Hammonesset Point Buoy is Red. *Clinton Harbor is East of this Point.*

To enter Clinton, steer in about north, passing a Red Buoy off Kelsey Point on your starboard hand, and another Red Buoy on Wheeler's Rock; this buoy lies ½ a mile west of Hammock Point. The channel is west of this buoy, but it is a shoal-water place.

The HS. Buoy on the west end of the Long Sand Shoal lies SE. ½ E., dist. 2¼ miles from Duck Island, and W. by N., dist. 2¾ miles from Cornfield Light Ship; you will not find less than 16 feet of water for 1½ miles east of this buoy.

Crane's Reef Buoy is Red; good water north of it a little berth.

Hen and Chickens Spindle is little east of Crane's Reef, has good water north of it, but not very near the spindle neither very far from it, as seen on page 19. These Reefs bear about NW. from Cornfield Light Ship, which is moored off the south side of the Long Sand Shoal.

Cornfield Point Buoy (Red) is east of the Hen and Chickens Spindle. There is good water between this buoy and the Point, which is quite bold, only give the buoy a good berth if north of it.

Eastward of the Light Ship there is an HS. Buoy near the east end of the Sand Shoal; there is not less than 9 feet of water within ¼ of a mile of this buoy.

For Conn. River, see page 19. When going into the River by the *East Channel*, if you can get the white square tower of the Cong. Church in Saybrook open just north of the Light House, it will take you in the best water and west of the wreck that is in the channel. The directions on page 19 are correct only for this obstruction.

The Red Buoy on the outer curve of Saybrook Bar bears from the Light House about SE. by S., distant 1¾ miles. You will find 9 feet of water ⅛ of a mile north of the buoy.

Hatchet's Reef has a Red Buoy on the south end, and a Black one on the north, about ⅜ of a mile apart. You will

not find less than 10 feet of water north of the black buoy until near the shore, or west of it to Saybrook Bar.

Hatchet's Reef bears E. by N. ½ N., distant 2½ miles from the tail of the Bar Buoy.

Black Boy Rock Buoy (Red) lies east of Hatchet's reef north buoy, and about ¾ of a mile west of Black Point; it is well in to the land.

Bartlett's Reef Buoy (Red) lies N. by W. from Bartlett's Reef Light Ship; it is on the south part of the reef.

Two-Tree Island is N.NW. of this Light Ship, distant 1¾m. There is a Black Buoy off the north point of this Island, to be left on starboard hand going eastward. East of this island there is a Black Buoy on the north end of Bartlett Reef; this must be passed north of when going through Two-Tree Channel.

From this buoy steer SE. by E. ½ E., passing south of Little Goshen Reef Buoy (Black) and the Black Buoy on the main Goshen Reef, and the HS. Buoy on Rapid Rock on either hand. Northeast from the Rapid Rock Buoy lies the HS. Buoy on Sarah's Ledge; you can pass this on either hand, but when north of it give it a berth of 150 feet.

Cormorant Rock Black Buoy lies about NW. from Sarah's Ledge; it is a port-hand buoy going into New London.

South-West Ledge, an HS. Buoy, and Frank's Ledge Buoy, HS., will be on the starboard hand entering New London from the westward.

For New London and Fisher's Island Sound, see pages 20 *and* 23.

Little Hay Harbor, on the west end of Fisher's Island, bears from Race Rock Light NE. ½ N., distant 1¾ miles. This is only deep enough for small boats of 3 or 4 feet draught.

To Enter this Harbor.—Run for *North Hill*, which is the

northwesternmost land of Fisher's Island; keep the land on the port hand well aboard, steering about south until to the entrance, then midway of the shores into the harbor.

West Harbor on Fisher's Island has from 8 feet to 4 fathoms of water in it.

Directions to Enter it.—Pass north of the Black Buoy off North Hill (this buoy is South of the *South Dumpling*), then steer SE., and as you approach the west point of the harbor, keep that land well aboard. To enter from farther east, you can pass between the Flat Hammock and the West Clump, midway of them, steering south until to the Harbor, then keep on the west side of it. You can run in east of the West Clump also.

BUOYS ON THE SOUTH SHORE OF LONG ISLAND SOUND, FROM SAND'S POINT TO THE RACE ROCK LIGHT.

Sand's Point Buoy (Black) bears NW. by N., distant ¼ of a mile from Sand's Point Light. The Shoal extends a short distance W.NW. from this buoy.

Matinicok Point Buoy (Black) is about ¼ of a mile off the point. The Buoy lies just outside of a rock with 16 feet of water on it. You can pass south of this buoy, but not far, as the point is rocky.

Center Island Reef Buoy (Black) is just west of Oyster Bay. Keep north of this buoy.

Loyd's Point Buoy (Black) lies ½ a mile north of Loyd's Point. There are rocks NE. of the point, therefore it is not best to get much south of this buoy.

Eaton's Neck Buoy (Black) lies ¾ of a mile off the point; it will not be well to pass south of the buoy.

Mt. Misery Shoal Buoy (Black) lies E. by N., distant 2 miles from Old Field Light; there is 7 feet of water on the shoal, and 3 fathoms south of it; it is one-fourth of a mile long; give the buoy a good berth to pass south of it.

Herod's Point Buoy (Black) bears W.NW. from *Friar's Head.* On this shoal there is but 6 feet of water near the buoy, but you will have from 9 to 12 feet for nearly one mile south of it, by giving the buoy a berth of $\frac{1}{8}$ of a mile.

Roanoke Point Buoy (Black) bears NE. $\frac{1}{2}$ N. from *Friar's Head*, distant $2\frac{3}{4}$ miles, and east of *Herod's Point Buoy*, distant $6\frac{1}{2}$ miles. There is 12 feet of water near this buoy, and not less than that for one mile south of it.

When west of Horton's Point Light from one to five miles, it will not do to go very near the shore, as it is quite shoal all along this curve of the land.

Horton Point Light should never bear north of E. by N., to keep clear of this shoal ground.

Rocky Point Buoy (*Black*) lies NE. by E., distant one mile from the Point, 6 feet of water on the shoal, and good water south of it, by giving the buoy a good berth.

Orient Point Beacon marks the west side of the entrance to Gardiner's Bay, through Plum Gut. Give the Beacon a berth of 300 feet when NW. of it.

Valiant Rock Buoy, HS., lies near the middle of the Race, NE. by E. $\frac{3}{4}$ E., distant 2 miles from Little Gull Light, and SW. $\frac{1}{2}$ W., distant about $1\frac{1}{2}$ miles from Race Rock Light House.

There is good water between Race Rock Light and the west end of Fisher's Island, off which there should be a Red Buoy.

Great Eastern Rock Buoy lies $1\frac{1}{4}$ miles East of Montauk Point; the Buoy is 600 yards SW of the Rock.

For other Buoys in this vicinity, see page 24.

THE BEARING AND DISTANCES OF LITTLE GULL ISLAND LIGHT HOUSE FROM THE FOLLOWING LIGHTS.

		DISTANCE.
From	Stratford Shoal Light E. $\frac{1}{8}$ N.,	46 miles.
"	Faulkners' Island Light, E. $\frac{1}{2}$ S.,	$24\frac{1}{2}$ "
"	*Cornfield Point Light Ship*, E. by S. $\frac{1}{4}$ S.,	$12\frac{3}{4}$ "
"	*Bartlett's Reef Light Ship*, S. $\frac{3}{4}$ E.,	$4\frac{1}{8}$ "
"	Race Rock Light, SW. by W. $\frac{1}{4}$ W.,	$3\frac{1}{2}$ "
"	Montauk Point Light, NW.,	14 "
"	Watch Hill Light, W. by S. $\frac{3}{4}$ S.,	$12\frac{5}{8}$ "
"	Block Island North Light, W. $\frac{1}{2}$ N.,	$24\frac{1}{8}$ "
"	Point Judith Light, W. $\frac{3}{4}$ S.,	30 "
"	*Hen and Chickens Light Ship*, W. $\frac{1}{2}$ S.,	$51\frac{1}{2}$ "
"	Gay Head Light, W. $\frac{1}{4}$ N.,	58 "

For other information in this vicinity, see pages 20 *and* 24.

COURSES, DISTANCES, AND BEARINGS,

BEGINNING AT GOVERNOR'S ISLAND, NEW YORK.

Eastward.—From the NE. side of Governor's Island to the Light on the East end of Blackwell's Island, the distance by the river is 6¼ miles, and its direct bearing is NE. It would be of no benefit to give the courses in detail through the East River. From Blackwell's Island Light to the North Brother Light, the distance is 2½ miles; from this to Throgg's Point Light, the course is E. ¼ S., distance 5 miles; Stepping Stone Light bears from Throgg's Point NE. ½ N., distance 1⅜ miles.

Execution Light bears from the Stepping Stone NE. ¾ N., distance 3⅝ miles.

Directions for Entering the Head of the Sound.—When running for Execution Light, keep it within the bearings of W. ½ N., to SW. ½ W., passing it on your starboard hand; keeping nearer to this than the Sand's Point Light; when in past the Execution Light, steer SW. ¼ S., or you can keep the Stepping Stone Light (red) open a little south of Throgg's Point Light, as that will take you clear of Gangway Rock and Hart Island Point. Leave the Stepping Stone on your port hand, then steer S. SW. until to Throgg's Point, which you will give a good berth in rounding; when you can steer W. by N. about one mile, then W. ½ S. will take you to Riker's Island.

You can pass the Execution Light to the North of it, but give the reef a good berth on that side. This reef bears NE. by N. ¼ N., and SW. by S. ¼ S., therefore do not approach

the Light on those bearings. The South end of Hart Island bears from Execution Light SW. ¼ S., distance 2½ miles. Gangway Rock buoy bears from Execution Light S. SW., distance 1¼ miles.

If bound into Hempstead Bay from the Westward, or bound West from there, do not get the Execution Light to bear anything North of W. by N., on account of the Old Hen Rock, which bears from the Light about E. SE., distance 1⅛ miles, and from Sands' Point Light, E. by N. ¾ N., distance ⅞ of a mile.

This rock shows little before low water. Sometimes there is a bush on it, but it should be supplied with an iron spindle.

LONG ISLAND SOUND, LONG COURSES.

From Sands' Point Light to Race Rock Light, the distance is 80⅜ miles, as follows: An E. NE. course, distance 8⅞ miles, when Captain's Island Light will bear NW. The course from this bearing to Race Rock Light is E. ¾ N., distance 71½ miles. This is the longest course you can make in the Sound. From one-half a mile North of Sands' Point to Stratford Point Light, bearing North, distance one mile, the course is E. NE., distance 32½ miles; from this to Little Gull Island Light the course is East, distance 45 miles.

LONG ISLAND SOUND LIGHTS, WITH THEIR RELATIVE BEARINGS AND DISTANCES, INCLUDING SOME SPECIAL DIRECTIONS FOR HARBORS.

Captain's Island Light bears from Sands' Point Light NE. ¼ N., distance 8⅜ miles.

Huntington, or Eaton's Neck Light, is distant from Execution and Sands' Point Lights 16¼ miles. The buoy off Lloyd's Point bears from Eaton's Neck Light W. ¾ N., distance 4 miles. Eaton's Neck bears from Captain's Island Light E. by S. ½ S., distance 10½ miles.

Lloyd's Harbor Light bears from Eaton's Neck SW., distance 2⅞ miles. Norwalk Island Light bears from Execution Light NE. by E. ½ E., distance 17¾ miles; and from

Eaton's Neck it bears N. ½ W., distance 5¾ miles. Stratford Shoal Light bears from Eaton's Neck E. by N. ½ N., distance 14⅞ miles, and from Norwalk Island Light it bears E. ½ S., distance 14⅜ miles.

Directions to Norwalk Harbor Anchorage.—Bring the Light to bear NE. by E. ½ E., and run for it until you are about 1¾ to 1½ miles from it, then steer North until past the red buoy on Green's Ledge, which bears from the Light E. NE., distance 1¼ miles; after passing this buoy about one-quarter of a mile, steer E. NE. until the Light bears South, or a little West of it, when you will have from 10 to 13 feet of water at low tide.

Old Field Light bears from Norwalk Island Light E. SE., distance 14¼ miles. Old Field bears from Eaton's Neck Light East, distance 12⅝ miles. Stratford Shoal Light bears from Old Field N. by E. ¼ E., distance 4¾ miles.

Mt. Misery Shoal buoy bears from Old Field Light E. by N., distance 1¾ miles (6 feet on this shoal).

Penfield Reef Light bears from Eaton's Neck NE., distance 13 miles, and from Norwalk Island Light E. by N. ½ N., distance 10 miles. Be careful and not get Penfield Reef, or Norwalk Island Lights, in the line of this bearing, only when you are between two and four miles West of Penfield Reef; when you can run into Southport, which is a tide harbor. To go in there, run to the northward until you make the beacon, pass that on your starboard hand, then keep the breakwater end on your starboard bow, and haul around it on that hand. It is a good place of refuge, if in a small craft. Stratford Shoal Light bears from Penfield Reef SE. ¼ E., distance 6½ miles.

Stratford Point Light bears, from Penfield Reef Light, E. by N. ¼ N., distance 5½ miles.

To Enter Black Rock Harbor.—From the Westward, after passing Penfield Reef Light about one-fourth of a mile, steer N. by W. ¼ W. about 1⅛ miles, or until the Light bears East, then

steer about North, and anchor with the Light bearing from E. SE. to SE. You will pass a red buoy when going in, that lies about three-eighths of a mile South from the Light. If you are from the Eastward, run in for the Light, and give the point a good berth, as above directed.

Black Rock Light bears from Penfield Reef N. by E., distance 1½ miles.

Directions for Entering Bridgeport Harbor.—When Bridgeport Light bears N. ½ E., run for it, passing it on your port hand; continue on this course until up past a red buoy, to a beacon which you leave on your port hand; from this steer NE. ½ N. to another beacon, which you leave on the same hand; after passing this beacon a short distance, the course is about NW. by N., but the buoys must be your chief guide.

Bridgeport Light bears from Penfield Reef NE. ½ N., distance 2⅞ miles, and from Black Rock Light E. NE., distance 1⅞ miles. The mean rise and fall of the tide at Bridgeport is six feet five inches.

Southwest Ledge, or New Haven Light, bears from Old Field Light NE. ½ N., distance 17⅞ miles. New Haven Light bears from Stratford Shoal NE., little Easterly, distance 13¾ miles.

Stratford Point Light bears from Stratford Shoal Light N. ½ E., distance 5¾ miles.

New Haven Light bears from Stratford Point E. NE., distance 10 miles.

Falkner's Island Light bears from Stratford Shoal E. by N. ¾ N., distance 22⅜ miles, and from Stratford *Point* Light it bears E. ¼ N., distance 20½ miles.

Horton's Point Light bears from Stratford Shoal E. ½ S., distance 29¾ miles. Horton's Point bears from New Haven Light SE. by E. ¼ E., distance 22¾ miles Horton's Point

bears from Falkner's Island SE. $\frac{1}{4}$ S., distance $11\frac{7}{8}$ miles. Falkner's Island Light bears from New Haven E. by S. $\frac{1}{2}$ S., distance $11\frac{3}{4}$ miles; Branford Beacon is about on this bearing, distance from New Haven Light 5 miles, and from Falkner's Island Light $6\frac{3}{4}$ miles.

Direction for Entering New Haven Harbor, Southwest Ledge, or New Haven Light.

When coming from the Westward, bring this Light to bear NE. by E., and run for it until you are within one-fourth or one-eighth of a mile of it; then steer N. by E. $\frac{1}{2}$ E., distance $2\frac{1}{4}$ miles, when you will be up to Fort Hale Point, and near the Red Buoy No. 6, which you leave on your starboard hand; then steer N. $\frac{3}{4}$ W. about three-fourths of a mile to Black Buoy No. 5, from this N $\frac{3}{4}$ E. towards the end of Long Wharf, on which there is a red light. The best place to anchor is SW. from the end of this wharf.

When running for New Haven Light from the Eastward, do not get the Light to bear West of W. NW., as this bearing will take you clear of all the shoals up to the Light, and outside of Branford Reef. You must keep to the westward of the light as a *Breakwater* is being built, extending from it in a NE. direction.

The mean rise and fall of the tide at New Haven is six feet.

THIMBLE ISLANDS.

This is truly the most charming and romantic combination of land and water that is to be found on the shores of Long Island Sound.

I will give some general directions to enter the harbor. If you are from the Westward, and pretty well in to the land East of New Haven Light, steer East, and you will make a red buoy that is on Negro Heads; leave it on your port hand, and continue E. $\frac{1}{2}$ N. (you should have the Outer Thimble on your starboard bow), you will soon make another red buoy,

which is distant from Negro Heads 1½ miles; this buoy is on Inner Reef, and it bears from Outer Thimble W. by N. ¼ N., distance ½ mile, pass it on your port hand, and after passing this buoy, haul up to NE. ½ E., and run in, keeping nearer to the islands on the starboard hand; after you have passed three islands on the starboard,
anchor about N. NE. from the end of the last of the three. If you haul in just East of Branford Beacon, steer NE. by E. until you make the red buoy on Inner Reef. On this course, you will pass the black buoy on Wheaton's Reef on your starboard hand; this buoy bears from Inner Reef buoy S. ¼ W., distance ¼ of a mile. If coming from the Eastward, and well in North of Falkner's Island, steer W. by N. for the Outer Thimble, give it only a little berth, and haul in the West side of the islands, and proceed as before directed.

From Falkner's Island East, to pass North of Cornfield Point, Middle Ground. *Cornfield Point Light Ship* is anchored off the South side of this shoal. From one-half a mile North of the black buoy on the North point of Falkner's Island, an E. ¼ S. course will take you just south of the red buoy on the tail of Saybrook Bar. From close in to the South side of Falkner's Island an E. ¼ N. course will take you to the same place, passing North of the middle ground on these courses. This sand shoal extends about 5½ miles East and West, with depth of water on it from 7 to 18 feet. *The Light Ship* is about off the middle of the shoal.

To avoid the shoal when South of it, do not bring *Cornfield Point Light Ship to bear South of East when West of it, or South of West when East of it.* When to the Northward of this shoal at night, care must be taken that Saybrook Light does not bear East of E. by N. ½ N.; when you are East far enough to bring *Cornfield Light Ship* to bear SE. or South of it, Crane's Reef bears W. by S. from Saybrook Light, distance 2⅞ miles, and from *The Light Ship* NW. ½ N., distance 2⅛ miles.

The Hen and Chickens Reef, on which there is a spindle, bears from Crane's Reef E. ¼ N., distance ¾ of a mile. Corn-

field Point buoy bears from this spindle E. ½ S., distance ¾ of a mile.

There is a good passage North of these three reefs by keeping from one-eighth to one-fourth of a mile North of them; but there is a reef that is bare at ¾ ebb, which bears from the end of Cornfield Point W. ½ N., distance ⅝ mile, and from Hen and Chickens spindle NE. by N. ½ N., distance nearly ½ a mile. *Westbrook Harbor* is to the Northward of Crane's Reef; Salt Island bears from this reef N.NW., distance 1¾ miles.

There is a dangerous rock called the Dumpling, that bears about SW. by W. from Salt Island, distance ⅜ of a mile; therefore to avoid it, run in toward the island until about West of it, when you can haul to the Westward and anchor opposite the East Cottages.

Cornfield Point Light Ship bears from Falkner's Island E. ¼ S., distance 12 miles, and from Horton's Point it bears N.NE. ¼ E., distance 8¾ miles. Saybrook Light bears from *Cornfield Light Ship* NE., distance 3¼ miles. Saybrook Light bears from Horton's Point Light NE. by N. ¼ N., distance 12⅛ miles.

Plumb Island Light bears from Saybrook SE. ¾ S., distance 8⅜ miles. *Bartlett's Reef Light Ship* bears from *Cornfield Light Ship* E. ½ N., distance 12 miles, and Little Gull Island Light bears E. by S. ¼ S., distance 12¾ miles. Little Gull bears from Saybrook Light SE. by E. ½ E., distance 11⅝ miles.

* *Directions for Entering Connecticut River by the East Channel.*—First, make the P. S. or entrance buoy that bears SE. ¼ E. from Saybrook Light, distance 1¾ miles, then run in, keeping the Light on or near this bearing, *i. e.*, NW. ¼ W., passing the Stone Beacon on your port hand about 200 or 300 feet distant; from this steer N. by W. ½ W. up past the steamboat docks to the anchorage North of the docks. Keep well on the West side of the river up this far. If bound to the river from the Westward, inside of Cornfield Shoal, bring Saybrook

* There is a wreck in the east channel, therefore not safe for strangers.

Light to bear E.NE., and run for it on that bearing until well in to the breakwater, and when Saybrook Light bears North, steer for it, passing close by the East side of the West breakwater; run in between the two breakwaters, and as you approach the Light, enter the river about midway of the Light and the Beacon. Then observe the other directions. This entrance to the Connecticut River is very plain. Seven feet of water can be carried in here at any time of tide, except in extreme cases. Strangers should not attempt to enter this river at night.

Little Gull Island Light bears from *Bartlett's Reef Light Ship* S. $\frac{3}{4}$ E., distance $4\frac{1}{8}$ miles. Race Rock Light bears from Little Gull Light NE. by E. $\frac{1}{4}$ E., distance $3\frac{1}{2}$ miles. Valiant Rock, with 17 feet of water on it, lies about in the middle of the Race; it bears from Little Gull E.NE., distance 2 miles, and from Race Rock Light it bears SW. $\frac{1}{2}$ W., distance nearly $1\frac{1}{2}$ miles. The flood tide runs about NW. by W. in this part of the Race, at about 4 knots on the 2d quarter. The rips in the Race are very heavy, with the wind against the tide. *Bartlett's Reef Light Ship* bears from New London Light SW. $\frac{1}{2}$ W., distance $3\frac{1}{8}$ miles.

To Enter New London Harbor from the Westward.—After passing *Bartlett's Reef Light Ship*, steer NE. by E. $\frac{3}{4}$ E., until New London Light bears N. $\frac{1}{2}$ E.; you will then keep the Light within the bearings of N. $\frac{1}{2}$ E. and N.NW. until within $\frac{1}{4}$ or $\frac{3}{8}$ of a mile of it; then keep N. by E., or the East shore best aboard. The anchoring ground is above the fort, on the West side of the river.—Little Gull Island Light bears from New London Light S. by W. $\frac{1}{4}$ W., distance $6\frac{1}{2}$ miles. Race Rock Light bears from New London Light S. by E. $\frac{1}{2}$ E., distance $4\frac{3}{4}$ miles. This is to be a Flashing Red Light when lighted.

To enter New London Harbor from Fisher's Island Sound.—When the Sea Flower Beacon bears SW., distance $\frac{1}{4}$ of a mile, New London Light will bear NW. by W. $\frac{1}{4}$ W.; keep the Light on this bearing, and run for it until about three-eighths of

a mile of it, when you will steer about North. On this course you will first pass a red buoy off Pine Island, on your starboard hand, and then the buoy and beacon that is on Black Ledge on your port. This course will take you North of the horizontal striped buoy on Frank's Ledge, but you can leave it on either hand, only give it a little berth.

The Sea Flower Beacon mentioned above bears NW. ¼ N., distance ¾ of a mile from the Dumpling Light.

GARDINER'S BAY, L. I.

From Gardiner's Point Light to Greenport, the distance is 10 miles. To Sag Harbor from Gardiner's Point, distance 10¾ miles. Plumb Island Light bears from Gardiner's Point NW. ¼ W., distance 3½ miles. Long Beach Point Light bears from Gardiner's Point W. ½ S., distance 7¼ miles. Long Beach Point bears from Plumb Island Light SW. ¾ W., distance 5¾ miles. This bearing is across the land.

Sailing directions for Greenport.—If coming through Plum Gut, after passing the Beacon on Orient Reef, steer SW. by S. ½ S. until Long Beach Point Light bears NW. by W., when you will pass little North of a P. S. or channel buoy; from this a W.NW. course until West of the Light; you can then steer about W. ½ S., and pass close by Hay Beach Point, (port hand,) then W.SW., passing a red buoy on your starboard hand. The best anchorage for yachts is from South to SE. of the railroad wharf.

PLUM GUT.

To go through Plum Gut in the night, from the Eastward (inside, or past Gardiner's Point), do not haul up for the Gut until Plum Island Light bears N.NW., then merely give the Island a berth of 100 or 200 yards distance. A good breeze is necessary here for safety, on account of the strong tide and the rips it makes.

Direction for Noank or Mystic River.—When coming from East or West, keep outside the range of the spindle on Barn Island Reef, and the spindle on Groton Long Point; bring Mystic Light to bear NE., run for it to a PS. or channel buoy which you pass close aboard, then steers NE. by E. distance ½ a mile to another PS. buoy, pass close to this just west of it, and steer about N. NE. toward the light, passing first a Red Spindle on Whale Rock, next on your starboard a red buoy, then a Black Spindle off the light on your port. After you have passed the light keep the west shore well aboard to the north part of the town.

FOR SAG HARBOR FROM PLUMB GUT.

Steer S. by W. until Cedar Island Light bears SW. by W. ½ W., then steer that course, leaving the Light as you approach it on your port hand; then steer S. ¾ W. about 1¼ miles; then you will haul more to the Westward, and be guided by the color of the buoys, red starboard, and black on your port hand.

If you wish to enter Gardiner's Bay past the East end of Plumb Island, you should either keep pretty close to the Island, or go to the East of Old Silas Rock, which is always above water. About one-fourth of a mile NW. from this rock there is the wreck of a government steamer, and parts of her are pretty near the surface at low tide. The ship channel is to the Eastward of Old Silas; 3½ fathoms of water will be carried through there.

Bedford Reef bears S. ¾ E. from Old Silas Rock. It has thirteen feet of water on it. Marked by a buoy.

Directions to find Napeague Harbor in the night.—After passing the extreme East point of Gardiner's Island (a point that is very rocky, and it should be allowed a good berth), steer about South, keeping Little Gull Light just on the edge of the bluff on Gardiner's Island, which will bring you to the mouth of the harbor. *To Enter Napeague Harbor.*—When you pass the outer or entrance buoy, leave it on your port hand, and steer about S. by W. until you pass another buoy or bush on your port, then haul to the Southward, and keep well toward the East shore as you enter. Keep a lookout for the shoals on the West side of the entrance.

Do not keep off to the Westward after you are in the Bay, until you are nearly to the middle Fish Factory.

FISHER'S ISLAND SOUND.

North Dumpling Light bears from New London Light SE. ¾ E., distance 3⅝ miles. Mystic Light bears from North Dumpling NE., distance 2⅛ miles. *Eel Grass Shoal Light Ship* bears from North Dumpling E. by N. ¼ N., distance 3⅜

miles. Stonington Light House bears from the *Eel Grass Light Ship* E.NE., distance 2½ miles. Watch Hill Light bears from the Dumpling East, distance 7¼ miles.

Directions for Stonington Harbor.—From one-fourth of a mile South of *Bartlett's Reef Light Ship*, an E. ¾ N. course will carry you a little North of North Dumpling Light; continue on this course until to the *Eel Grass Shoal Light Ship*, and when little past her, steer for Stonington Light, keeping it on your port bow; the course will be about NE. ¾ E., distance 2⅛ miles. You will pass a *red buoy* on your *port hand* on *this run*. When about one-fourth of a mile of Stonington Light, keep N. by E., passing the East end of the Breakwater, North of which you can anchor, or continue on and anchor above the steamboat wharf. The water is shoal on the west side of the harbor above the west Breakwater.

*STONINGTON FROM THE EASTWARD.

Steer W. ¾ N. in past Watch Hill Light, passing South of it not less than ¼ of a mile; passing the Gangway Rock buoy (red), on your starboard hand.

The Watch Hill Reef Buoy and Spindle will be on your port; continue on the above course, passing Naptree Point Buoy (red) on your starboard hand, and when Stonington Light bears North steer for it open on your starboard bow, passing it from ⅛ to ¼ of a mile distance. South by West, distance ¼ of a mile from the Light, you will pass an H.S. Buoy on your starboard hand. (See other directions.)

FISHER'S ISLAND SOUND.

From little South of *Bartlett's Reef Light Ship* steer E. ½ N. until well past the Dumpling Light, then steer East until near to Naptree Point Buoy (red) then steer E. ½ S. out past the Gangway Rock Buoy, passing it on your port, and the Watch Hill Spindle and Buoy on your starboard hand. The tide runs so strong through this Sound, that a given course cannot be relied on, but a careful attention must be paid to the Buoys and Spindles.

I will give the Buoys and Spindles as passed on this course from Dumpling Light to Watch Hill.

* There is a Breakwater building about 1¼ miles N. NW. of Naptree Point buoy. Pass West of it, going in to Stonington.

You will first pass a Red Buoy on Ram Island Reef; North of the Buoy is a Spindle on the same Reef; these you will leave some distance on your port hand. The next on your port will be the Spindle on Latimer's Reef, the West end, and an H.S. Buoy on the East end of the same Reef. This Spindle bears SE. by E., distance $\frac{3}{8}$ of a mile from *Eel Grass Shoal Light Ship*. Southwest $\frac{1}{2}$ South from Latimer's Reef Spindle is a Black Buoy on Young's Rock, and S. by E. from the same Spindle is a Black Buoy on Seal Rocks. East by South from the Seal Rock Buoy is the Spindle on Wiccopesset Reef, and E. $\frac{1}{4}$ S. from this is a Spindle on Catumb Reef.

These two Black Buoys and the two Spindles, to be passed on your starboard hand; but before you are to the last Spindle named, you will have to pass Naptree Point Buoy (red), on your port hand. This Buoy bears from Catumb Reef Spindle NW., distance $\frac{3}{8}$ of a mile. You will next pass on your port the Gangway Rock Buoy, and on your starboard hand, Watch Hill Reef Spindle and Buoy.

Watch Hill Light bears from New London Light E. by S., distance $10\frac{1}{4}$ miles.

From *Watch Hill Light to Point Judith* the course is East $\frac{1}{8}$ N., distance $17\frac{1}{2}$ miles.

Montauk Point Light bears from *Little Gull Light* SE., distance 14 miles. To pass Montauk Point from Little Gull Island Light, steer SE. $\frac{1}{2}$ E. until Montauk Point bears South, then merely give the Point a good berth in rounding it.

*On this course given, you will pass West of Cerebus Shoal buoy, and East of Shagwong Reef. This Reef bears from Montauk Light NW. $\frac{1}{2}$ N., distance $3\frac{7}{8}$ miles. The SW. end of Block Island bears from Little Gull Light E. by S. $\frac{1}{2}$ S., distance $22\frac{1}{2}$ miles, and Block Island North Point Light bears E. $\frac{1}{2}$ S., distance $24\frac{3}{8}$ miles. Point Judith Light bears from Little Gull E. $\frac{3}{4}$ N., distance 30 miles; Watch Hill Light bears from Little Gull E.NE. $\frac{1}{4}$ E., distance $12\frac{5}{8}$ miles.

* April 1881 an Automatic Whistling buoy was placed SE. of Cerebus Shoal. 13 *feet of water on this Shoal.*

This bearing is directly across the Watch Hill Reefs that lie to the Southward of the Light. Point Judith bears from Watch Hill Light E. ¼ N., distance 17½ miles. Montauk Light bears from Watch Hill S. ¾ W., distance 13⅞ miles; Block Island North Point Light bears from Watch Hill SE. by E. ¾ E., distance 13⅝ miles. Point Judith Light bears from Montauk Point NE. ¾ E., distance 29¼ miles. Block Island North Point Light bears from Montauk NE. by E. ½ E., distance 15⅞ miles, and from Gardiner's Point E. ¼ N., distance 26¼ miles. This bearing is over Cerebus Shoal, which lies 8½ miles from Gardiner's Point, 7¼ miles E.SE. from Little Gull Light, and 7½ miles NW. by N. ½ N. from Montauk Point. Block Island Light on the SE. Point bears from Montauk Point E. by N., distance, 15 miles.

This course will take you over SW. Ledge, which is distant from Montauk Point 9¼ miles, and from Block Island Light 5¾ miles. The least water on SW. Ledge is 5 fathoms, and in heavy weather it breaks.

Sometimes codfish and bluefish are plenty on this Reef. If you wish to go into Block Island Harbor, you can keep within one-eighth of a mile of the Island on the South side of it, haul to the Northward as you get East of the Light, and run for the Gap, or end of the breakwater, on your port bow, passing it on that hand. There is good anchorage Northwest of the breakwater, and the Basin can accommodate a large number of small craft.

There are two Range Lights to show the line of the breakwater. * They bear N.NE. and S.SW. from each other, and when coming in here in the night, keep the high or rear light open West of the front low light. The outer end of the breakwater curves to the Northward, and when it is finished, probably these lights will mark the extreme end of it when they are in range. If you want to try the codfishing, you will generally find them about E SE. from the breakwater, distance 5 to 7 miles; but if you are not fitted with the gear, you will always find one of the Islanders ready to go with you and furnish lines and bait at a reasonable price.

* These lights are red.

The buoy off the North Point of the Island bears from the Light N. ½ E., distance 1⅜ miles.

Block Island surpasses all other places *on the coast West of the Isle of Shoals*, as a summer resort, on account of its pure ocean air, cool nights, good fishing and sailing, and good hotels.

Narragansett Bay and Newport.—Also see page 99.

Point Judith Light bears from Block Island North Point Light NE. ½ N., distance 9 miles, and from the SE. Point Light it bears NE. by N. ½ N., distance 12½ miles, and 11¾ from the breakwater on the same bearing.

Beaver-tail Light bears from Block Island Southeast Point Light NE. by N. ¼ N. distance 19 miles.

Beaver-tail bears from Point Judith NE. ⅛ N., distance 6½ miles. If bound up to Newport or the East passage from near Point Judith, steer NE. ¼ E. until you are above Beaver-tail Light, then run NE. ½ E., and if bound up the Bay, when Rose Island Light bears N.NE., steer N. ½ E., passing it on your starboard hand. If you are bound up the Bay by the West passage, when around Point Judith, steer NE. ½ N. until up to Beaver-tail, when you will steer N. by E. up past Dutch Island Light, which is distant from Beaver-tail 2⅞ miles. If you wish to stop at Dutch Island Harbor, when about an eighth of a mile below it steer NE., passing near the Light on your port hand, you will pass a red buoy on your starboard. (You can enter this Harbor from the Northward.) After you are to the North end of Dutch Island, and bound up the Bay, steer N. by E. ¾ E. until Warwick Neck Light, which is distant from Dutch Island 10⅜ miles, bears N. ¼ E., then run for it until it is distant three-eighths of a mile, then steer NE. Other directions for this Bay will be seen.

Brenten's Reef Light Ship bears from the North point

Block Island Light NE. $\frac{1}{8}$ E., distance $15\frac{1}{4}$ miles. *Brenten's Reef Light Ship* bears from Point Judith NE. by E. $\frac{1}{4}$ E., distance $6\frac{3}{8}$ miles, and from Beaver-tail it bears SE. by S. $\frac{1}{4}$ S., distance $1\frac{1}{2}$ miles. Brenten's Reef Buoy bears from Beaver-tail Light E.SE., distance $1\frac{3}{4}$ miles.

If bound into Newport from the Eastward, bring Beaver-tail Light to bear NW. by W., and run for it on this bearing; this will take you some distance North of the *Light Ship*, and one-fourth of a mile South of the Reef buoy; the *Light Ship* lies little over one mile SW. $\frac{1}{2}$ W. from the end of the Reef. When you are about one mile from Beaver-tail Light, the *Light Ship* bearing S.SW., haul up to N.NE., and run nearly two miles, or until you are above Castle Hill, which is the extreme West point of land on your starboard hand; it bears from Beaver-tail E. by N. $\frac{1}{2}$ N., distance $1\frac{1}{2}$ miles.

From *Castle Hill*, the course up to the Fort Dock is about NE. $\frac{1}{2}$ E., but the shore on the starboard hand is bold; when you haul in for the Harbor you can pass as close to the North side of this dock as you like.

The course from this dock to a black buoy off the South end of Goat Island, is SE. by E. $\frac{1}{2}$ E.; leave this on your port hand, passing North of Lime Rock Light, which bears from Fort Adam's Dock SE. $\frac{3}{4}$ E., distance $\frac{5}{8}$ of a mile. If the wind is not favorable to enter the harbor this way, you can go around the North end of Goat Island, and haul in past the Light on the Breakwater, then steer S. $\frac{1}{2}$ W. until past the Old Colony Steamboat Dock.

Choose your anchorage, if possible, out of the line of the steamboats' passage to their docks, and East of the N. Y. Steamers' course, which is directly from their dock to Lime Rock Light.

BEARINGS AND DISTANCES WITH SOME SAILING DIRECTIONS FOR NARRAGANSETT BAY.

Rose Island Light bears from Beaver-tail NE. $\frac{3}{4}$ E., distance $3\frac{3}{4}$ miles, and from *Brenten's Reef Light Ship*, NE. by N., distance $4\frac{1}{4}$ miles. (Both of these bearings range across the land.)

The South end of Gould Island bears from Rose Island Light N. $\frac{3}{4}$ E., distance 2 miles. When Rose Island bears East one-eighth of a mile, the course to Sand Point Light (on the East side of Prudence Island) is NE. by N. $\frac{1}{2}$ N., distance 7 miles. From near Sand Point Light, a NE. $\frac{1}{2}$ E. course, distance $2\frac{5}{8}$ miles, will take you between the Muscle Shoal and Bristol Ferry Lights. On this course you will pass near a black buoy off the SE. point of Hog Island. This buoy bears from the Muscle Shoal Light W. by S. $\frac{1}{4}$ S., distance $\frac{1}{2}$ a mile.

FALL RIVER.

From north of the Muscle Shoal Light, to the Beacon off Fall River, the course is NE. by E., distance $5\frac{5}{8}$ miles. If you are bound to Bristol, after passing the Hog Island buoy, steer N. $\frac{1}{2}$ W. until up to the wharves, distance a little over two miles. On this course you will first pass a red buoy near Bristol Ferry Light, and a black buoy, about three-fourths of a mile above the point buoy; the next is an horizontal striped buoy nearly up to the town, this you leave on your port hand.

Sailing Directions for Bristol West of Hog Island.—When the red buoy off the SW. point of Hog Island bears East, steer N. by E. $\frac{3}{4}$ E., distance $1\frac{5}{8}$ miles, to a black buoy. (On this course you will pass the Castle Island Beacon on your right.) When up to the black buoy, steer NE. for the Town, passing West of the horizontal striped buoy.

The red buoy on the SW. point of Hog Island, bears from Sand Point Light NE. $\frac{1}{2}$ E., distance $1\frac{3}{4}$ miles.

WARREN.

If bound to Warren, after passing Sand Point Light, steer North; this course will carry you to the East of Ohio Ledge buoy, distant from the Light $4\frac{5}{8}$ miles, and when this buoy

bears West, steer NE. $\frac{1}{4}$ E. leaving the buoy on the South end of Rumstick Shoal on your port hand. This buoy lies from Ohio Ledge buoy, distance $1\frac{3}{8}$ miles. You will next pass a black buoy on your port as usual; on this course you will pass three red buoys on your starboard hand, and Allen's Rock Beacon on your port, then above this beacon, about NE. $\frac{1}{4}$ E. from it, you will pass on your port, a black buoy on the SE. end of the Middle Ground; above this you will pass three red buoys on the starboard hand, course about N. by E. The distance from the beacon to the upper red buoy is about $\frac{7}{8}$ of a mile. Keep a good look-out for the Upper Middle Ground.

There is good water up to the Town, and with a careful attention to the buoys, these directions can be relied on if you have no chart.

PROVIDENCE, FROM NEWPORT.

From the Breakwater Light on the North end of Goat Island a N. by W. course will take you clear of all the reefs, and West of Bishop's Rock buoy. The first buoy above the Light is a black one on Tracey's Ledge, East of that is a red buoy on Patrick's Rock, then the black buoy North of the Gull Rocks. On these rocks there is a small beacon; you will leave this on your port hand.

The *Bishop Rock* buoy bears from the *Gull Rocks* buoy N. $\frac{3}{4}$ E., distance $\frac{3}{4}$ of a mile.

When up to this buoy (Bishop Rock), a N. $\frac{1}{4}$ E. course, distance $5\frac{5}{8}$ miles, will carry you up to Despair Island bearing West. This island lies off the NE. end of Hope Island, and Hope Island bears N. by E. $\frac{1}{2}$ E., distance $1\frac{1}{2}$ miles, from the north end of Conanicut Island. On the above course given, *i. e.*, N. $\frac{1}{4}$ E., you will pass the Halfway Rock Spindle on your starboard hand. It bears from the Bishop Rock buoy N. by E., distance $2\frac{3}{4}$ miles. (There is a passage between the South end of Prudence Island and Halfway Rocks of over one-half a mile.) You should give Hope Island a good berth

on all sides. When Despair Island bears West, steer N. ½ W. for Warwick Light, distance 3½ miles, until the Light is about one-quarter or three-eighths of a mile distant, then the course is NE. ¾ N., distance nearly three miles, to a black buoy on the shoal South of Conimicut Point Light; the buoy bears from this Light S. ½ E., distance ¾ of a mile. From this buoy steer North until past the Light, then NW. by N.

, distance 1⅝ miles, to the Light on Bullock Point Shoals, which you leave on your starboard hand. From this Light to the Light on the oyster beds (or Sabine's Point Light) the course is N. ¾ W., distance 1⅝ miles; you will leave this Light on your starboard hand, and the Pawtuxent Beacon on your port; continue the course past the Light about one-fourth of a mile, then steer NE. ¼ N., passing a red buoy on your starboard hand, then a black buoy on your port; continue on this course until the Light on Pomham Rock bears N.NE., then steer for it, passing it on your starboard hand, and Pomham Beacon on your port. From near this Light (West of it) the course is N. by W., until nearly up to the Light on Fuller's Rock, distance 1⅛ miles; this Light you will leave on your starboard hand.

Off Field's Point West of this Light, the shore is quite bold. The course from Fuller's Rock Light to the Light on Sassafras Point is NW. ¾ N., distance ⅝ of a mile. You will pass one red buoy on this last course. From this Light to the city the course is N. by W. The buoys are very prominent all the way up this bay and river, and strangers should be particular to observe the color, and their line of bearings, as the water is quite shoal each side of the channel in many places.

WICKFORD.

Wickford is now quite an important point of railroad communication, therefore yachtsmen will frequent it quite often. If bound there from Newport, when off the North end of Conanicut Island, steer W. ½ N., passing the beacon on the South end of White Rocks on your starboard hand, and a black buoy on James Ledge on your port; continue on about

the same course, and anchor a little North of the black buoy that lies NE. of Poplar Point Light. If you wish to run in for the Light from down the bay, bring Poplar Point Light to bear NW. by W., and run for it, keeping it on your port bow. Give the point NE. of the Light a good berth.

Directions for East Greenwich.—When Warwick Light bears North, distance $\frac{3}{8}$ of a mile, steer NW. $\frac{1}{4}$ W., distance $1\frac{1}{4}$ miles, to a black buoy; from this steer W.NW., distance $1\frac{1}{2}$ miles, to a black buoy on Sally Rock. (If you vary from these courses, let it be to the Northward, and nothing South of this line.) After passing the buoy on Sally Rock, steer W. by S. $\frac{3}{4}$ S., distance $\frac{3}{4}$ of a mile, to a red buoy; leave that on your starboard hand, and continue the course to a black buoy off Long Point, distance $\frac{3}{4}$ of a mile; after passing this point, you will steer about South past a red buoy.

SAUGHKONNET RIVER.

This river will be found a very convenient place of refuge, and a good harbor for any wind.—From $\frac{1}{4}$ to $\frac{1}{2}$ a mile West of West Island (which is the extreme point on the East side of the river), steer N. $\frac{1}{2}$ E., and as you get up into the river, keep the West shore little best aboard until up to Fog-Land Point, which is on the East side, distance 7 miles North of West Island. Above this point you will have a good harbor, and below it, for some distance, good anchorage.

In entering this river care must be taken that the point on the West side of the entrance does not bear East of North, as there are other shoals in the vicinity of Cormorant Rock, which you must leave on your port hand, and not approach near it, only on the East and North sides of it. This rock bears from West Island NW. by W. $\frac{3}{4}$ W., distance $2\frac{3}{8}$ miles.

West Island bears from *Brenton's Reef Light Ship* E. $\frac{1}{4}$ S., distance 8 miles.

A ledge called *Schuyler's Ledge* was discovered in 1879 bearing S. $\frac{1}{2}$ E. from West Island, distance $\frac{1}{2}$ a mile. Depth of water on it from 8 to 12 feet. It extends about 240 feet E. and W. and 100 feet wide, marked by a red buoy.

ENTRANCE TO VINEYARD SOUND AND BUZZARD'S BAY.

Gay Head Light bears from the S.E. Point Block Island Light E. $\frac{3}{4}$ N., distance $34\frac{1}{2}$ miles, and from *Brenten's Reef Light Ship* E. by S. $\frac{3}{4}$ S., distance 25 miles. *The Sow and Pigs, or Vineyard Sound Light Ship*, bears from Block Island North Point Light E. $\frac{3}{4}$ N., distance $28\frac{1}{8}$ miles, and from Point Judith Light E. $\frac{1}{2}$ S., distance $22\frac{1}{4}$ miles. *The Hen and Chickens Light Ship* bears from Point Judith E. $\frac{1}{4}$ N., distance $21\frac{1}{2}$ miles, and from *Brenten's Reef Light Ship* it bears E. $\frac{1}{2}$ S., distance $16\frac{1}{8}$ miles. *The Vineyard Sound Light Ship* bears from *Brenten's Reef Light Ship* E. by S. $\frac{1}{2}$ S., distance $17\frac{5}{8}$ miles.

The Light Ship off Davis South Shoal bears from Point Judith about SE. by E. $\frac{1}{2}$ E., distance 80 miles; this course from Point Judith will carry you just South of No Man's Land. *This Light Ship* bears from Sankyty Head Light S. $\frac{1}{4}$ E., distance 22 miles.

Sailing Directions for Westport Harbor.—When one-fourth of a mile West of the Spindle on Hen and Chickens Reef, steer N.W. by N. $\frac{1}{2}$ N. You will first pass the red buoy on Lumber Rock on your starboard hand; it is distant from the Spindle $1\frac{1}{8}$ miles; you will next make the Spindle that is on the Two Mile Rock, and distance from Lumber Rock buoy $1\frac{5}{8}$ miles; when near this black spindle, keep off to the Northward, and bring the Rock that is at the mouth of the River to bear NW., when you will run for it, passing the red buoy on Half Mile Shoal on your starboard hand, and passing the entrance Rock about 150 to 200 feet on your port hand; keep off the port shore about that distance until to the H. S. buoy on the Middle Ground, and if bound to Westport, pass it on your port hand.

If from the Westward, make the Two Mile Rock Spindle (black), pass it on your port, and observed the directions given.

Note this: Do not get within one-fourth of a mile of the Two Mile Rock Spindle, when SW. of it.

To pass over the Hen and Chickens Shoal North of the Spindle one mile. Steer from Lumber Rock buoy E. ½ N., and you will carry from 8 to 10 feet at low water. This course will bring you just South of Mishaum Ledge buoy, distant from Lumber Rock 4 miles.

CUTTYHUNK HARBOR.

This is a good place of refuge with the wind from any quarter but from N.NE. to E.NE. To enter this Harbor from the Westward, bring the NE. Point of Cuttyhunk Island to bear from S.SE. to E. by N., and run for it until within one-eighth of a mile of the Point, when you will keep about East, passing North of a red buoy that bears E. by N. from the Point. This is Whale Rock buoy; NW. by N. from this buoy is a black buoy on the Middle Ground; this passage is between the two.

Little East of Whale Rock is a buoy on Edwards Rock, H.S. You will leave that on your starboard hand, then steer about S. by E., until past the red buoy on Pease Ledge, when you will have good anchorage in from 2 to 4 fathoms of water.

Another direction is to run pretty close to the SW. part of Penikese Island, and steer S.SE. ½ E., passing the Middle Ground black buoy on your starboard hand a good berth, and the Middle Ledge buoy on your port; the latter is an H. S. buoy. Gull Island Ledge, a black buoy, bears from this H. S. buoy E. by N. ½ N. When coming in here from the Eastward, you only have to pass between the NW. Point of Nashawena Island and the buoy off the South end of Gull Island, then steer about SW. ½ W.; there is good beating room, and plenty of water.

BUZZARD'S BAY.

There is an Automatic Signal Buoy one mile SW. of the *Hen and Chickens Light Ship.* It lies in 7½ fathoms of water. From near this *Buoy* steer E. by N. until past Penekese Island. (This course will take you South of a shoal spot of 20 feet which bears NW. by N. ½ N., distance one mile from Penekese Point.) You will then steer E.NE. until Gay Head Light opens, and shuts in through Quicks Hole passage. Clark's Point Light will then bear about NW. Then steer NE. for Wings Point Light.

Pass this Light on your starboard hand, and continue on the above course until you are up to a black buoy, passing it on your port hand. If bound up the Bay any farther, it will be best to anchor near this buoy for a pilot. You will pass Bird Island Light on this course; it bears from Wings Neck W. ½ S., distance 2⅝ miles.

Cuttyhunk Light bears from Wings Neck Light SW. ½ W., distance 20½ miles.

If bound into Sippican Harbor, get Bird Island Light to bear NE. by N., distance ¾ of a mile, then steer N. by W. ½ W., distance 2¾ miles; you will pass black buoy No. 1 on your port hand, and when you get to black buoy No. 3, it will be well to get a pilot.

If bound into Wareham; after passing Bird Island Light one mile, it bearing W. ½ N., steer N. ½ W. up to the Northeast side of Great Hill; distance from the Light, 1½ miles. From this to the town a good pilot is needed.

NEW BEDFORD HARBOR.

The Dumpling Rock Light bears from the *Hen and Chickens Light Ship* NE. ¼ E., distance 7⅛ miles. Mishaum Ledge is on this line of bearing about midway between the two Lights. (Least water on this ledge is 8 feet.) Therefore, when running for Dumpling Light from near the *Light Ship* do not keep to the North of N.E. by E. the first three or four miles. From the buoy on this ledge you can keep directly for Dumpling Light, and only give it a berth of 300 or 400 feet. You will pass a red buoy on your starboard hand that is on a sand shoal about South from the Light, distance ½ a mile. There is also a black buoy just South of the Light, near to it. When to the Dumpling Light, steer NE. by N., distance 2⅓ miles, or until Clark's Point Light bears North, when you will steer N. by E. ¾ E. toward a red buoy on Egg Island Flats, and little South of a black buoy that is on Butler's Flats, which you will pass on your port hand, and then steer N.NW., leaving the red buoy and the beacon on

Egg Island Flats on your starboard hand; on this course you will first pass a black buoy that is nearly a mile from the Butler's Flat buoy; then little North of this you will pass between a red and a black buoy; from these the course is about North, on which you will pass a red buoy, then the black buoy that is close to Palmer's Island Light, which you leave on your port. The best place to anchor is just North of the ferry landing.

Direction No. 2 for New Bedford Harbor.—From the *Hen and Chickens Light Ship* steer NE. by E. ½ E., until Clark's Point Light bears North, when it will be in range with Palmer's Island Light; keep the Lights on this bearing (North) until within about one mile of Clark's Point, when you will observe the first direction.

Direction No. 3.—Steer the course given above from the *Light Ship* until Clark's Point Light bears NW. by N. ½ N., then keep it on this bearing until within one-half mile of it, when you will observe the first directions given.

As the ledges are quite numerous off New Bedford Harbor, I will give the position of the principal ones that will need be passed in entering the harbor.

Wilkes' Ledge H. S. buoy bears from Dumpling Light S. ½ E., distance 1¾ miles. (Ten feet the least water on this ledge.) Great Ledge bears from Clark's Point Light S. ½ W., distance 3⅛ miles, and E. ½ S., distance one mile from Dumpling Light; there is a black buoy on the East and a red buoy on the West side of this ledge. (Least depth of water 7 feet.)

Decatur Rock, Church Rock, and Phinny Rock buoys, all bear nearly S. ¼ E. from Clark's Point. The first, Decatur Rock buoy, is red, distance 1⅞ miles; Church Rock buoy lies little South of this, and is red; Phinny Rock buoy is black; distance from the Light 2¾ miles.

North Ledge buoy (black) bears from Clark's Point S. by E. ½ E., distance 3⅛ miles.

Mosher Ledge buoy (red) bears from Clark's Point SE. ½ E., distance 2½ miles. Henrietta Rock buoy (H. S.) is on the same bearing, distance 1¾ miles from the Light Packet Rock buoy (black) bears from the Light SE. ½ E., distance 1½ miles.

Quick's Hole Passage bears from Clark's Point Light S. ½ E., distance 8½ miles. Directly off this passage, in Buzzard's Bay, distance ⅜ of a mile from the land, there is a Lone Rock buoy; there is 8 feet of water on this rock. By keeping Gay Head Light open East of the SE. point of Nashawena Island, you will pass the East side of this rock.

There is no obstruction in this passage except a ledge on the East side, about midway ; there is a buoy (red) on this ledge. If you steer South on the first half of the passage, and SE. ½ E. after passing the buoy, you will go all clear. S. by E. is the only straight course through here. The flood-tide runs through here from Buzzard's Bay into the Vineyard Sound.

THE RELATIVE BEARINGS AND DISTANCES OF THE LIGHTS IN VINEYARD SOUND AND NANTUCKET SHOALS.

These bearings must not be mistaken for sailing directions.—Gay Head bears from Montauk Point Light E. by N., distance 48½ miles. From the west end of Cuttyhunk Island to *Pollock Rip Light Ship* by the Ship Channel, the distance is 49 miles.

Gay Head Light bears from the *Sow and Pigs Light Ship* SE. by E. ½ E., distance 7 miles, and from Cuttyhunk Light SE. ¼ S., distance 6½ miles. Tarpaulin Cove Light bears from Gay Head NE. by N., distance 8⅓ miles; the West End of No Man's Land bears from Gay Head S. ½ W., distance 5¼ miles. Nobska Point Light bears from Tarpaulin Cove E.NE., distance 5⅜ miles. Holmes' Hole, or West Chop Light, bears from Tarpaulin Cove E. ¼ S., distance 7⅓ miles, and from Nobska Light it bears SE. ½ S., distance 3¼ miles. East Chop Light bears from West Chop SE. by E. ¼ E., distance 1½ miles.

Succonnessett Shoal Light Ship bears from Nobska Light E. $\frac{1}{4}$ S., distance 10 miles, and from West Chop Light E. by N. $\frac{1}{4}$ N., distance $8\frac{1}{8}$ miles, and from Cape Poge Light it bears N. by E. $\frac{1}{4}$ E., distance 7 miles. *Cross Rip Light Ship* bears from Holmes' Hole Light E. by S. $\frac{1}{2}$ S., distance 14 miles, and from Cape Poge Light it bears E. $\frac{1}{4}$ N., distance $7\frac{1}{2}$ miles. Cape Poge bears from East Chop Light SE. $\frac{1}{2}$ E., distance 6 miles, and from Nobska Light SE. $\frac{1}{4}$ E., distance $10\frac{3}{4}$ miles.

Nantucket Harbor, or Brant Point Light, bears from *Cross Rip Light Ship* SE. by S. $\frac{1}{4}$ S., distance $12\frac{3}{4}$ miles; the *Handkerchief Light Ship* bears from *Cross Rip* E. $\frac{1}{4}$ N., distance $10\frac{3}{4}$ miles; Nantucket Great Point Light bears from *Cross Rip* SE. by E. $\frac{1}{4}$ E., distance $11\frac{1}{2}$ miles, and from *Handkerchief Light Ship* S. $\frac{1}{2}$ W., distance $5\frac{3}{4}$ miles; *Butler's Hole Light Ship* bears from the *Handkerchief* NE. by E. $\frac{1}{4}$ E., distance 4 miles; *Butler's Hole* bears from Nantucket Point Light N.NE. $\frac{1}{4}$ E., distance 9 miles; *Pollock Rip Light Ship* bears from *Butler's Hole* E. by S. $\frac{1}{2}$ S., distance $8\frac{1}{2}$ miles, and from Nantucket Point it bears NE., distance 10 miles; Monomoy Point Light bears from *Butler's Hole Light Ship* N. $\frac{3}{4}$ E., distance $1\frac{1}{4}$ miles; *Pollock Rip Light Ship* bears from Monomoy Light SE. $\frac{3}{4}$ E., distance $3\frac{3}{4}$ miles; Chatham Lights (two) bear from *Pollock Rip* N. $\frac{1}{2}$ E., distance 8 miles; Sankaty Head Light bears from *Pollock Rip Light Ship* S. by W. $\frac{3}{4}$ W., distance 15 miles.

The Bishop and Clerks' Light is $4\frac{1}{8}$ miles S. by E. from Hyannis Light; it bears from *Cross Rip Light Ship* N.NE. $\frac{1}{4}$ E., distance $7\frac{3}{4}$ miles, and from *Handkerchief Light Ship* NW. $\frac{1}{2}$ W., distance $9\frac{1}{2}$ miles; *Succonnessett Light Ship* bears from it W. $\frac{1}{2}$ S., distance $8\frac{1}{2}$ miles.

Directions for Entering Hyannis Harbor from the Westward.—Steer past Nobska Light E. by N. $\frac{3}{4}$ N., distance from it from one-half to one mile, until *Succonnessett Shoal Light Ship* bears E. $\frac{3}{4}$ S., distance about 6 miles, when you will run for it on your port bow, passing it on that hand; when about

one mile East of it, steer E. by N. ¾ N. about 6 miles, when Hyannis Light will bear N. by E. ½ E., distance 2¾ miles; then run for it on that bearing until the East end of the Breakwater bears W. by N., then haul up about N.NW. or N. by W., and you will find good anchorage in three fathoms of water. When you haul up N. by E. ½ E. for the Light, you should have the buoy on W.SW. Ledge on your port, and be pretty near it; this is a bell buoy in summer and spar buoy in winter; it lies in the range of the East end of the Breakwater and Hyannis Light. This direction will take you North of L'Homme Dieu Shoal.

Another direction that will take you between L'Homme Dieu and Hedge Fence Shoals is, to get Nobska Light to bear W. ¾ N., then steer E. ¾ S., keeping it directly over your stern until *Succonnessett Light Ship* bears NE. ¾ E., then steer E. by N. ¾ N., and observe other directions. On this course you should pass a black buoy on Eldridge's Shoal on your starboard hand. It bears from the *Light Ship* SE. by E. ½ E., distance ⅞ of a mile.

If bound to Hyannis from the Eastward, steer from the *Handkerchief Light Ship* NW. ¼ W. toward the Bishop and Clerk Light, passing it on your port hand, distance ⅜ of a mile; continue on this course until Hyannis Light bears N. by E. ½ E., then as before directed.

A proper attention must be given to the current when on these courses across the tide.

Directions for Entering Edgartown Harbor.—When off the Oak Bluff Dock ¼ to ⅛ of a mile, steer SE. ½ E., or directly for Cape Poge Light (you will be South of Squash Meadow Shoal on this bearing). When Edgartown Light bears SW. ¾ S. you will steer S.SW. until the Light bears West; you will then gradually haul toward it, passing the red buoy off the Light on your starboard hand. When in past the Light, the shore on the port is quite bold until around the point. There is good anchorage W. by S. from the Light. Care must

be taken when coming from the Westward, and not let Cape Poge Light bear East of SE. by E. until you get Edgartown Light to bear SW. ¾ S.

When coming from the Eastward, steer from *Cross Rip Light Ship* W. ½ N., keeping it bearing E. ½ S. until Cape Poge Light bears S. ¼ E., when Edgartown Light will bear SW.; then run in for it on this bearing until Cape Poge bears E., when you will keep the Light open more on your starboard bow to pass. the Point buoy; the course in after passing this buoy is W. by N. If beating into Edgartown, tack ship when the bottom changes from sticky to hard.

Directions for Nantucket Harbor.—If from the Westward, when East of *Cross Rip Light Ship*, steer SE. ½ E., distance 5½ miles, to clear the East end of Tuckernuck Shoal, on which there is a buoy; from this steer S. by E. ½ E., distance 6 miles, to the bell buoy. *

The Coast Survey direction is here given, but a careful attention to the Buoys, which are changed to suit the channel, will be the best guide.

There are two small pyramidal wooden structures, 300 feet apart, NW. and SE. and NW. by W. ½ W. from Brant Point Light. The following are correct guides for entering the harbor of Nantucket in 1876: Bring the Cliff Beacon Lights (red and white) in range, and run for them, passing near the bell buoy in 3 fathoms water; keep on this course until up with the Red Buoy No. 2 on the outer bar (the course on this range is SW. ½ S.); then steer for Brant Point Light S. by E., passing the red buoys Nos. 4 and 6; then for Red Cliff beacon light SW. by S. ½ S. until the rear beacon and Brant Point Lights are in range; then steer on this range, passing the red buoys (outer, middle, and inner black, flat buoys Nos. 8, 10,

* There is a buoy which you pass East of in the slue or channel on Tuckernuck Shoal in which there is 10 feet of water. It bears from Cross Rip Light Ship SE. by S., distance 4¼ miles.

and 12). The course on this range will be SE. by S. ½ S., passing Brant Point within 100 fathoms, and steer SW. for the anchorage in from 2 to 3 fathoms, soft bottom.

IN VINEYARD SOUND AND OVER NANTUCKET SHOALS.

The main part of the flood tide sets to the Eastward, and the ebb to the Westward. In steering courses that run much North or South of East and West, careful attention should be paid to the direction of the current and the wind.

At *Pollock Rip Light Ship* the tide changes from East to Westward 2½ hours before South Moon, and at Holmes' Hole a little before South Moon; thus a South Moon brings it about high water in the Vineyard Sound and on the Shoals. The flood tide runs through Quick's Hole from Buzzard's Bay into the Vineyard Sound about S. by E.; ebb the opposite direction.

Sailing Directions for Vineyard Sound and Nantucket Shoals.—When the *Vineyard Sound Light Ship* bears N. by W., distance 1¾ miles, and Cuttyhunk Light bears N.NE., distance about 3 miles, steer E. by N. ¾ N., you will pass about 3 miles North of Gay Head, and one mile South of Tarpaulin Cove Light on this course. When Nobska Light bears NW. by W., steer SE. by E. about 5 miles, or until West Chop, or Vineyard Haven Light, bears W. by N. ½ N.; when you will steer E. by S. ½ S., for *Cross Rip Light Ship* distance 14 miles from West Chop. Cape Poge Light should be passed about 4 miles distant on this course. After passing *Cross Rip Light Ship* two miles on the above course, steer E. ¾ N., to the *Handkerchief Light Ship*, distance from this point 8¾ miles; when past the *Handkerchief*, steer NE. by E. ¾ E., for the *Shovelfull or Butler's Hole Light Ship*, distance 4 miles, passing her on the port hand; then haul to E. by S. ½ S. for *Pollock Rip Light Ship*, distance 3½ miles; if you wish to pass out by the ship channel, pass the *Light Ship* on your port hand, and continue on this course until you pass a red buoy on your port, and an H. S. buoy on your starboard hand, distance from the *Light Ship* 2 miles. Chatham

Lights should bear N. by W. ½ W., when you will be clear of the broken parts of Pollock Rip.

If you wish to pass through the Northern Slue, when to the *Light Ship* pass her on your starboard hand, and steer NE. by N. ¼ N.; this will take you through in 3 fathoms at low tide. There is a buoy bearing North from the *Light*, distance one-half a mile, and one N.NE. from the *Light Ship*, both of them to be passed on your port hand.

Chatham Lights bear N. ¼ E. from *Pollock Rip Light Ship*, distance 8 miles.

VINEYARD HAVEN.

When approaching this harbor from the Westward, give the middle ground shoal a good berth, and the point off the West Chop Light; there is a red buoy on this point East of the Light, distance ⅜ of a mile. The buoy on the East end of the middle ground bears from the Light NW., distance nearly ½ a mile. The shoal extends about 5 miles from this buoy W. by S., with water on it varying from 2 feet to 15; the shoalest part is near the East end. There is a good passage South of the middle ground shoal.

LONG DISTANCES AND COURSES FROM POLLOCK RIP LIGHT SHIP OFF MONOMOY POINT.

From Pollock Rip Light to Cape Elizabeth Lights, near Portland, the distance is 120 miles, course NE. by N. ½ N. for 8½ miles until Chatham Lights bear West, then N. ½ E. to Cape Elizabeth. From Pollock Rip to Manheigan Island the course is NE. by N. ¾ N., distance 136 miles.

From Pollock Rip to Mount Desert Rock Light NE. ¼ N., distance 165 miles. Machias Seal Islands bear from Pollock Rip NE. ½ E., distance 215 miles. This Island lies W.SW., distance 11 miles from the West end of Grand Menan Island.

From Pollock Rip to the Seal Islands, off the SW. end of Nova Scotia, the course is E. by N. ½ N., distance 203 miles.

It is not expected that either a sailing craft or steamer can make this a sure run, as the tides and winds vary the course so much. I give these as their relative position.

COURSES, BEARINGS, AND DISTANCES FROM POLLOCK RIP TO MASSACHUSETTS AND BOSTON BAYS, WITH SOME SAILING DIRECTIONS. *

If bound to Boston, the course from *Pollock Rip Light Ship*, is NE. by N. ½ N. 8½ miles, when Chatham Lights (two) will bear West, then the course is N. ½ E., distance 11¼ miles, when Nauset Lights (three) will bear West, then N. by W., distance 1¼ miles; the Highland Cape Cod Light will then bear SW., the course from here to Boston Light is NW. by W. ¼ W., distance 40 miles.

If you wish to go into Provincetown Harbor, when Race Point Light bears SW., then haul up W. by S. until it bears East ¾ of a mile distance, then run S.SE. until Cape Cod Light opens south of Wood End Light, or Wood End Light bears E. ½ N. 1¼ miles distance, then run E. by S. ½ S. until Race Point Light opens Northeast of this Light, or this Light bears NW. by N., then run NE. by E. ½ E. until Long Point Light bears NW. ⅝ of a mile distance, then run North until Wood End is in range with it, or it bears SW. by W. ½ W., then run W. by N., and anchor in 4 to 8 fathoms with Wood End Light bearing SW. by S. ¼ S., and Long Point Light bearing SE. ¾ E.; there is a fogbell here. At Long Point there is a bell, and on Race Point a steam fog whistle, and a Daboll fog trumpet at the Highland Light, as described in the Index.

PLYMOUTH, KINGSTON, AND DUXBURY.

If you are bound to Plymouth, Kingston, or Duxbury, when Race Point Light bears SW., steer W. ¾ S., distance 19 miles, to Gurnet Point Lights; then follow these directions: These Lighthouses consist of two octagonal wooden towers, 31 feet apart, ranging NW. and SE., and serve as a range to clear Brown's Bank, coming from Southward and Eastward, and as a guide into Plymouth Harbor, Kingston,

* There is an Automatic Whistling Buoy about one mile East of Chatham Lights.

and Duxbury. In coming from the Northward bound to Plymouth, you must not bring the Lights to bear South of S. by W. to clear High Pine Ledge, which lies about 2½ miles North of the Gurnet; off this ledge there is a spar-buoy (red No. 6). When in the channel abreast of these Lights, run up W. ½ S. for Duxbury Pier Light, and leave it on the starboard hand in running in.

From South and East, bring Gurnet Lights in range until Duxbury Pier Light bears W. ½ S., when you will be midway between the Lights and the nun buoy on Brown's Island Shoal; then steer W. by S. until Duxbury Pier bears W. by N., when you will be midway between red buoy No. 6 and black buoy No. 5; then steer W. ½ N., pass between red buoy No. 8 and black buoy No. 7, leaving Duxbury Pier Light one-half cable's length on starboard hand; then steer North and anchor under the lee of Muscle Bank, in from 5 to 8 fathoms of water, or continue on same course between red buoy No. 10 and black buoy No. 9, and anchor in the Cow-Yard, in from 4 to 5 fathoms water. Depth of water in channel at low tide, 8 feet.

BARNSTABLE.

If bound to Barnstable, after you are West of Race Point steer S. by W., distance 18½ miles, up near the buoy off the bar; when coming in, bring Sandy Neck Light to bear SW. by S. ½ S., and steer for it, passing close to Bar buoy (red No. 2); then SW. by W. ½ W., for black buoy No. 1, leaving it on the port hand; then for the Light, rounding the Point, giving it a berth of half a cable's length. There is 7 feet of water on the bar at low tide. Anchorage near Light in 3 fathoms of water.

WELLFLEET.

Wellfleet from off Race Point, steer S. by E. until Billingsgate Island Light bears E. by N. ½ N., distance 4½ miles, and Sandy Neck Light bears SW. by W. ½ W., nearly 9 miles; then you will be at or near Billingsgate Shoal; from this haul up East, and the first buoy is

nearly 5 miles distant, or to the Light, bearing S. by E. The buoys or a pilot must then be depended on, it being quite a shoal-water harbor.

BOSTON BAY AND HARBOR.

Minot's Ledge Light bears from Boston Light S.E. ¼ E., distance 7 miles; the bell buoy off Hardin's Ledge bears from Boston Light SE. ¼ S., distance 2½ miles.

Directions to Enter Boston Harbor.—When running in for Boston Light, keep it within the bearings of NW. by W. to W. ½ N.; this will give Hardin's Ledge on the port a good berth, and will clear the Egg, or Shag Rocks on the starboard hand.

Keep Boston Light well on the starboard bow, passing South of it one-half a mile, and when it bears North, steer W. ½ N., passing Nash's Rock buoy on the starboard hand (this buoy bears from Boston Light SW., distance ⅜ of a mile); continue on this course until Long Island Head Light opens West of the Narrows Light (red); you will then gradually haul up for this Beacon Light (a screw-pile structure), passing close by it on your starboard hand; then steer NW. ½ W. until to the East end of Gallup Island, which will be right ahead on this course; from this point steer NW. by N. until Long Island Head Light is in range with the Beacon or Nick's Mate, or it bearing West; you will then slowly work up to W. by N., passing midway of Long Island Head and the beacon on Deer Island Point; from this steer W. by North for Castle Island, or Fort Independence; when up to black buoy No. 7, or between that and red buoy No. 8, steer NW. ½ N., passing the black buoy No. 9 on your port; from this buoy the course to Long Wharf is NW. ½ W.

There is an automatic whistling buoy off the Graves, in place of the bell buoy formerly there. It bears from Boston Light NE. by N., distance 2¾ miles.

If you should make this buoy in a fog, or at night, from one-eighth of a mile East of it, steer South until Boston Light

bears W. ½ N., before hauling in for it; or bring it in range with Long Island Head Light, and run in for it. These bearings will take you clear of Shag Rocks.

The Graves buoy bears from Egg Rock Light S. by E., distance 4 miles.

There is good anchorage to the Westward of Long Island Head Light.

When going in past Boston Light, you can pass within one-eighth of a mile of it if you like (leaving Nash's Rock buoy on your port hand); then steer West one mile to red buoy No. 6, when you will keep the Narrows Light on your starboard bow, and observe the other directions.

The Narrows Light bears from Boston Light about *West*, distance 1⅜ miles.

Long Island Head Light bears from the Narrows Light NW. by W. ¾ W. distance 1¾ miles. This bearing is right over Gallup Island. The buoys on the Centurion bear from Boston Light W. by S. ¾ S., distance 1⅛ miles, and from the Narrows Light they bear SE. ¾ S., distance ⅜ of a mile. It is hardly necessary to give the buoys in detail as they are passed; by following the courses given, it will be very plain work to follow the channel by observing the position and color of the buoys as you make them.

The beacon off Point Allerton bears from Boston Light S. by E., distance ⅞ of a mile· there is a black buoy outside of the beacon. This beacon bears from Harding's Ledge bell buoy W.NW., distance 1¾ miles.

If running for Boston, Salem, Marblehead, or Gloucester Harbors, and overtaken by the fog, do not get into less than twenty fathoms of water, but if you find yourself in less water than that, steer East until you deepen it, as this course will take you clear of everything anywhere in Boston Bay, if near to the twenty fathom line.

BOSTON HARBOR FROM BROAD SOUND.

After passing Egg Rock Light, and Nahant Head, work in to the Westward, and get the Narrows Light (Red) to bear S. by W. ¾ W. Egg Island Light will be directly over your stern, when heading for the *Narrows* Light on this bearing, which you will keep on until Long Island Head Light bears W. by S. ¾ S., distance 2 miles, when you will be to or very near the black buoy , that is on the West side of Aldridge's Ledge.* From near this buoy the course to steer is W. by S.; keeping Long Island Light on the port bow, and as you approach it, pass midway of it and the Deer Island beacon. On this last (W. by S.) course, you will pass the black buoy that is on the Ram Head Shoals. When you are to Long Island Head, observe the other directions given.

The above directions will take you in as good water as that passage affords.

To Enter Nantasket Roads.—When up to Boston Light, and it bearing North, distance ⅜ of a mile, steer W. ½ S., which will bring you near to the buoys on the Centurion; pass these on your starboard hand, then steer W.SW. until Long Island Light opens clear of the SW. part of George's Island, then haul up toward that Light and run in for the anchorage anywhere to the Westward of Fort Warren, which is on George's Island.

HINGHAM HARBOR.

After you pass the Centurion buoys, steer SW. by W. until you open the passage between Hull and Paddock's Island, you will then haul in and pass between the two, keeping little nearer to the land on the port hand; then steer S. by E. ¼ E. toward a black buoy which you will leave on your port hand; from this buoy steer SE. by S. ½ S. toward the West end of Bumkin Island, distant from this buoy three-eighths of a mile; passing this island on your port, you will continue on about the same course, and pass between a red and a black buoy, but you should haul around near to the red one, and steer South by East for Crow Point, which is distant from the

* Egg Rock, when open just South of the point of Nahant Head, will bring you to this buoy. The Black Buoy off Devil's Back will be passed first; it bears from this buoy NE. by E., distant ½ mile; all port hand buoys.

red buoy nearly three-fourths of a mile. After passing Crow Point, let your course come little more to the Eastward, and when Chandler's Island bears North, and Sailors' Island South, it will be as well to hold on for a pilot.

QUINCY OR WEYMOUTH.

When you are between Paddock's Island and Hull (or Nantasket), steer S. by W. until Pig Rock Beacon bears SW. ½ W., when you will steer for it until between Prince's Head on the starboard, and Sheep Island on your port hand; then run S. by E. ½ E. until the West end of Sheep Island bears NE. ½ N.; you will then steer SW. ½ S., passing between a red and a black buoy, distance from the island 1½ miles. This is a good place to hold on for a pilot.

Another Direction to this Place.—When Fort Warren, or George's Island, bears North ¼ of a mile, steer SW. ¾ W., toward a red buoy that lies W. by S. ¼ S., distance ½ mile from the West end of Paddock Island; when near to this buoy, steer SE. ¾ E., making a little curve to the Southward, and passing Pig Rock Beacon on your starboard hand; then keep toward Sheep Island, and observe the directions given above.

* *Boston Bay, and Eastward.*—Cape Ann, or Thatcher Island Lights, bears from Boston Light NE. ¼ E., distance 23 miles.

From the Highlands, or Cape Cod Light, they bear N by W. ¾ W., distance 41 miles.

Eastern Point Light bears from Long Island Head Light NE. ½ E., distance about 19½ miles.

Directions for Marblehead Harbor.—Halfway Rock bears from Marblehead Light E. by S. ¾ S., distance 2⅝ miles. (There is a beacon on this rock.)

After passing this rock, which you leave some distance on your starboard hand, bring Marblehead Light to bear W. by N. ½ N., and run for it, passing Marblehead Rock on your port hand, and when it (the rock) bears SW., steer NW. until the Light bears S. by W., then steer SW. ½ W. into the harbor.

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* Also see page 100.

Salem Harbor.—When coming from the Southward, bring * Baker's Island Lights to bear NW., then bring the low Light in sight little East of the high Light, and run for it.

This will take you to the Eastward of the Southeast breakers, outer breakers, and Searl's Rock. Give Baker's Island a wide berth, leaving it on the port hand, and bring Hospital Point Light to bear from W. by N. ½ N. to W. by N. ¾ N., and run for it. This course will take you up channel between Misery Ledge and Bowditch Beacon.

When Fort Pickering Light is in range with the Light on Derby's wharf up the harbor (they bearing SW. by W. ½ W.), then run in and find good anchorage SW. by S. from Fort P. Light, and Derby's Wharf Light, bearing W. by S.

The Hospital Point Light at Beverly has a lens placed in the line of the center of the main ship channel, making a more brilliant fixed Light on that line than on either side of it, and serves as a guide to vessels in mid-channel, clear of dangers on either side.

The Southeast Breaker, which is the outermost ledge from Baker's Island, has on it a red buoy. It bears from Baker's Island Lights SE. by S. ½ S., distance nearly one mile, and from Halfway Rock it bears NE. ¾ E., distance ½ mile.

You can run in for Baker's Island Lights with them bearing from NW. to W. by S.

GLOUCESTER HARBOR.

Bring Eastern Point Light to bear NE., distance one-half mile, when Eastern Point Ledge buoy (red) will be half way from you to the light. You will then steer N. by E, passing on your starboard the red buoy on Dog Bar, and on your port the black buoy on Round Rock Shoal; and about one mile further in, the red buoy on Ten Pound Island Ledge; you can pass between this and the Light, but it is a starboard hand buoy and placed west of the ledge; it is one third of a mile SW. ½ W. from Ten Pound Light. On your port you will pass the black buoy on Fresh Water Cove Ledge. When to these buoys, and between them, steer NE. by E., passing the light on your starboard hand, and little beyond it the black buoy on Babsen's Ledge on your port. (You can anchor in to the westward or W. NW. from this buoy with from 3½ to 5 fathoms.) After you have passed Babson Ledge buoy, you will see the red Spindle on Black Rock, leave it on your starboard and proceed to the inner harbor. If from the westward when ¼ of a mile SE. of Norman's Woe Rock, which is bare and has shoal water ⅛ of a mile south of it, steer NE. ⅛ N. until Ten Pound Island Light bears West, when observe, as before directed, Norman' Woe Rock bears W. ¾ N. from Eastern Point Light, distance 1¼ miles.

* The red buoy SE. of the Pig Rocks bears from Baker's Island Lights SW. ¾ S., distant 5 miles, and from Egg Rock Light E. by N. ¾ N., distant 3⅛ miles.

Ten Pound Island Light bears from Eastern Point N. by E., distance 1⅜ miles. Cape Ann Light bears from Eastern Point NE. by E. ½ E., distance 5¼ miles.

From the North Cape Ann Light, the East part of the Dry Salvages bear N.NE., distance 2 miles; Straitsmouth Island Light bears from the North Cape Ann Light N. by W., distance 1⅝ miles. The structure is a white octagonal tower, lantern black, with a plank walk over the rocks toward a one-story white dwelling. This is a local light for Rockport, and the channel inside, or West of the Dry Salvages, which you leave on your starboard hand when bound into Rockport, or into Ipswich Bay. The Dry Salvages, and the Flat Ground, bears from Straitsmouth Light from E. by N. ½ N. to N.NE., distance 1 mile; therefore this Light must not be approached within those bearings at night.

There is a passage more than one-fourth of a mile wide between the Large Salvage Rock and the Flat Ground, which has a red buoy on the South end of it. Avery's Rock buoy (red) bears from this Flat Ground buoy SW. ¼ S., distance 1⅛ miles. Avery Rock has only 6 feet of water on it, and lies East of the buoy. It bears from Straitsmouth Light N. by E. ½ E., distance nearly ⅜ of a mile.

The Londener Rock bears from Cape Ann Lights SE. by E., distance ½ a mile. There is a good passage between the Lights (or Thatcher's Island) and the Londener, on which there is a Spindle. There is a good passage for small vessels North of Thatcher's Island, but you should keep the island the best aboard.

WHITE ISLAND LIGHT.

White Island Light (one of the Isle of Shoals) bears from Cape Ann Lights N. ½ E., distance 20 miles;*Whale Rock Light, at the mouth of Portsmouth Harbor, bears from White Island Light N. by W. ¾ W., distance 6½ miles.

On Cape Neddick, near York River, Me., is a *Fixed Red* light; this cape bears from Boon Island Light NW. ½

*This bearing will carry on to or little West of the Dry Salvages, which is distant 2 miles from Thatcher's Island Lights.

W., distance 6 miles, and from White Island N. by E. $\frac{3}{4}$ E., distance 12 miles.

Boon Island bears from White Island NE. $\frac{1}{4}$ E., distance 12 miles.

Newburyport Harbor Lights bear from White Island SW. $\frac{3}{4}$ W., distance 12 miles, and from Straitsmouth Island Light they bear NW. by N., distance 13$\frac{1}{2}$ miles.

The Newburyport Lights are in range for crossing the bar in the best water, and as there are constant changes of the channel, and the water quite shoal, I will only advise taking a pilot to enter the Merrimack River.

THE ISLE OF SHOALS.

White Island, on which the Lighthouse is situated, is the Southwestern Island of the group. There is only one obstruction in running for or to this Light, within the bearings of NE. $\frac{3}{4}$ E. to W. $\frac{1}{2}$ S. (by the Southward), Anderson's Ledge, which bears from the Light SE. by E. $\frac{1}{2}$ E., distance nearly 1 mile. You can approach the Light East of it, close aboard, and on the West side, within $\frac{3}{8}$ of a mile.

The South shore of Star Island bears from White Island Light NE. by E. $\frac{1}{2}$ E., distance little more than $\frac{1}{2}$ of a mile. The West side of Lunging Island, *i. e.*, Square Rock, bears from the West Ledge of White Island N. $\frac{1}{2}$ E., distance $\frac{1}{2}$ a mile.

To Enter Gosport Harbor.—Bring White Island Light to bear S.SE., distance one mile, then steer E. by S. $\frac{1}{2}$ S., distance one mile, and you will be in from 5 to 8 fathoms of water (low tide) between Smuttynose Island and Star Island, and NW. of Cedar Island. Hog Island, or Appledore, the largest of the group, bears from this harbor N.NW.

When coming from the Northward, give Appledore a little berth on your port hand, and enter the harbor steering SE. There is a passage between Appledore and Smuttynose by steering W. $\frac{1}{2}$ S., keeping Smuttynose best aboard.

You can enter the harbor by passing White Island Light on your port hand close to it (distance $\frac{1}{8}$ of a mile), then steer N. $\frac{1}{2}$ E., leaving the Half Way Rocks buoy on your starboard hand. If the buoy is not seen, keep close to the SE. part of Lunging Island, and when past the island, you can haul to E. by S. for the harbor. If in a craft not drawing more than 5 or 6 feet of water, you can enter this harbor by passing between Star and Cedar Islands, keeping midway of the two. At high water, there is from 12 to 14 feet of water in this passage.

Cedar Ledge bears from the Light E. $\frac{1}{2}$ N., distance $1\frac{1}{4}$ miles, and from this passage between Star and Cedar Island E.SE. $\frac{1}{2}$ E., distance nearly $\frac{1}{2}$ a mile.

Duck Island, and the Ledges surrounding it, bears from the Light from NE. $\frac{1}{2}$ N. to N.NE. $\frac{1}{4}$ E., distance $2\frac{3}{8}$ miles; and from Appledore Island to the middle of Duck Island, NE. $\frac{1}{2}$ N., distance $\frac{7}{8}$ of a mile. There is good sailing room between Appledore and Duck Islands, but give the latter a good berth.

SAILING DIRECTIONS FOR PORTSMOUTH.

When coming from the Westward bring the Light on the Isle of Shoals, *i. e.*, White Island Light, to bear East, distance $1\frac{1}{2}$ miles, then steer N. $\frac{3}{4}$ W. Or you can bring Whale's Back Light to bear N. $\frac{3}{4}$ E., distance $\frac{7}{8}$ of a mile, when Portsmouth Light will bear N. $\frac{3}{4}$ W., distance $1\frac{3}{4}$ miles; you will run for it on this bearing until past Whale's Back Light. On this run you will pass Kitt's Rock buoy, about $\frac{3}{8}$ of a mile on your starboard hand; it bears from Whale's Back S. by E. $\frac{3}{4}$ E., distance $\frac{1}{8}$ of a mile. When past Whale's Back Light, steer about N. $\frac{1}{2}$ E., keeping Portsmouth Light on the port bow, passing it on that hand, and after you are well past the Light, haul gradually to W. $\frac{1}{4}$ N. for Fort Washington, and when you are where you can see the two South Ship Houses past the point of Seavy's Island (which is opposite Ft. Washington), haul up to N.NW. $\frac{1}{4}$ W., and you will pass on your port a Bk. buoy and a beacon; then you can haul toward the docks.

When approaching Portsmouth from the Eastward, run Westerly until Portsmouth Light opens a little West of Whale's Rock Light, when you can run in, keeping Portsmouth Light on the port bow.

If you run in here for a *harbor* you will find good anchorage with Portsmouth Light bearing from S. by E. to SE. ½ E., distance from ¼ to ⅜ of a mile.

Between Whale's Back and Portsmouth Lights you will pass on your port a black buoy on Stielman's Rocks; it bears about South from Portsmouth Light, distance ¼ of a mile. There is a black buoy on Cod Rock that bears from this Light N.NW., distance little more than ⅛ of a mile, and NE. ½ N., distance ⅜ of a mile from the Light. There is a red buoy off Fishing Islands.

Gunboat Shoal bears from Whale's Back Light S. by W., distance 2⅛ miles; there are 4 fathoms of water on this shoal. Whale's Back bears from White Island Light N.NW. ¼ N., distance 6¼ miles.

Boon Island Light bears from White Island, or Isle of Shoals, NE. ½ E., distance 12 miles, and from Cape Ann Lights it bears N.NE., distance 29 miles.

Cape Elizabeth Lights bear from Cape Ann NE. by N. ½ N., distance 57 miles.

Monhegan Island Light bears from Cape Ann NE. ½ E., distance 87 miles.

Pemaquid Point Light bears from Monhegan Island Light NW. ½ W., distance 9½ miles.

Matinicus Rock Light, off Penobscot Bay, bears from Cape Ann NE. by E. ¼ E., distance 102 miles.

Mount Desert Rock Light bears from Cape Ann E. by N. ¼ N., distance 133 miles.

From Mount Desert Rock Light to Machias Seal Island the course is E. by N. ¾ N., distance 54 miles.

DIRECTION FOR YORK RIVER, ME., FROM THE WESTWARD.

Bring Cape Neddick Light to bear NE. by N., and run for it on that bearing which will take you over one-half a mile to the eastward of the spindle on Stone's Rock, and one mile to the westward of the Triangles or Murry's Rock buoy, and 1¼ miles the same side of York Ledge Spindle. After passing Stone's Rock you can merely give the shore a good berth to Sweat's Point, off which there is a black buoy which you pass on your port, and a red buoy on Black Rocks on your starboard; you will then steer W. by S. ¼ S., passing the Rock's Nose about 150 feet distant, a ledge extending off from the south shore, dry at low tide. When past this, keep the middle of the River where the best water is, and when the western point of Stage Neck (which is the point on the starboard hand) bears N. ⅛ W., work around the point to N. by E., and when to the eastern point of Harris Island, which will be on your port, steer about NE ½ N. and anchor near the eastern wharf of the town. The entrance to York River lies 2½ miles SW. ½ W. from Cape Neddick, and W. by N. ½ N. from Boon Island Light.

This harbor will only do for shoal water craft, except at high water.

In running for Cape Elizabeth from near the Isle of Shoals, it is as safe to run the North side of Boon Island on account of Boon Island Ledge, that lies E. ¾ S., distance 3 miles from the Light. There is a first-class Nun buoy on this Ledge.

York Ledge will be passed on your port hand; it bears from Boon Island Light W. ¾ S., distance 5 miles. (There is an iron spindle on this Ledge), and from Cape Neddick Light S. by W., distance 4¼ miles.

Cape Porpoise Light bears from Boon Island N.N.E., distance 14 miles. Wood Island Light bears from Boon Island N. N. E. ¾ E., distance 20 miles. Cape Elizabeth bears from Boon Island NE. ¾ N., distance 29 miles, and from Wood Island Light NE. by E., distance 8½ miles.

SAILING DIRECTIONS FOR PORTLAND HARBOR. *

When coming from the Westward, if at night, do not approach within three and one-half or four miles of Cape Elizabeth Lights, on account of the East and West Hue and Cry Rocks, which bear from the Lights SE. ¾ S., distance 3¼ miles. There is a black can buoy off the Southern part of these rocks. The Alden Rock and Corwin Rocks Buoys bear from this buoy about North, distance 1⅜ miles, and from Cape Elizabeth

* From Portland Eastward by outside course; see page 100.

Lights SE. by E. $\frac{1}{4}$ E., distance $2\frac{1}{4}$ miles. There is only six feet of water on Alden's Rock.

Keep outside of these dangers, and bring Portland Head Light to bear NW. by N., and steer for it on that bearing until within one-third of a mile of it, when you will keep up past it close aboard on your port hand, then steer N. by W. until to the black buoy off Spring Point, which you will pass on your port hand, and then steer NW. $\frac{1}{2}$ W. until to another black buoy off the Breakwater Light; you will haul around that buoy, keeping nearer to the City side of the Harbor.

When running for Portland Harbor, if you should make one of these outside reef buoys at night, it would be best to pass South of it, as the reefs mostly lie to the Northward of the buoys. Give the H. S. buoys a good berth on either hand.

There is an automatic signal whistling buoy, placed about one-half a mile to the Southward of Old Anthony Rock Buoy, which is an H. S. can. If you can make this signal buoy at night, run for it if to the Westward of it, and pass it close aboard on either hand, and steer NE. by N. $\frac{3}{4}$ N. until you get Portland Light to bear NW. by N., then proceed as before directed.

This will take you to the Northward of the outside ledges.

Old Anthony Rock Buoy bears from the Hue and Cry Buoy NW. by W., distance $1\frac{1}{2}$ miles, and from Alden's Rock Buoy, W.SW. distance $1\frac{3}{8}$ miles.

Directions to Enter Portland North of these Rocks.—Haul well in toward Richmond Island, and when off *Watts' Ledge (which bears from Cape Elizabeth Lights SW. $\frac{1}{2}$ S., distant $1\frac{1}{2}$ miles), steer NE. passing close to the Cape Lights, and North of Taylor's Reef Buoy a good berth, as the buoy lies South of the reef, which has 13 feet of water on it. Then steer NE. by N. $1\frac{1}{8}$ miles to Brod Cove Buoy, passing it on

* Watt's Ledge is E.SE. from Richmond Island close in. The buoy is removed.

your port hand, then haul up a little, and pass on the same hand Trundy Reef Buoy and when Portland Head Light bears NW. by N. steer for it on your port bow and observe other directions.

Old Anthony Rock H. S. buoy bears from Watts' Ledge E. by S. ¼ S., distance 1⅜ miles, and from Cape Elizabeth Lights S. by E. ¼ E., distance 1⅝ miles.

Directions for Portland from the Eastward.—When close in to Half Way Rock Light, bring Portland Head Light to bear West, and run for it, and you will pass Witch Rock buoy on your port hand, distance ¼ of a mile, and little less than that distance South of Ram Island Ledge. When one-half a mile of Portland Light, steer NW. ½ N. until past the buoy off the SW. point of Bang's Island. Then see other directions.

Bulwark Rock, on which there is 14 feet of water, bears from Portland Head Light E.SE., distance 5½ miles, and from Half Way Rock Light SW. by S., distance 4 miles.

Jordan's Reef buoy, H. S., bears from Portland Light SE. ½ E., distance 1 mile.

KENNEBEC RIVER.

If from the Westward, when Halfway Rock Light bears North, distance 5 miles, steer NE. by E. ½ E. for Seguin Island Light until within one-fourth of a mile of it, when you will haul up N. by E. until Pond Island Light bears N. ½ W., then steer about for it on your port bow, keeping it a little open as you approach the river. If the wind is strong from the northward, and you want to keep to the windward, you can go about one mile NW. of Seguin Light, passing just South of the Jackknife Ledge and Pond Island Bar buoys. This buoy on Pond Island bar, you leave on your port hand as you keep up for the river. It bears from Pond Island Light about South, distance ⅜ of a mile.

If bound into the Kennebec from the Eastward, bring Seguin

Island Light to bear W. $\frac{3}{4}$ N., and run for it until Pond Island Light bears NW. $\frac{1}{2}$ W., distance nearly 3 miles, then steer for it on this bearing until into the mouth of the river. On this last course (NW. $\frac{1}{2}$ W.) you will pass Tom's Rock buoy on your starboard, and a black buoy on White's Ledge on your port hand. White's Ledge buoy bears from Pond Island Light SE. $\frac{1}{4}$ S., distance 1 mile.

There is good anchorage NE. by E. from Pond Island Light, and East of Stage Island.

To proceed up the river when East of Pond Island Light (close by it), steer N. $\frac{1}{2}$ E. until you pass the spindle on the South Sugar Loaf, which you will leave on your port hand. The course then is NW. to the south point of Long Island. This spindle is distant from Pond Island three-eighths of a mile, and the South end of Long Island is distant from the spindle nearly three-fourths of a mile. The North Sugar Loaf is one-fourth of a mile above the spindle.

After passing the South end of Long Island, the course is N. $\frac{1}{4}$ E., passing close by Cox Head on your port hand, and to an H. S. buoy below Perkins Island; leave this buoy on your starboard, and when it is East of you, the course is N. by E. $\frac{1}{2}$ E. to a black buoy opposite the North end of this Island; leave this buoy on your port hand, and steer N. by E., distance $1\frac{1}{4}$ miles, to Bald Head (which is North of the entrance to Back River). When up to this Point, steer NW. by N. about one mile, you will pass a spindle on your port hand on this run; when you come to this turn of the river, haul gradually to about N.NE., passing a spindle on your port, then Pettis Rocks on your starboard hand; N.NE. $\frac{3}{4}$ E., distant three-fourths of a mile above this spindle, there is another spindle on the North end of Ram Island. You will leave this on your starboard hand. There is a good passage East of these rocks and Ram Island.

From Ram Island Spindle to the buoy on Lithgow's Ledge, the general course is N. by E. $\frac{1}{2}$ E., distance $2\frac{1}{4}$ miles. This should be an H. S. buoy.

From Ram Island Spindle to Lincoln Ledge, distance 4 miles, there is no obstruction except Lithgow's Ledge, if you keep near the middle of the river, or the West side best aboard.

Lincoln's Ledge is seven-eighths of a mile above Fiddler's Reach; the course through here is W.NW., then haul up to N. $\frac{3}{4}$ E., passing Lincoln Ledge and Trufant Ledge buoys on your port hand.

The distance from Pond Island Light to Bath is 11 nautical miles.

Directions for Entering Ebencook Harbor.—This harbor is on the Northwest end of Southport Island, East side of the entrance to Sheepscot River.

Bring Seguin Island Light to bear W. $\frac{3}{4}$ N., distance $2\frac{1}{2}$ miles, when you can steer N. by E. $\frac{1}{2}$ E. for Hendrick's Head Light, which is nearly 7 miles distant from this bearing of Seguin. When you are past Tom's Rock, which bears from Seguin NE. by E. $\frac{3}{4}$ E., distance $2\frac{3}{8}$ miles, and the Sisters, that bear from Seguin NE. $\frac{3}{4}$ E., distance $2\frac{5}{8}$ miles, you can bring Hendrick's Head Light within the bearings of NE. by N. $\frac{1}{2}$ N. to N. $\frac{3}{4}$ E. This last bearing will take you pretty near the Cat Ledges; they bear S. $\frac{1}{2}$ W. from Hendrick's Head Light, distance $1\frac{1}{4}$ miles.

When you are up to these Ledges, keep the Light well open on your starboard bow, to clear the Cedar Bush Ledge that lies S. $\frac{1}{2}$ W., distance $\frac{1}{4}$ of a mile from the Light. When up to the Light, if near to it, steer N. by E. $\frac{1}{2}$ E. until the entrance to the harbor opens south of Green Island; this will clear a shoal spot of 16 feet, that is N. by E. $\frac{1}{2}$ E., distance $\frac{5}{8}$ of a mile from the Light, and $\frac{1}{8}$ of a mile from the shore. When the harbor entrance opens, you will steer about E. by S. until past the point of Green Island, then keep most any course you please North of East, and choose your anchorage.

Bull's Ledge buoy, H. S., bears from Hendrick's Head Light N. by W. $\frac{1}{4}$ W., distance nearly $\frac{7}{8}$ of a mile.

Griffith Head Ledge bears from Hendrick's Head Light SW. by S., distance $2\frac{1}{2}$ miles; this is an H. S. buoy. Least water 7 feet.

When running for Seguin Island Light on the bearing given above, *i. e.*, W. $\frac{3}{4}$ N., do not get North of that, until past Bantam Rock, which bears East from the Light, distance about 6 miles, and from the South end of Damiscove Island it bears SW. by S. $\frac{1}{2}$ S., distance $1\frac{3}{8}$ miles.

Directions to Enter Booth Bay Harbor.—When Seguin Island Light bears W. $\frac{3}{4}$ N. anywhere from 2 to 5 miles distant, you will steer for the beacon on the Cuckolds, passing it on your port hand; when this beacon bears West from you, distance $\frac{1}{4}$ of a mile, steer N. by E. $\frac{1}{2}$ E. directly for Burnt Island Light, passing West of Squirrel Island. Burnt Island is distant from the Cuckolds Beacon $2\frac{3}{4}$ miles. When up to Burnt Island, steer about N. by E., distance about $\frac{3}{4}$ of a mile, when you will gradually haul to NE. by E. into the East Harbor, or Town's End; or you can haul to N.NW., and anchor in West Harbor.

If bound into *Booth Bay from the Eastward*, bring Pemaquid Point Light to bear North, distant $1\frac{1}{2}$ miles, when you can steer W. $\frac{3}{4}$ N., directly for the South end of Squirrel Island.

You will pass the Hypocrite Islands and Fisherman's Island on your port, and the Gangway Ledge buoy on your starboard hand.

When about one-half a mile from Squirrel Island, or Burnt Island Light bears NW. by N. $\frac{1}{2}$ N., you can haul up for it, passing East of Squirrel Island; you will then observe the first directions.

DIRECTIONS FOR ENTERING JOHN'S BAY AND RIVER.

Bring Pemaquid Point Light to bear North, and run for it until within one-half mile of it, when you will haul to W. by N., distance $\frac{3}{4}$ of a mile to about South of Pemaquid Point, which bears SW. by W. $\frac{1}{2}$ W., distance one-half mile from the Light. When you open the bay past this point, steer N. $\frac{3}{4}$ W. for John's Island, passing it on your starboard hand, and when West of it, (if close to it,) steer North, passing Thurston's Lodge, which is $\frac{3}{8}$ of a mile North of John's Island on your starboard, and McFarlin's Ledge that is $\frac{5}{8}$ of a mile NW. $\frac{1}{2}$ N. from John's Island on your port hand. After passing this Ledge keep up near the middle of the river. There is good anchorage on either hand, as you get up to where the river widens.

If you want to stop in *McFarlin's Cove*, when you are just to the North end of Beaver Island (a small island little North of John's), you can steer W. $\frac{1}{2}$ N., passing close by Davis Island, where you will have good anchorage in 4 to 6 fathoms of water.

There is also a good harbor East of Beaver Island which you can enter by hauling around North of the island. There is a passage into it East of John's Island, and both sides of Knowles' Rock, but not very wide.

When running for Pemaquid Light from the Southward, it will not do to let it bear East of NE. $\frac{1}{2}$ N., until well in to it, on account of Pemaquid Ledge, which bears from the Light SW. $\frac{1}{4}$ S., distance $1\frac{1}{4}$ miles; there is 16 feet of water on it, marked by an H. S. buoy; good water all around it.

Pemaquid Point Light bears from Monhegan Island Light NW. $\frac{1}{4}$ N., distance $9\frac{1}{2}$ miles.

There is a Whistling Signal Buoy near the Duck Rocks; it bears from Monhegan Light N.NW. $\frac{1}{4}$ N., distance 1 mile.

Sailing Directions for St. George's River.—When coming from the Westward, bring Monhegan Light to bear South,

distance 2 miles, and steer NE. ½ N., for the SE. part of Burnt Island, which is 4½ miles distant from this bearing of Monhegan. When to Burnt Island, you will haul up around it within ⅛ or ¼ of a mile, then steer N. ¾ E., until you make a red buoy on the Sisters; you will pass it on your starboard hand, and when North of it, steer N. ¼ E., or directly for the SE. point of Teals Island, distant from the Sisters buoy 1¼ miles; when about one-eighth of a mile of this Island, steer NE. ½ E., toward Hooper's Point, 1⅛ miles distant.

There is an H. S. buoy on Channel Rock, one-quarter of a mile W. by N. from this point; you can pass it on either hand, then steer N. ¾ W. until the main part of the river opens to view, so that you can haul up to NE. ½ E.; there are no obstructions, only near the shores, until above the Narrows, when you will see a black buoy on Bailey's Ledge; pass this on your port hand, then keep up about NE. by E., or midway of the shores to St. George's Fort.

Another Direction to Enter St. George's River, when West of Monhegan Island.—Run in East of Pemaquid Point Light, and bring Franklin Island Light to bear within E.NE. to NE. by E., and run for it, passing it close aboard on your starboard hand. (Franklin Island Light bears from Pemaquid Light E. by N. ½ N., distance 6¾ miles, and from Monhegan Island Light N. ½ W., distance 8 miles.) When you are past Franklin Island Light, steer NE. by E. ½ E., and you will pass on your starboard hand a red buoy on Jenks' Ledge, distance from the Light 3 miles; then seven-eighths of a mile farther in, you will pass on your port hand an H. S. buoy on Goose Ledge, next a Bk. buoy on the same hand. You will then be in the line of other directions given.

**Directions to Enter Herring Gut Harbor from the Westward.*—You will observe the first directions given for St. George's River until you are one-eighth of a mile above the red buoy on the Sisters. (This buoy is distant 1¾ miles, N. by

* Herring Gut is now called Port Clyde.

E. ½ E. from Burnt Island.) You will then keep directly for Marshall's Point Light, steering E. by N. ¾ N., passing on your starboard hand a red buoy, which is distant from the Light three-eighths of a mile; and when past this buoy, haul up to NE. ½ N., and keep about midway of the shores, until up to the harbor.

Another Direction to Enter Herring Gut is to steer about NE. past Burnt Island and Old Cilley Ledge, until Marshall's Point Light bears N. ¾ W., when you will run about for it, passing close to Gunning Rocks; they bear about S. by E. ¼ E. from the Light, distance ⅝ of a mile. From these Rocks keep the Light open on your starboard hand, and keep up to the harbor, as before directed.

To Enter Herring Gut from the Eastward.—When close to the SW. point of Mosquito Island, steer NW. by W. ½ W., until you are near a buoy, which you pass on your right, then run about West, passing another buoy on the same hand, when you can haul up around Marshall's Point Light. Keep the middle of the river to the harbor.

There is no obstruction in the way of running in for Burnt Island from just East of Monhegan, to Burnt Island bearing NW. ½ N. Burnt Island has the appearance of being nearly round, and is about ⅝ of a mile in diameter. Mosquito Island has about the same appearance, and is one-half a mile in diameter. It bears from Burnt Island NE. by E., distance 4 miles. Both of these are the outermost islands of the shore group, and when running along the coast near to them, keep a little SE. of their line of bearings, and you will be clear of these ledges, *i. e.*, the Old Man's Ledge, that bears SW. by W., distance 2 miles from Burnt Island, and Old Cilly Ledge, that bears NE. by E., distance 2 miles from Burnt Island.

It is best to keep within two miles of the line of these two islands, and you will be all clear of the Roaring Bull, Hooper's Shoal, and Metinic Ledge. They lie about NE. and SW.

from one another, and their extreme distance apart is $2\frac{5}{8}$ miles. This course is *North* of them.

Directions to Enter Tennant Harbor.—You can bring Tennant's Harbor Light to bear anywhere from N.NE. to W.NW. when to the Northward of Metinic and Green Islands, and run for it open on your port bow, passing it on that hand, and when the Light bears South, distance $\frac{1}{8}$ of a mile, steer W. by N. $\frac{1}{2}$ N., and you will have good anchorage.

Tennant's Harbor Light bears from White Head Light W. $\frac{3}{4}$ S., distance $2\frac{7}{8}$ miles.

Sailing Directions to Enter Penobscot Bay through Two Bush Channel.—Run in for White Head Light with it bearing NE. by E., and when Tennant's Harbor Light bears NW. by W. $\frac{3}{4}$ W., run directly from it on that bearing, steering SE. by E. $\frac{3}{4}$ E., distance about 3 miles, when White Head Light will bear NW. $\frac{3}{4}$ N. If it is flood-tide care must be taken not to drift on to Crow Island Ledges, which extend off one mile SW. from the land. When you get White Head on this bearing, haul up directly to NE. $\frac{1}{2}$ E., and run on this course about 4 or 5 miles, when you will gradually haul up to N. by E. $\frac{1}{2}$ E., and keep that course until Owl's Head opens North of Munroe Island, when you can haul up toward it, or shape the course for your destination. I give this direction to work on at night, as I do not advise the Muscle Ridge only by daylight.

Tennant's Harbor Light bears from the Northern triangles NW. by W. $\frac{1}{4}$ W., distance $6\frac{3}{8}$ miles. These triangles bear from White Head Light SE. $\frac{3}{4}$ S., distance $4\frac{1}{2}$ miles.

To enter the bay through Two Bush Channel at daylight, when you are to Metinic Island Ledge, steer E.NE.

This ledge bears W. by N. from the North end of Metinic Island, distance nearly 2 miles, and has on it an H. S. spar

buoy placed on the SW. part of the Ledge. Give it a berth of ½ a mile if you go to the Eastward of it. Least water 7 feet.

You can run in for the bay from SE. of Metinic Island by bringing White Head Light to bear North, and run for it until to the South Breaker, which bears South from White Head Light, distance ⅝ of a mile.

On this course you will pass between the shoal ground off the East side of Metinic Island and the Southern Triangles, which are sometimes *Bare* and always *Break*. You will not find less than 4 fathoms of water off the East side of Metinic Island; the shallowest spot is about ¾ of a mile from the shore opposite the middle of the island.

The West part of the Southern triangles bears from White Head Light S. ¾ E., distance 5½ miles.

To Enter the Penobscot Bay from one-half to three-fourths of a mile South of Monhegan Island Light.—From this position steer E. by N., and it will take you to the North end of Matinicus Island. This island lies North of Matinicus Rock Light, distance about 5 miles. On this course you will pass about 2 miles North of Bantam Ledge buoy spar (H. S.). It bears from Matinicus Light NW. ½ N., distance 5 miles. You can pass either side of this buoy, distance 200 feet. When you are about 1½ or 2 miles distant from Matinicus Island,*steer N. into the bay, and when Owl's Head Light opens North of Munroe Island, or it bears N.NW. ½ W., you can run for it open on your port.

To Enter Penobscot Bay from the Eastward.—You will bring Saddleback Ledge Lights to bear within the bearings of NW. to N. ½ E., and run for it until it is distant 1½ miles, when you will steer W. by N. ½ N. until Heron Neck Light bears E.NE., then steer NW. by N. ½ N. for Owl's Head Light. (Also see on page 102.)

On this run as here given from off Saddleback Light, to the Bay, you will pass the Bay Ledge buoy (a red can) on your port hand at some distance; you can sail around this buoy by giving it a berth of one-half a mile.

* Green Island will be on your port hand; good water between Matinicus and Green Islands.

Saddleback Ledge Light is about 17 miles E. ½ S. from White Head Light.

PENOBSCOT BAY FROM WHITE HEAD LIGHT TO BELFAST AND CASTINE; INCLUDING THE HARBORS OF ROCKLAND, ROCKPORT, CAMDEN AND FOX ISLAND THOROUGHFARE.

Sailing Directions for Muscle Ridge Channel.—From North of Monhegan Island, distance 2 miles, steer NE. by E., or for White Head Light on the bearing of NE. ½ E., and as you draw near to it, keep it pretty close aboard on your port hand, that you may pass inside or North of the South Breakers, which has on it a red buoy and a bell buoy. Keep on this NE. by E. course, passing first a red spindle that is on Yellow Ledge, it bears from the Light East, distance over ⅝ of a mile; leave this on your starboard hand, and the next buoy is a black one that is on Hay Island Ledge, distance from the Light little less than ½ a mile. You will then make a horizontal striped buoy on Inner Gangway Ledge, which you will leave on your port hand. (But you can pass it on either hand.)

From this buoy, or little East of it, steer NE. ¼ E. for 3¾ miles, passing the following marks in the order given:

First on your starboard hand is an Red buoy on Hurricane Ledge, distance from the Gangway buoy ⅝ of a mile; next is a black buoy on Sunken Ledge, which you leave on your port hand, distance from the last buoy ⅝ of a mile; then a spindle on Garden Island Ledge, which you leave on your port, and about one mile above this you will pass on the same hand a spindle on Otter Ledge.

Above this spindle ⅝ of a mile there is a black buoy on Ash Island Ledge, and about East of that is an H. S. buoy on Upper Gangway Ledge; on the course given you should pass between the two. You can pass this H. S. buoy on your port if necessary, and you will have on your starboard a red buoy that is on Inner Grindstone Ledge. The next mark is the beacon on the East side of Ash Island; when this bears West from ¼ to ⅛

of a mile distant, to go into Owl's Head Bay, steer N.NE. ½ E. toward a red buoy on Sheep Island Bar, distance from the beacon 1¾ miles.

On this run you will pass on your starboard hand an H. S. buoy that is on NW. Ledge; it is distant from the beacon just one mile. After passing Sheep Island buoy on your starboard hand, steer NE. ¼ N., passing on your port a spindle that is on Dodge's Point, continuing the course out of the Bay; and if bound up the West side toward Belfast, steer N.NE. ¾ E., distance 12 miles, when Grindel Point Light will bear E.SE. You will then keep up the Bay about N.NE. or N. by E., keeping nearer to the West shore. When Belfast Bay opens, haul gradually into it, passing Steel's Ledge on your starboard hand, then keep about in the middle of the passage to the town. Steel's Ledge has a beacon also a buoy on each end. It is about six miles from Grindel Point Light to Belfast Bay.

We will end our directions here, and return to Owl's Head Light. Then if you are bound up the Bay by the East passage to Castine, you will steer from near the Light E.NE. for five miles, to clear McIntosh Ledge, then keep NE., which will take you to Upper Mark Island, distance from Owl's Head 13¼ miles; you will pass this Island on your starboard hand, then steer NE. by N. ½ N. for Dice's Head Light, distance 7½ miles from Mark Island.

Directions to Enter Castine Harbor.—Bring Dice's Head Light to bear N.NE., distance ½ a mile, then steer E. by N. ½ N., passing on your port a black buoy on Otter Rock Shoal off Fort Point; then further in, a stone beacon on Hosmer's Ledge; you will leave this on your starboard hand. Northeast of this beacon, distance ½ a mile, is a red buoy on the NW. end of the Middle Ground; pass this on your starboard hand if you wish to go above the town.

You will find good anchorage in Lawrence Bay, which you can enter by getting the middle of the town at the docks to

bear NW., and steer SE., working around to South as you enter the Bay. You will have from 3 to 4 fathoms of water.

The water outside of this Bay is quite deep all around Castine.

From Muscle Ridge Channel out through Fisherman's Island Channel.—When the beacon on Ash Island bears West, distance $\frac{1}{8}$ to $\frac{1}{4}$ of a mile, steer E.NE., passing on your starboard hand a red buoy on Grindstone Ledge, and on your port a black buoy on Sheep Island Shoals; continue the course about $2\frac{3}{4}$ miles, or until Owl's Head Light opens North of Munroe Island, or it bears N.NW. $\frac{1}{2}$ W., when you can keep for the Light if bound up the West side, and if bound up the East side of the bay, a NE. course will take you to Upper Mark Island.

There is another passage out of the Muscle Ridge Channel, which is, to haul around close to the North side of Otter Island, and steer E. $\frac{1}{2}$ S. if it is flood-tide, but on the ebb, steer E. $\frac{1}{4}$ N. The tide runs very strong through these channels, and a careful attention must be paid to the direction it runs.

Muscle Ridge Channel Buoys that can be passed on either hand.—First—the Lower Gangway Ledge H. S. buoy. This buoy is placed on the West side of the ledge, which is quite small. Second—Hurricane Island Ledge is a red buoy placed on the West side of the ledge; you can pass it on the port hand *if necessary*, but do not get more than $\frac{1}{4}$ of a mile East of it. West of it you can stand close in to the land; if possible, keep this side of it. Third—Garden Island spindle. This ledge is about $\frac{1}{8}$ of a mile long, North and South. Do not get within $\frac{3}{8}$ of a mile of this spindle NE. of it, as there is a shoal spot with 12 feet of water on it near that position. Fourth—Otter Island Ledge spindle, with plenty of water either side of it. Fifth—Upper Gangway Ledge H. S. buoy; both sides of this there are red and black buoys to mark the passage. Sixth—The NW. Ledge H. S. buoy. If bound

through Owl's Head Bay, pass this buoy on your starboard hand.

SEAL HARBOR.

To enter Seal Harbor, which is only ½ a mile North of White Head Light, when up to Hay Island Ledge black buoy, haul around it on your port hand, and steer N.NW. until to a red buoy on your starboard, and a black buoy on your port hand, where you will have good anchorage. To enter from the Northward, give Burnt Island Ledge black buoy a good berth in rounding it.

ROCKLAND HARBOR.

From North of Owl's Head Light ½ a mile, steer W. by N. and you will pass on your port hand a black buoy on Spear's Rock, then a red buoy on your starboard hand that is on the South end of South Ledge; when West of this buoy run for any part of the town if the tide is up.

If from the Northward, haul around South of the red buoy off Jameson's Point, and steer W.SW., passing on your starboard hand an H. S. buoy on Jameson's Ledge, and on your port a black buoy that is on the North end of North Ledge.

Mean rise and fall of the tide in this harbor 9 ft. 6 in.

ROCKPORT HARBOR.

From Owl's Head Light bearing South ½ a mile, steer North 4 miles, and after passing North of Rockland Harbor, you will first pass a black buoy on your port hand that is on Ram Island Point; then one mile above this, a beacon on Porterfield Ledge, which you will leave on your starboard hand.

You can sail all around this beacon to the spindle on Lowel Rock, which is South of Indian Island Light.

When this Light bears East ¼ of a mile distant, steer N. ¼ E., passing two red spindles on your starboard hand, and a stone beacon on your port; then keep midway of the shores.

Porterfield Ledge, or outer-Rockport beacon, bears from Indian Island Light S. by W. ¼ W., distance ⅝ of a mile.

CAMDEN HARBOR.

From ¼ of a mile East of Owl's Head Light steer N. by E., or for Negro Island Light on that bearing, and you will pass Indian Island Light, distance ⅝ of a mile, on your port, and ⅞ of a mile above that, you will pass the Graves on your starboard hand, distance ½ a mile. As you approach Negro Island Light keep it open on your port, passing it on that hand, and a red buoy on your starboard, which lies ¼ of a mile NE. ½ E. from the Light; you will then steer N.NW. into the harbor. You can enter this harbor from the Northward by hauling around close to the spindle on NE. or Morse's Point, leaving the black buoy and the spindle on Outer and Inner Ledges on your port hand. This passage is narrow, but you will have 3½ fathoms of water by keeping near to the Point.

There is a beacon on the Graves, and it bears from Negro Island Light S. by E. ¼ E., distance 1¼ miles, and from Indian Island Light NE. by E. ½ E., distance 1½ miles. Mean rise and fall of tides, 9 ft. 8 in.

*SAILING DIRECTIONS FOR FOX ISLAND THOROUGHFARE.

Brown's Head Light is on the South side of the entrance to the Thoroughfare, and bears from Owl's Head Light E. ¼ S., distance 6 miles.

To enter the Thoroughfare, bring Brown's Head Light to bear E. by N. ½ N., and run for it on that bearing, keeping it on your port bow until you are East of Drunkard's Ledge spindle, and Fiddler's Ledge beacon, both of which you pass on your port hand. You will pass Dogfish spindle on your starboard hand. It bears from Fiddler's Ledge beacon SE. ½ S., distance ½ a mile.

Do not attempt to pass Dogfish spindle on your port hand when going in, as it is very rocky South of it.

Drunkard's Ledge spindle bears from Fiddler's Ledge beacon W. by N. ½ N., distance ⅝ of a mile.

* There is an automatic Whistling buoy off the entrance to this Thoroughfare.

* Passage through Eggemoggin Reach, page 76.

Fiddler's Ledge beacon bears from Brown's Head Light W. by S., distance 1½ miles.

Dogfish Ledge spindle bears from Brown's Head Light SW. by W., distance 1¼ miles; but note this: you must not approach the Light on that bearing when SW. of the spindle, on account of the Inner Bay ledges, the North end of which bears from the light SW. by W. ¾ W., distance 2⅝ miles.

*There is a red buoy on the North end of the ledge, and a red one on the South end, ⅝ of a mile apart, bearing S. by W. from each other.

When you are in past these dangers, bound into Fox Island Thoroughfare, keep Brown's Head Light on your starboard hand, passing the Sugar Loaf Islands on your port, steering about NE., and you will first pass a spindle on Fox Ears; second, an H. S. buoy on Calderwood Ledge; then a black buoy on Cross Island Ledge; all of these on your port hand. You will then keep about midway of the land, and observe the character of the buoys as you make them, which I will name in the order as passed for a distance of five miles from the Cross Island Ledge buoy.

First, an H. S. buoy on Post Office Ledge, distance 1⅜ miles; 2d, a black buoy on Lobster Ledge, distance ¼ of a mile from the last; 3d, a black buoy on Grindstone Ledge, distance from the last black buoy ⅜ of a mile. You will pass all of these on your port hand, when you will be near a spindle on Iron Point Ledge; pass this close at hand on your starboard, then steer NE. by E. ½ E., passing first an H. S. buoy on Waterman's Ledge, then a Black buoy on Fish Point Ledge, both on your port hand, and from near the last buoy steer E. by S. ¾ S., passing a spindle on Goose Rocks on your port, and Widow's Island on your starboard hand. You will see Channel Rock ahead on your starboard bow, but it is best to pass it on your port hand, on account of Black Ledge buoy, which bears about East of this rock. This ends the Thoroughfare and brings you into Isle Haut Bay. For continuation Eastward, see page 102.

*In 1881 the Red buoys are to be changed to port hand going East in all the inland passages. Note the change.

Southern Harbor is North of the entrance to Fox Island Thoroughfare, and to enter it observe the first directions given for this passage, until Brown's Head Light bears E. by N. ½ N. or Fiddler's Ledge beacon bears West ½ a mile, when you will steer NE. ½ N. for Amsbury Point, distance 2 miles, passing the Sugar Loaves on your starboard hand. You can pass Amsbury Point on your port and keep up into the harbor, or you will have good anchorage near to it on either hand.

Directions for Entering Burnt Coat Harbor.—This harbor is on Swan Island; it bears from Mt. Desert Rock Light NW. ½ N., distance 17 miles, and from Matinicus Rock Light NE. ¾ E., distance 27½ miles. This is a good place of refuge, and can accommodate a large number of vessels. There are two Lights on Swan Island, and to enter the harbor bring them in range, when they will bear NE. ¾ N.; then run for them in range until you are pretty close to them, when you will steer E. by N. into the harbor.

When running in for the Lights in range, you will first pass Heron Island Ledge buoy on your port hand; it is distant 3 miles SW. ¼ S. from the main Light. You will next leave Harbor Island on your starboard hand. The West point of this Island bears from the Light S.SW. ½ W., distance ½ a mile. You will also pass Harbor Island Ledge on your starboard hand. The passage between the Ledge and the Light is about ¼ of a mile wide. There is a Wrought Iron spindle on this ledge which you only need give a berth of 100 feet.

SAILING DIRECTIONS FOR MOUNT DESERT ISLAND HARBORS.

After passing Matinicus Rock Light, if near to it, steer NE. by E. ½ E., keeping South of all the islands, and when Baker's Island Light bears NE. ½ N., distance 7 miles, Mt. Desert Rock Light will bear S. by E. ¾ E., distance 11 miles. You will then steer N. by E. until near Bunker's Ledge spindle (red); this spindle bears from Baker's Island Light W. ¼ N., distance 3⅞ miles. There is a black buoy off the Nubble, or Long Ledge, that bears from Bunker's Ledge buoy about West, distance ⅝ of a mile.

After you have passed between these buoys steer NE. $\frac{3}{4}$ N., distance $\frac{7}{8}$ of a mile, passing first a red buoy on your starboard, then a black one on your port, when you will steer N. by E., or for the East end of Greening's Island; in this passage there is a bar with 14 feet of water on it. If bound into Southwest Harbor, when it opens to view steer NW. by W.; there is no obstruction until near the head of the harbor.

If you wish to go to *Bar Harbor* from here, when SW. Harbor opens and the NW. point of Great Cranberry Island bears SE. (Cranberry Island is the land on your starboard hand up this passage), steer E. $\frac{1}{2}$ S. until past Bunker's East Ledge, on which there is a beacon; or you can keep for Bear Island Light until past the West end of Sutton's Island, when you will steer East, passing two red buoys on your port hand and North of Bunker's Ledge, and a black buoy on Lewes Rock that is just North of the ledge. After this it is only necessary to give the island a good berth.

When running up the East side you will pass a little island, the Thrumbcap, that lies $\frac{1}{8}$ of a mile from the shore, then the Round Porcupine, which you leave on your starboard hand; give the land a little berth on your port hand as you haul around into Bar Harbor. Do not attempt to go in beyond the steamboat wharf, or you may find bottom if the tide is up, as the bar will be under water.

This direction given for *Southwest Harbor* will do very well by daylight, but if you wish to enter in the night, when you make Baker's Island Light steer for it open on your port bow, and as you approach it give it a good berth, and when it bears West, distance $\frac{1}{2}$ of a mile, steer N. $\frac{1}{2}$ W. nearly 2 miles, or until Bear Island Light bears NW. by W. $\frac{1}{4}$ W., when you will keep it on that bearing and run for it, passing between Bunker's Ledge Beacon and Sutton's Island. You should on this course be about $\frac{1}{4}$ of a mile South of the ledge, and $\frac{1}{8}$ of a mile from the island when you pass them. As you approach Bear Island

Light keep working off to the Westward until you are heading W. by S., and when past the East end of Greening's Island a W. by N. course will take you into the harbor. There is a shoal extending off the SW. part of Greening's Island with a red buoy on it.

If you are bound to Bar Harbor from Baker's Island, bearing West, ½ mile distant, steer about N.NE., and follow the island as before directed.

The distance from Baker's Island Light to Bar Harbor is 10 miles. On this run up the bay you will pass on your right a Light on Egg Rock; it bears NE. by N. ½ N., distance 8 miles from Baker's Island, and from Bar Harbor SE. ½ S., distance 4 miles.

To Enter Bass Harbor, run in on the first directions (*i. e.*, N. by W.) until Bass Head Light bears NW., when you can run towards it, passing it about ¼ of a mile distant on your starboard hand, where you will find the best water over the bar (from 14 to 15 feet). When to the Westward of the bar steer North into the harbor, passing on your port hand the black buoy on the East end of Weaver's Ledge

Mt. Desert Rock Light bears from Baker's Island Light S. ¼ W., distance 17 miles.

Sailing Directions for St. John, N. B., from 1½ miles North of Mt. Desert Rock Light.—A NE. by E. ¾ E. course will take you to Cape Lepreau Light, F. W. This Light bears NE. by E. from the North point of Grand Menan Island. The following are the principal Lights that will be passed on this course of 95 miles; and the distance they lie from the line of that course. By giving these distances, if you are running through here in the night you can easily determine if you need to haul to the North or South, as you approach the Lights.

The first Light passed will be Petit Menan, F. V. W. F.; it will be 8 miles distant when bearing North.* Second, Mistake Island, or *Moose A Bec* Light, Flg. W., will be distant

* (There are dangerous rocks off this Light; one bears from the Light S. ½ E., distance 2 miles with 6 feet of water over it, marked by an H. S. Spar Buoy; and one 4 miles S. by E., with 7 feet of water, marked by a Can Buoy 100 feet SW. of the rock. All the other Lights named on the port hand to Partridge Island can be approached close aboard, as the North shore is bold and free from reefs,) except SE. by S., distance ½ mile off West Quoddy Light.

4 miles when North. South by West, distance 2 miles from this Light, there is an automatic whistling buoy. Third, Libby Island, F. W., about 4 miles distance when North. Then Machias Seal Islands, two Lights will be passed about 7 miles distant when they bear South. The next is Little River Light, F. V. W. F.; you will pass South of, 2½ or 3 miles distant. Then West Quoddy Head, F. W., will be 3 miles distant when North. You will then pass Grand Menan Island South of you about 5 miles. Then comes the South Wolf Light, Flg. W., which you will pass South of about 2 miles. Then Cape Lepreau Light should be ahead; keep it open on the port bow, and give it a little berth as you approach it.

From off this Light, distant from ½ to ¾ of a mile steer E. ½ N. about 10 miles, until past Musquash Head Light, then haul to E. by N. ½ N. about 8 miles, when Patridge Island Light will bear NE. by N. In steering these courses you should make Cape Spencer Rev. Light well on your starboard bow. It bears from Cape Lepreau E. ¼ N., distance 26 miles. After getting Partridge Island Light on the above bearing, steer NE. ½ N. up to a bell buoy that bears E. ½ S. from the Light, distance ⅓ of a mile. You will pass this buoy on your port hand, then steer N. by W. until past a red buoy, then about N. ¼ E., passing Carlton Flat Light on the port hand. The best anchorage is little above the South wharves on the west side of the river.

A careful attention must be paid to the current, when coming into this Harbor, and have plenty of chain overhauled, as the water is very deep only on the flats.

Mean rise of the tide at St. John is about 23 feet. Time of high water, at full and change of moon, 11h. 21m.

On the east side of the entrance to Missquash Harbor, Bay of Fundy, a Light has been located showing Fixed Green at Sea and White from the Harbor.

Direction to enter Machiasport, Me.—Bring Libby Island Light to bear SW. distance about 1½ miles when you will run NE. for Channel, or Avery's Rock Light distance about 6 miles; before you get to this Light you will pass on your starboard hand a *Red Can Buoy* on a reef off the SW. part of Cross Island. This reef extends from the shore distance 1¼ miles. After passing Avery's Rock, if East of it, steer N.NE. for Round Island. (*You can pass Avery's Rock on either hand.*) *You will have good anchorage NW. of Round Island but not over ⅜ of a mile from it as the flats extend well off from the west shore.*

From Round Island the course is N. by W. to a black Buoy, distance one mile, and from that NW. by N. to another black Buoy on the northern part of the *Middle Ground*; after you pass this Buoy steer W.NW. to a red Buoy off Birch Point flats, distance about 2 miles; keep the West shore well aboard as it is shoal on the starboard hand.

From this red Buoy steer N. by E. ½ E. to the anchorage off Machiasport.

Directions for Eastport, Me., Harbor De Lute, Head Harbor, and Bliss Harbor.

Eastport.—If not well acquainted, the best passage is to the northward of Campobello Island. When West Quoddy Head Light, FW., bears west distant 2 miles, steer NE. by N., or follow the east shore of the Island to East Quoddy Light, FW., which is on the NE. point of Campobello Island; haul around this Light and follow the shore on your port hand, being careful not to get more than ½ of a mile from it, as it is Ledgy on the starboard hand. When Eastport bears W.SW. you can run for the town; then if you are bound up the Passumquoddy Bay, when the river opens, you can steer about N. by W., or keep about midway of the shores; there is plenty of water and a good passage.

Harbor DeLute lies about E. by N. from Eastport, on the west side of Campobello Island. The best anchorage is near here, as the tide runs very strong at Eastport.

Head Harbor is on the NE. end of Campobello, and to enter it you have only to give the light that is on the point a little berth on your starboard hand, and steer about W. by S., when you will find good anchorage in from 6 to 8 fathoms of water.

Bliss Harbor.—The Light, Fixed Red, at the entrance of this harbor is on the south end of Bliss Island; it bears from Campobello or East Quoddy Light NE., distant 4¼ miles, and from the light on the South Wolf, NW. by W. ½ W., distant 7 miles. The light may be approached from anywhere north of the Wolves to its bearing N.NE.; on this bearing you will pass White Horse Island at some distance on your port hand; after you have passed this island a short distance, you can keep for the light with plenty of room on either hand. As you enter the Harbor, give the land just west of the light a little berth on your starboard hand, and above that, keep the starboard shore close aboard until to where the Harbor opens, when you can steer SW., and find good anchorage in from 10 to 3 fathoms of water.

Fog-Signals.—At West Quoddy Light there is a Steam Fog-Whistle, and one on the NE. end of Grand Menan Island, and at Cape Leprean Light, and on Partridge Island, at the entrance to St. John's Harbor.

DIRECTIONS FOR EASTPORT BY LUBEC NARROWS.

When SE. ½ S. from West Quoddy Head Light, give the land a berth of ⅜ of a mile, but east of the Light the shore is bold which you will follow as far as it tends north, *i.e.*, ⅜ of a mile above the Light; you will then steer NW. ½ N. distant ⅝ of a mile to a Red Buoy, you pass on your starboard hand, on the lower Middle Ground; then steer N. by W., distant ⅞ of a mile to a Beacon which you pass East of, and little above that another starboard hand buoy (red); from this steer about N.NE., distant ⅝ of a mile to a black buoy (port hand), from thence N. ¾ W., keeping the port shore best aboard up past Lubec; as you pass out of the Narrows give the first island**Pope Folly* a berth on your starboard hand and when west of it, steer NE. by N. leaving Dudley and Treat Islands on your port hand. Or from the north end of the Narrows, steer NW. ¾ N. about one mile, passing west of these Islands, then haul to N. by E. and find the best anchorage NW. of Estes Head, in from 5 to 12 fathoms of water. In this passage from Quoddy Head through Lubec Narrows the water is shoal at low tide, 4 feet in some places but the mean rise of the tide is 18 feet.

High water on full and change 11 h. 8 m.

NEW LIGHT AND FOG SIGNAL.

A new Light was established in 1880 on the SW. cliff of Grand Menan Island, showing red and white flashes. A Steam Fog-Whistle was established at Head Harbor on Campobello Island, same date, giving blasts of 8 seconds with an interval of 35 seconds.

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*You can pass Popes Folly about 50 yards distant on your port hand, then steer N. by E. ½ E. to Eastport, and anchor ¼ of a mile NE. of the Steamboat wharf in still water.

PASSAGE THROUGH EGGEMOGGIN REACH TO MOUNT DESERT HARBOR.*

Following the direction up the Penobscot Bay on page 65, you will steer from upper Mark Island NE. toward Cape Rosier until Pumpkin Island Light bears East, when you can run for it on your starboard bow until you are between the HS. buoy on Two Bush Ledge, and the black buoy on Heron Island Ledge: you will then steer about NE. by E. until to, or past the red buoy off NW. of the Light. (All red buoys are starboard hand buoys going east in this passage.) (From this light the general course is SE. until through the Thoroughfare.) After passing the light you will see a spindle on P. Is. dry ledge, then two red buoys on the Triangles, and about one mile from the light another red buoy on Howard Ledge; you will next see a black buoy off the western entrance to Sedgwick, which is a port hand guide into the river; you will next see a black spindle on Center Harbor Ledge. About one mile south of the Sedgwick river you will see a black buoy on Torrey's Ledge; after passing this on your port hand you will see a rock called Torrey's Castle, after this you will see a red buoy off the NE. point of Canary's Island, which you leave on your starboard hand. From this until out of the Reach you will pass several islands, viz.: Babson Islands on the port, also Hog Island, which from the westward shine a mass of bare white rock and a bold bluff called Devil's Head, and just east of it Harbor Island, which is about ½ a mile long. Opposite Hog Island, is White Island, which you pass on your starboard hand. After passing Canary Point buoy you will see another red buoy on Eastern Half-Tide Rock, you will next see an HS. buoy on Hog Island Ledge which can be passed on either hand, but generally on the port going east. Mahoney Island buoy red finishes the reach. You can pass this buoy on your starboard, passing between Mahony Island and a little bare rocky island called Smutty Nose, or you can leave Mahony Island on your port, passing between it and John Island, but the first passage is generally used. When to Naskeag Point, (the extreme land on the port hand), steer about E. ½ N. and pass north of the red buoy off Pond Island, it bears about south from the Light, distance 1¼ miles. After you have passed this buoy, steer about E. by S., and pass Ship Island on your port, and the spindle on the Ship and Barges on your starboard, but do not get nearer than ⅛ of a mile of the south part of Ship Island, and do not attempt to pass north of it. The Spindle on Ship and Barges is on the north part of the Ledge, and there is a good channel between it and Ship Island. When past the Ship and Barge Spindle, steer E. SE. for Bass Head Light; keep it on your port bow, and pass over the bar about one-third nearer the Light than the south shore. There is 14 feet of water on this bar at low tide. Depth of water through the Reach to this bar, not less than five fathoms, and the distance from Pumpkin Island Light to Bass Head about 21 miles.

* Sometime in 1881 the Lighthouse Department will change the buoys in Eggemoggin Reach. Red will be port hand going East. This change will be made in all the inland passages. It will reverse the above to Red on the other hand.

DISTANCES, COURSES, AND BEARINGS,

WITH SAILING DIRECTIONS,

FROM

NEW YORK SOUTHWARD

TO AND UP THE CHESAPEAKE AND DELAWARE BAYS.

THE HUDSON RIVER,

WITH A FEW COURSES AND DISTANCES IN NAUTICAL MILES FROM GOVERNOR'S ISLAND.

From Governor's Island to Hoboken, N. ½ E., distance 2¾ miles; from this to Spuyten Devil Creek, N.NE. ¼ E., distance 9¾ miles; from Spuyten Devil to Piermont Dock Light, course N. by E. ¼ E., distance 10 miles; from thence to Rockland Lake Landing the course is N. ¼ W., distance 6½ miles; from this to Haverstraw, NW. ½ N., distance 3¾ miles; from Haverstraw to Stony Point Light, course N.NW., distance 2⅞ miles; from this Light to Peekskill Dock the distance is ¾ of a mile; from Peekskill to West Point Light, distance 8 miles; from West Point Light to Newburgh is 7 miles; from Newburgh to New Hamburg, distance 5½ miles; New Hamburg to Poughkeepsie, distance 7 miles; from Poughkeepsie to Hyde Park, distance 4⅞ miles; from this place to Esopus Light, distance 5 miles; from Esopus to Rondout, distance 3⅜ miles; from Rondout Light to Saugerties Light, distance 9½ miles; from Saugerties to Catskill, distance 9¼ miles; from Catskill to Hudson City, distance 3¾ miles; from Hudson City to Four-mile Point Light, 3¼ miles; from this to Coxsackie Light, distance 4½ miles; from Coxsackie Light to Stuyvesant Light, distance 2 miles; from Stuyvesant to New Baltimore Light, nearly 2½ miles; from New Baltimore to Cow Island Light, distance 4 miles; from Cow Island to Albany, distance 7 miles; from Albany to Troy, 7 miles; making the distance to Albany by river 119½ nautical miles.

ON THE SHORES OF NEW YORK BAY THERE ARE SIX LIGHTS TO SERVE AS CHANNEL RANGES, LOCATED AS FOLLOWS:

The Elm Tree and New Dorp Beacon Range Lights are situated on Staten Island, about three miles SW. from Staten Island Light; they serve as the Swash Channel Range. Their line of bearing is NW. $\frac{1}{4}$ N. Sandy Hook Point Light bears from the Shore Light SE. by S. $\frac{1}{2}$ S., distance $6\frac{5}{8}$ miles.

The Seaside and Wilson Beacon Range Lights are for the ship channel from Gedney's Channel to West of SW. Spit. Their line of bearing is W. by S. The Shore or front Light bears from Sandy Hook Point Light W. $\frac{3}{4}$ S., distance $5\frac{3}{8}$ miles; the rear Light is $\frac{3}{4}$ of a mile inland.

The Conover Beacon and Chapel Hill Range Lights are for the ship channel from West of SW. Spit up past the West bank. The Shore Light of this range bears from the Hook Point Light SW. $\frac{1}{4}$ S., distance $3\frac{3}{4}$ miles; the rear Light is $1\frac{3}{8}$ miles inland. Their line of bearing is S. by W. $\frac{1}{4}$ W.

COURSES AND BEARINGS

FROM NEW YORK DOWN THE BAY.

From off the Battery to Robbin's Reef Light the course is S.SW., distance 3 miles. From off Robbin's Reef Light steer S. by E., distance 4 miles, until Staten Island Light bears NW. by N. 1⅜ miles. Then the course is S. by W. ¼ W., down the ship channel for 7⅞ miles. If at night, you will have the Chapel Hill Light in range with the Conover Beacon Light; keep them in range until the Bayside and the Wilson Beacon Range Lights bear W. by S., then run on their range to sea, or E. by N., until Sandy Hook Point Light bears W.SW., then steer SE. ¼ S., which is the course out on the Swash Channel Range; or E. by S. ¼ S., out of Gedney's Channel.

If you wish to go down the Swash Channel, steer as before given, S. by W. ¼ W., until the Elm Tree Beacon Light, on the shore of Staten Island, comes in range with the New Dorp Beacon Light, on the Hill on Staten Island, when they will bear NW. ¼ N., then steer down SE. ¼ E., keeping the high Light a little open North of the shore or low one. This carries you to sea, leaving the Stone Beacon on the port hand.

At Fort Lafayette, on the East side of the entrance to the Narrows, there is a fog bell station, but no Light. The water is deep close in to the Fort.

Directions for Entering New York Bay from the Eastward.—Pass about 4 miles North of *Sandy Hook Light Ship*, and

bring Sandy Hook Point Light to bear W. by S. ½ S., and run for it on that bearing until it is distant 1½ miles, when you will be on the Swash Channel Range. You can then keep up this range as in other directions given, or you can pass in by the Hook on the Ship Channel Range Lights, steering W. by S. until the Conover and Chapel Hill Range Lights are in line, which will take you up ship channel, from West of Southwest Spit, to the Narrows.

Sailing Directions for Raritan Bay, South Amboy, Perth Amboy, and Tottenville.—Prince's Bay Light is in range with the following marks, which bear from the Light E. by S. ¾ S.: First, the Round Shoal black buoy, which is on the North side of the Shoal, and is to be passed on the port hand when going in through this channel; it is distant from the Light ⅜ of a mile. Second, SW. Spit buoy, distance 8¼ miles. Third, Sandy Hook Point Light, and the P. S. entrance buoy to the South channel, distance from the Hook 2⅝ miles.

When a little inside of the Hook, steer W. by N. ¾ N. for Prince's Bay Light, and as you approach it, keep it open on your port bow, and bring it to bear W. by N., distance ¼ of a mile, when you will steer SW. ¾ S. through the channel for 1⅞ miles, or until the North one of the two entrance buoys bears NW. by W., when, if bound to Perth Amboy or Tottenville, steer for this buoy, passing it on your starboard hand, then work to the Northward, toward Ward's Point, as you enter the river. If bound to South Amboy, when below these buoys keep to the South of the South buoy, and after passing it, steer for the end of the docks at South Amboy.

If from New York, and bound to these places with a free wind, pass close around the black buoy that is just South of Staten Island Light, leaving it on your starboard hand, then steer SW. ¾ S., 6¾ miles, passing South of the red buoy on Old Orchard Shoal, and when Prince's Bay Light bears W. by N. ¾ N., you can follow the first direction given, or change your course to W. ¼ S., and you will pass North of the black

buoy that is off Conaskonk Point; from this buoy to the buoys off the entrance of the rivers, the course is W. by N.

You can run for Prince's Bay Light on the bearing of W. $\frac{1}{2}$ N., and it will take you South of Old Orchard Shoal, and close by Seguine Point, which is very bold. Conaskonk Point buoy bears from Prince's Bay Light SE. $\frac{3}{4}$ S., distance $2\frac{1}{4}$ miles. If bound up Raritan Bay from New York, and the wind SW., I should advise working down the ship channel until below all the West Bank buoys.

NEW YORK YACHT-CLUB COURSE. *

For the benefit of my yachting friends I will write out the relative bearings and distances of the principal objects passed on the Race Course of the New York and Brooklyn Yacht Clubs. Starting from $\frac{3}{8}$ of a mile West of Ft. LaFayette or the middle of the Narrows. There are times, when sailing down the bay, that it is difficult, if not impossible, to see from one buoy to another. By observing the bearings and distances I here give, you can govern yourself by them, and not be obliged to get out the chart and rule when time is precious. I will try and make this as plain as possible, so that he who sails may read and understand.

From Ft. LaFayette, bearing East $\frac{3}{8}$ of a mile, to the black buoy No. 13, off the Lower Quarantine buildings, the course is S. $\frac{1}{4}$ W., distance nearly $2\frac{3}{8}$ miles; from No. 13 to No. 11 (black), S. $\frac{1}{4}$ W., distance $\frac{3}{4}$ of a mile; from No. 11 to No. 9, course S. by W. $\frac{1}{4}$ W., distance $\frac{7}{8}$ of a mile; from No. 9 to No. 7 (black) the course is S. by W. $\frac{1}{4}$ W., distance 2 miles; Southwest Spit buoy, or No. $8\frac{1}{2}$, bears from No. 7 S. by E. $\frac{1}{2}$ E., distance $1\frac{3}{4}$ miles. Buoys Nos. 9, 11, and 13, are the West Bank buoys.

We will start again from the same point. From $\frac{3}{8}$ of a mile West of Ft. LaFayette to buoy No. 16 (red), the course is S. by E. $\frac{3}{4}$ E., distance $2\frac{3}{4}$ miles; this buoy (No. 16) bears from the West end of Coney Island SW. by S. $\frac{1}{4}$ S., distance $\frac{5}{8}$ of a mile; No. 14 (red) bears from No. 16 SW. by S. $\frac{1}{4}$ S.,

* For direct courses, see pages 79 and 80.

distance $1\frac{5}{8}$ miles; from No. 14 to the horizontal striped buoy (red and black) the course is S.SW., distance nearly $1\frac{1}{2}$ miles. This H. S. buoy is at the point of intersection of the Ship and Swash channels; No. 12 (red) bears from it S. $\frac{1}{2}$ W., distance $\frac{5}{8}$ of a mile; SW. Spit (No. $8\frac{1}{2}$) is about on the same bearing, distance from No. 12, $1\frac{3}{4}$ miles; buoy No. 10 bears from the horizontal striped buoy S. by W., distance $2\frac{1}{8}$ miles; and the SW. Spit buoy bears from No. 10 SE. by E. $\frac{1}{2}$ E., distance $\frac{3}{8}$ of a mile; Southwest Spit buoy bears from the West end of Coney Island S. by W. $\frac{3}{4}$ W., distance 6 miles; No. 8 (red) bears from No. 11 (black) S. $\frac{3}{4}$ E., distance $1\frac{7}{8}$ miles; Southwest Spit buoy bears from No. 8 S. by E. $\frac{1}{4}$ E., distance $2\frac{5}{8}$ miles; from the Romer beacon it bears SW. $\frac{3}{4}$ S., distance $2\frac{1}{4}$ miles. It should be observed that from South of buoy No. 8 to the SW. Spit, the ebb tide runs from SE. to E. by S.; flood about opposite; therefore a careful attention must be paid to the current when on this line. The course from SW. Spit buoy to a little North of the Sandy Hook Point buoy is E. by S., distance $1\frac{3}{4}$ miles. The Gedney's Channel entrance buoy (P. S.) bears from SW. Spit E. $\frac{1}{4}$ S., distance $4\frac{7}{8}$ miles; and from Sandy Hook buoy it bears E. $\frac{1}{4}$ N., distance $3\frac{1}{8}$ miles. *Sandy Hook Light Ship* bears from the Hook buoy E.SE., distance $6\frac{3}{8}$ miles.

The South Channel P: S. buoy is on the same bearing from the Hook buoy, distance $2\frac{1}{4}$ miles; *Sandy Hook Light Ship* bears from the Romer Beacon SE. $\frac{3}{4}$ E., distance $7\frac{3}{4}$ miles. This bearing is directly over the shoalest part of the Romer shoal.

When running in for the Swash Channel from the *Hook Light Ship*, it will not do to make your course anything North of NW. by W.

The Scotland Light Ship bears from the Hook buoy SE., distance 3 miles; and from Romer beacon SE. by S. $\frac{1}{4}$ S., distance $5\frac{1}{8}$ miles.

Sandy Hook Light Ship bears from the Scotland E. $\frac{1}{4}$ S., distance $3\frac{5}{8}$ miles.

There is an automatic signal buoy placed $\frac{1}{8}$ of a mile E. by S. from Gedney's Channel entrance buoy.

BEARINGS AND DISTANCES FROM NEW YORK TO SANDY HOOK, AND FROM THENCE EAST AND SOUTH.

Staten Island Light bears from West of the Battery S. by W., distance 6 miles. Sandy Hook Point Light bears from Staten Island Light S. $\frac{3}{4}$ E., distance $7\frac{7}{8}$ miles, and the Highlands of Neversink two Lights bear S. $\frac{1}{2}$ E., distance $12\frac{1}{2}$ miles.

On Sandy Hook there are three fixed Lights, the first called Sandy Hook Light, which is on the SW. side of the entrance to the bay; 2d, the East beacon, or Sandy Hook Point; 3d, the West beacon, on the Bay side of the Hook, NW. from the main light. *Sandy Hook Light Ship* bears from Sandy Hook Point Light E. by S. $\frac{3}{4}$ S., distance nearly 7 miles, and from the Highland Lights she bears E.NE., distance $6\frac{1}{4}$ miles. This *Light Ship* shows two red Lights. The P. S. entrance buoy to the Gedney's Channel bears from her NW. $\frac{1}{4}$ W., distance $3\frac{5}{8}$ miles. The entrance buoy (P. S.) to the South Channel bears from this *Light Ship* W.NW., distance 4 miles; and Romer beacon bears NW. $\frac{3}{4}$ W., distance $7\frac{3}{4}$ miles. The *Scotland Light Ship* shows two white Lights. She bears from *Sandy Hook Light Ship* W. $\frac{1}{4}$ N., distance $3\frac{5}{8}$ miles, and from the Sandy Hook Point Light SE. $\frac{1}{2}$ E., distance $3\frac{3}{8}$ miles.

The Scotland Light Ship bears from the Highland Lights NE. $\frac{1}{4}$ N., distance $3\frac{3}{8}$ miles; the entrance buoy to the South Channel bears from her N. $\frac{3}{4}$ W., distance $1\frac{1}{4}$ miles. From the position of this *Light Ship* the Elm Tree Beacon, or the low Light on Staten Island, for the Swash Channel range, will be open to the right of the high, or rear Light. The directions for running in on this range is to keep the low Light a little open to the left of the high one.

BEARINGS AND DISTANCES FROM SANDY HOOK LIGHT SHIP.

Fire Island Light bears E. by N., distance 31 miles. Shinnecook Light bears E. by N., distance 66 miles. Montauk Point Light bears from Shinnecock Light E. by N. ¾ N., distance 32 miles. *Nantucket South Shoal Light Ship* bears from *Sandy Hook Light Ship* East, distance 180 miles.

FIRE ISLAND INLET.

There is an automatic whistling buoy 6 miles South of Fire Island Light. The outer or entrance buoy, P. S., bears from it N. by W., distance about 5 miles. This is a first-class nun buoy in summer, and a first-class spar in winter. From this buoy steer North to the inner bar buoy, P. S. (nun), and from thence N. by W. ¼ W. to the first spar buoy (P. S.), and from this to the second spar buoy (P. S.) steer N. by W. ½ W. The next buoy is red; it bears from the last P. S. buoy NE. by E. You will leave this on your starboard hand, then steer E. by S. ½ S., toward the fourth spar buoy, which is black; leave this on your port hand, and steer East along shore, and you have good anchorage. These directions are according to the latest reports.

The buoys are changed to correspond with the changes of the channel.

Sailing Directions for Little Egg Harbor, according to Location of the Buoys, January 1, 1878.—There are constant changes in the channels of all the coast inlets, but the buoys will be changed accordingly, and at all times when in their proper positions will bear the same relation to one another and the channel, *i. e.*, marking mid channel, and so placed that the run must be from one buoy to the other, until to or into the harbor.

Bring Tucker's Beach Light to bear N. by E., and run for it until to the outer buoy, a P. S. can; from this, steer N. by W. ½ W. for the second P. S. can buoy; then steer N. by W. for the third P. S. can buoy (between the second and third buoys there is only 7 feet of water at low tide); from

* There is an Automatic Signal Buoy bearing south from Fire Island Light.

the third, steer N. by E. for the fourth P. S. can or wooden tub, then steer N.NW. for the fifth buoy, P. S. a wooden tub; from this, the course is N. by W. for the sixth P. S. can buoy, then N. ½ E. for the seventh, a P. S. can buoy, and from the seventh steer N. by E. until abreast of the eighth buoy, which is an H. S. spar buoy on the lower end of the Middle Ground. There is good anchorage on either side of this Middle Ground, which is about 200 yards wide in the center of it.

ABSECOM INLET.

At this time, January 1, 1878, Absecom Inlet is easy of access for vessels not drawing more than 9 feet of water. Bring Absecom Light to bear W.NW., and run for it until to the outer buoy, a P. S. can, then from that, steer NW. by N. for the second P. S. buoy (can). Between the first and second buoys the depth of water at high tide is 10 feet. From the second steer NW. for the third P. S. buoy (nun), then steer N. by W. for the fourth, a P. S. nun, and from it run in for the anchorage, with no obstructions in the channel.

GREAT EGG HARBOR INLET.

The outer buoy, a P. S. can, bears from Absecom Light SW., and it lies something more than two miles from the entrance to the Inlet. From this entrance buoy steer W. NW. for the second P. S. can buoy. (Between the second and outer buoys there is 7 feet of water at low tide.) From this buoy steer NW. by W. for the third P. S. nun, then steer NW. by N. for the fourth, a P. S. nun, and from that haul to W.SW. for the fifth buoy, a P. S. spar, then steer NW. by W. for sixth buoy, a P. S. spar, then steer from that NW. by N. for the seventh, a P. S. spar, and from this buoy steer NW. for a good anchorage.

The buoys of this Inlet are about ¼ of a mile apart.

NEW JERSEY BEACH TO DELAWARE BAY.

Barnegat Light bears from *Sandy Hook Light Ship* S.SW., distance 42 miles. From Fire Island Light it bears SW.,

* There is an Automatic Signal Buoy off the outside of Brigantine Shoal, bearing S. ½ W. from Tucker's Beach Light.

distance 65 miles, and from Shinnecock Light SW. ¾ W., distance 97 miles; from Montauk Point Light it bears SW. by W. ¼ W., distance 128 miles. Tucker's Island, or Little Egg Harbor Light, bears from Barnegat SW. by S., distance 17½ miles. Absecom Light bears from Barnegat SW. ¾ S., distance 28 miles.

Five Fathom Bank Light Ship bears from Barnegat SW. by S. ½ S., distance 59 miles, and from Absecom Light it bears S.SW., distance 31½ miles. Cape May Light bears from *Five Fathom Light Ship* W. by N. ¾ N., distance 17¾ miles, and Cape Henlopen Light bears from it W. ¾ S., distance 23½ miles.

The shoal part of Five Fathom Bank bears from the *Light Ship* NW. ½ N., distance 2⅛ miles. It has a black can buoy on it. Montauk Point Light bears from this *Light Ship* NE. ¼ E., distance 184 miles.

Hereford Light bears from the *Five Fathom Light Ship* NW. ½ N., distance 12½ miles.

COURSES TO THE DELAWARE CAPES.

From the Highland Lights bearing West, distance 2½ miles, a S. by W. ¼ W. course will take you off Barnegat, distant 3 miles, when it bears West; steer SW. by S. ¼ S., distance 24 miles, when Absecom Light will bear W. ¾ S., distance 7 miles; then steer SW. ¾ W. if bound for Delaware Bay, and you should pass Hereford Inlet Light, distance 1½ miles.

To enter the Delaware by the Cape May Channel.—When to Hereford Light keep about 1½ miles from the shore until you bring Cape May Light to bear NW. by W., then run for it until the West part of the town bears North, or to the South buoy on Old Eph Shoal, when you will gradually haul around toward the Point Buoy (red), (course about W. by N. ½ N.,) until it bears W. by N.; pass it close aboard. (This is the shoalest part of the Channel.)

*There is an Automatic Signal Buoy off the NE. end of Five Fathom Bank. Deep water outside of it. Bears N. NE. from the Light Ship.

After passing the Point buoy, your course is NW. ½ N. to the Fair Way Buoy (a perpendicular striped buoy); continue on this NW. ½ N. course, and it will take you into Ship Channel, passing Mia Maul Shoal on your starboard hand. There is a large red can buoy on this shoal.

You can enter the Ship Channel, if when about five miles above the Point buoy you steer NW. by W. ½ W.; give Brandywine a good berth, and enter the channel little above the *Fourteen Foot Light Ship.*

Brandywine Light bears from Cape May NW. by W. ½ W., distance 8 miles.

Cape Henlopen Light bears from Cape May Light SW. by W., distance 10 miles.

**Directions for Delaware Breakwater Harbor.*—Bring Cape Henlopen Light to bear W. by S., and run in for the point of the Cape. The shore is quite bold North of the Point Light. You can enter the harbor by the South end or through between the two breakwaters, according to the wind. The best anchorage is close to the main work with the Breakwater Light bearing N. by W. The Shears buoy bears from the Breakwater Light N. by E., distance nearly 1¾ miles.

When running to or from the breakwater up the bay, keep the main Cape Henlopen Light and the Point Light in range, or East of their range, until the Breakwater Light bears SW. by S. ½ S., before hauling toward the breakwater. Those Lights in range will take you clear of the Shears, and the Brown Shoal East of them.

Directions to Enter Delaware Bay from the Eastward; Ship Channel.—If you are near the *Five Fathom Bank Light Ship*, steer about W. by S. and keep Cape Henlopen Light on that bearing until it is distant 3½ miles. Cape May Light will then bear N. by E. ½ E.

If you are well in to the Cape May shore—say two miles

*There is an automatic Whistling Buoy off the Overfalls, east side of Ship Channel.

from the land little East of the town—you can steer SW. by W., and keep Cape Henlopen Light on that bearing until within 3½ miles of it. (On this bearing you will be inside of McCrie's Shoal, which has on it a red can buoy. It will be necessary to be careful if the tide is flood, but if the Light is kept on that bearing you will go clear of all the shoals and not find less than 3½ fathoms of water.) You will then steer N. by W. ¾ W., distance 12 or 13 miles, to Brandywine Shoal Light. On this course you will pass to the Eastward of the Brown Shoal and West of Brandywine Light; this Light bears from the buoy on the Brown N. ¼ E., distance 3½ miles.

The Brown bears from Cape Henlopen Main Light N. ½ W. distance 9 miles.

* From Brandywine Light, *i. e.*, little West of it, the course is N.NW. ¼ W. to Cross Ledge Light, distance 12 miles. On this course you will pass East of the *Fourteen Foot Light Ship* and West of Cross Ledge Light, and from this Light (near to it) the course to Ship John Shoal Light is NW. by N. distant 10¾ miles. This Light leave on your starboard hand, then steer NW. ¾ N. until in range of the Port Penn Range Lights, they are fixed white and located to the westward of Reedy Island Light which is a flashing white. Keep these ranges on until past Baker's Shoal red buoy, then the course is about N. by E. ¼ E. toward the range of the Finn's Point Range Lights, which are on the New Jersey side opposite Pea Patch Island, keep on this range until the Newcastle Range Lights are in line, which are on the Delaware side below Newcastle. Keep these ranges on until to the range of the Deep Water Point Lights, New Jersey side, (these ranges intersect on the West side of the channel, therefore be careful to pass from one range to the other East of the intersecting point where there is plenty of room). This channel is buoyed by a black buoy on the lower part of Bulkhead Shoal and a red nun on the curve on the starboard hand, and a black buoy in the bight on the port, the upper port hand buoy is an HS., there is also a mid-channel or PS. buoy near the north end of the channel. (Above this you can keep up toward the Deep Water Point Light passing on your port a black buoy on the flats above Newcastle; give Deep Water point a little berth and steer about NE. by N. to go up to the Eastward of Cherry Island Flat,

* The tide in Delaware Bay does not run in line of the courses direct in any part; you must observe its direction by the buoys.

as this channel is most used; you will pass a black buoy on your port, midway of the Shoal, and a red buoy on a sand spit on your starboard hand, then an HS. buoy on the north end of the Shoal; above this work up the west shore of the river passing Marcus Hook Bar buoy, red, on your starboard hand.)

Before you reach the Deep Water Point Light you will see the Cherry Island Range Lights, on the Delaware side, which you can follow if at night, and as you approach the west shore keep it best aboard, and you will soon see the Schr Ledge Range Lights, which are located above Chester about 2 miles; keep these on until they intersect with the Tinicum Island Range Lights, which are on the Jersey side, change from one range to the other directly, and steer for this range. The rear light lies about E. ½ S. from the front and is Red.

The front light of this range is also the front light for the Ft. Mifflin Bar channel, there being another Red light about SW. by W. from it; that is the rear light for this range; these will take you to the Mouth of the Schuylkill and West of Fort Mifflin Flat Light.

(When going up the river past Tinicum Island, as soon as you see the rear light (*Red*) of the Mifflin Bar Range, it will be abeam or near it, on your starboard hand, change your course 2 points to port, and run until the ranges are on over your stern. When going down on the Fort Mifflin channel range, as soon as you can see the rear light of the Tinicum Island Range, about abeam on your port, change your course 1½ points to the starboard, and run the other ranges on.)

Above Ft. Mifflin Light steer about E. by N., passing Horse Shoe Shoal buoy black on your port and from this up, the river all is plain to Philadelphia.

DISTANCES AND BEARINGS FROM THE DELAWARE TO CHESAPEAKE BAY.

Fenwick Island Light bears from *Five Fathom Bank Light Ship* SW. ¼ W., distance 31 miles; and from Cape Henlopen Light it bears S. ¼ W., distance 20 miles. *Winter Quarter Shoal Light Ship* bears from *Five Fathom Bank Light Ship* SW. by S. ¾ S., distance 56½ miles.

From *Winter Quarter Shoal Light Ship* Chincoteague Light bears W. by S., distance 13¼ miles; and Hog Island Light bears from it SW. ¼ W., distance 44½ miles; Smith's Island Light bears about SW., distance 62 miles; and Cape Henry Light bears SW. ½ S., distance 76 miles.

Shoals between Cape Henlopen and Chincoteague.—The Hen and Chickens Shoal is near Cape Henlopen (least water on it, 5 feet). There is a black spar buoy on the outer end of it, and in the channel between the North end of it and the beach there is a P. S. (or channel buoy) which you will pass close aboard on either hand; this P. S. buoy is nearly abreast of the beacon, or Point Light, on the Cape. This shoal is about two miles long, and the South end of it is about ¾ of a mile from the shore, with a good passage West of the Shoal, by running pretty close along the beach.

Fenwick Island Shoal bears from Fenwick Island Light from E. ½ S. to E. ½ N., distance 5½ miles; least water on it, 15 feet; it is about 2 miles long. There is an H. S. Nun buoy near the edge of this shoal. The Isle of Wight Shoal bears from Fenwick Island Light SE. ¼ E., distance 7¼ miles. There is a second-class Can buoy (H. S.) on this shoal. It lies S. ¼ W., distance 4½ miles from Fenwick Shoal buoy. Least water on this shoal, 18 feet. Little Gull Bank Shoal bears from Fenwick Island Light S. ¾ W., distance from the Light 10½ miles, and from the shore 1½ miles. The center of Great Gull Shoal bears from Little Gull S. by E., distance 2½ miles.

Winter Quarter Shoal Can Buoy (H. S.) bears from *Winter Quarter Light Ship* NW. by W. ½ W., distance 2 miles. Least water on this Shoal, 12 feet. Black Fish Bank Shoal bears from *Winter Quarter Light Ship* SW. ¾ W., distance 9½ miles to the middle of the shoal. The West edge of this shoal bears from Chincoteague Light from S.SE. to E. ¾ S., distance 5½ miles.

Sailing Directions from the Delaware to Chesapeake Bay.—At this date, Jan. 1, 1878, there is a Green Can buoy on the wreck of the bark Cienfuegos, which, according to the bearings given in the Buoy List, is distant from Cape Henlopen Light about 2 miles; and little outside of Hen and Chickens Shoal.*

From near this buoy, or about 2 miles distance from Cape Henlopen Point, a South, little Easterly, course will take you

*This wreck is removed and the buoy taken away.

clear of all these shoals mentioned before. You will pass West of Fenwick Island shoal and Isle of Wight Shoal, and East of the Gull Shoals on this course. You should pass Fenwick Island Light about 2 miles distance; and if so, continue the same course until *Winter Quarter Shoal Light Ship* bears SW. by W.; you can then run for, and pass, the *Light Ship* as you choose; and from her, a SW. ¾ S. course will take you to the Chesapeake, passing Hog Island Light at a distance of 5 miles, and Smith's Island about 3½ miles distance.

If you would feel safe in regard to the shoals North of Chincoteague, you must observe carefully the bearings and distances given; or do not get into less than 14 fathoms of water.

**Sailing Directions for Chesapeake Bay Ship Channel.*—Bring Cape Henry Light to bear SW. by W., and run for it until it is distant 3½ miles, when Smith Island Light will bear N. by E.; you will then steer NW. ½ W. about 12 miles, when Thimble Shoal Light will bear SW. by W., distance 5½ miles, and Back River Light will bear W. by N. ¼ N., distance 5½ miles. The course from this to Smith's Point Light is North, distance 49 miles.

To enter Chesapeake Bay by the North Channel.—Bring Smith's Island Light to bear North, distance from 2½ to 3 miles, and steer W. ¼ S. (or make that course), keeping the breakers on your starboard hand about ¾ to 1 mile distant, and you will pass about midway of the Isaacs and Nautilus Shoal. You can continue on this W. ¼ S. course, and pass over the Middle Ground in 16 to 18 feet of water; or when 3 miles West of the Isaacs, you can steer NW. by W., and go between the Middle Ground Shoals; or when three-fourths of a mile past the Isaacs, you can steer N. by W. ¼ W., passing about three-eighths of a mile West of Fisherman's Island; when you have run about 5 miles on this course, steer NW. and proceed up the Bay. This last direction will take you East of the Inner Middle Ground, and it is not very safe for a stranger.

*There is an automatic Whistling Buoy 6¼ miles SE. of Cape Charles Light House with C C marked on it.

DIRECTIONS FOR HAMPTON ROADS AND NORFOLK.

When Cape Henry Light bears SW. by W., distance 2½ miles, steer W. by N. ½ N. for the Thimble Shoal Light, which is a hexagonal screw-pile Lighthouse in 11 feet water at low tide, located on the shoalest point of the Thimble, and distant 3½ miles from Old Point Comfort Light. The iron foundation of the Lighthouse is painted brown, and the superstructure drab. To the Southward of the Light the water deepens rapidly to 8 and 9 fathoms; there is a 10 foot lump about 700 yards to the Westward. The Lighthouse to be left on the starboard hand going into Hampton Roads.

The Thimble Shoal Light is 16¾ miles from Cape Henry; bearing from it NW. by W. ½ W. when opposite this Light or when it bears North, the course is W. by S. ¾ S. into the Roads.

If bound to Norfolk, after passing Fort Monroe docks, steer SW. by S. ½ S., distance 4 miles, to a red can buoy, which you pass on the starboard hand; the course from this to Craney Island Light is South 4¾ miles, then steer toward Lambert Point Light, which you pass on the port hand; steer then about for the Light on Naval Hospital wharf, keeping near to Fort Norfolk. Good anchorage about West of the Naval Hospital dock.

Lambert Point Light is a square screw-pile Lighthouse in 6 feet of water on the shoal making off from Lambert's Point. The iron foundation is red, the superstructure white. Boats drawing more than 5 feet of water should not pass to Eastward of the Lighthouse. There is a pile of stone ballast 50 yards in a Southerly direction from the Light, which is nearly bare at low water.

CHESAPEAKE BAY AND BALTIMORE.

When bound up the Chesapeake Bay, from six miles E.SE. of Back River Light, the course to Smith's Point Light is North, and the following Lights will be passed in the order given. York Spit Light bears from Back River N. ¾ E., dis-

tance 7¼ miles; Cherrystone Light on the East side of the Bay, bears from York Spit E. by N. ½ N., distance 11 miles. New Point Comfort Light bears from York Spit N. by W., distance 6 miles; the Wolf Trap Light bears from York Spit N. by E. ½ E., distance 11 miles. *

Stingray Point Light bears from Wolf Trap N. by W. ¾ W., distance 11 miles.

Windmill Point Light bears from Wolf Trap N. by W., distance 13¼ miles.

Smith's Point Light bears from Windmill Point Light N. ¾ E., distance 18 miles.

The next course from Smith's Point Light is N. by W. ½ W. for 51 miles, when Sharp's Island Light on the East side will bear SE. ½ E., distant a little over 6 miles. On this course you will pass Point Lookout Light, which bears from Smith's Point NW. by N. ¼ N., distance 10¼ miles.

Cove Point Light bears from Smith's Point N. by W. ½ W., distance 31 miles.

From the above bearing of Sharp's Island Light, the course is N. by E. ½ E., until up to Sandy Point Light, distance 20 miles. (Before you get to this Light, you pass Thomas Point Shoal Light, which is 7½ miles below Sandy Point.) When up to Sandy Point, pass it distant one mile on port hand, then steer about North, for the Craighill channel Range Lights. These two Lights are designed as Leading or Range Lights for the Craighill channel; the one near Miller's Island is distant from North Point in a Northeasterly direction, about 3⅜ nautical miles; the other 2¼ nautical miles, East by South from North Point. These two Lights are 2½ nautical miles apart, bearing due North and South from each other, and they are exactly in range with the axis of the Craighill channel. The front (or low) Lighthouse is in 15 feet of water at mean low tide, and will show above the water as a cast-iron cylinder, surmounted by the keeper's dwelling and

* Toos Marsh Light is on the South side of entrance to York River. It bears from York Spit Light W. by N. ½ N., distance about 6½ miles.

lantern. The focal plane is 30 feet above the level of the Bay at mean low water. The rear (or high) Lighthouse is an open frame pyramid of four sides, the lower portion being painted straw color, and the upper part black. The lens of the rear (or high) Light is a range lens, and will be seen only in the direction of the axis of the Craighill channel. They should both be distinctly visible below the South end of the channel in ordinary states of the atmosphere. When a vessel is on the true course going up or down stream, the two Lights will show one directly over the other, a slight change to either side producing a corresponding change in the relative position of the Lights. Keep up on this range until the Hawkins' Point and Leading Point Lights are in range.

The Hawkins' Point Light is a hexagonal screw-pile structure in six feet water, superstructure white, one Light. This Lighthouse, and the one on Leading Point, are 1½ miles apart on a line bearing W. NW. ¼ W., and E. SE. ¼ E. from each other, both designed to serve as a range for the Brewerton channel. When a vessel is on the true course coming up or going down the Brewerton channel, the two (2) Lights—one (1) on structure near Hawkins' Point, and one (1) on structure on Leading Point—will be seen in line one above the other; but whenever this course is departed from, however slightly, to port or starboard, a corresponding change in the position of the Lights will be observed. Steer for these Lights until the Light on Fort Carroll bears NW. by N., then haul up to that course, passing Fort Carroll on the starboard hand. When about one mile above the Fort, keep the Lazaretto Point Light open on the starboard bow, and pass it on the starboard hand, leaving Fort McHenry on the port. After passing this Fort, you will pass a black buoy on the port hand, then steer about NW. by N. and anchor above the coal docks.

A DESCRIPTION OF SOME OF THE LIGHTHOUSES IN THE CHESAPEAKE BAY.

York Spit is a screw-pile Lighthouse, placed in 12½ feet water at mean low tide; iron piles painted red, and the super-

structure yellow. Serves as a guide up and down the Bay. Vessels drawing over 24 feet of water should not approach this Lighthouse on the Eastern side nearer than one-half mile. Vessels drawing not over 18 feet water may approach the Light on the East side within a quarter of a mile, and on the South and Southwest within three-quarters of a mile, and vessels drawing not over 14 feet may pass over the shoal to the Northwestward of the Light within one-quarter of a mile. New Point Comfort Light (fixed white) bears N. by W., distance 5½ nautical miles, and Back River Light (revolving white) bears S. by W., distance 7¼ nautical miles.

The Wolf Trap is a screw-pile Lighthouse, placed in 12½ feet water at mean low tide. The iron piles of the foundation are painted *red*, and the superstructure *lead color*. Stingaray Point Light (red) bears N. by W. ¾ W., distant 10¾ miles. New Point Comfort Light (white) bears SW. ½ S., distant 6¾ miles; guide up the Bay.

Windmill Point Light is a screw-pile Lighthouse, in 12 feet water at mean tide. Stingaray Point Light (fixed red) bears SW. by S., distant about 2 miles. Vessels drawing 18 feet or more should not approach the Lighthouse on Eastern side nearer than 2 nautical miles; vessels drawing less than 18 feet may approach the Light on the North or South side within 1,000 yards with safety; and vessels drawing 12 feet or less may approach it in safety to within 400 yards on the North, East, and South sides, but should not attempt to pass between it and the land at Windmill Point. A first-class buoy (No. 9), painted black, and properly numbered, marks the Eastern extremity of the Spit making out from Windmill Point.

Smith's Point Light is a screw-pile structure in 12 feet of water at mean low tide, with from 4 to 6 fathoms on the shoal extending about one mile all around from NW. to SW. by the W'd. Vessels drawing from 12 to 14 feet of water may approach the Lighthouse safely within a distance of 250 yards, but vessels of a heavier draught should give it a berth of one-third of a mile.

Point Lookout Light is on the North side of the entrance to Potomac River.

Light on keeper's dwelling-house painted white; roof of lantern red.

Thomas Point Light is a screw-pile structure, white; lantern red; stands in 8 feet of water.

Sandy Point Light, on keeper's red-brick dwelling; shoals make out nearly a mile from this Light, and vessels drawing more than 10 feet of water should not approach nearer than that.

Love Point Light bears E.NE. from Sandy Point Light, distance 5 miles; it is on the East side of the bay, and serves as a guide to Chester River. Vessels drawing more than 9 feet of water should not pass between the Light and the Point.

Seven-Foot Knoll Light is an octagonal screw-pile structure, between the Main and Swash channels; it bears from Sandy Point North, distance 8½ miles; and from Love Point NW. ½ N., distance 8 miles; and from the South Light of the Craighill channel about S. by W. ½ W.

Sailing Directions for the Potomac River.—From one mile North of Smith's Point Light steer NW. ½ W., distance about 21 miles, up to Piney Point Light, passing it on your starboard hand, and when it bears NE., distance one mile, steer NW. ½ N. about 4 miles, to clear Ragged Point, off which there is a black buoy; pass it on your port hand, and when it bears South steer W. by N. ½ N. for 10½ miles, passing Blackston Island Light about ⅝ of a mile distant on your starboard hand.

This course should take you up to the first channel, or P. S. buoy on the Kettle Bottoms; pass this buoy close aboard on your starboard hand, then steer NW. by W. ½ W., distance 3¼ miles, passing two buoys on your starboard hand, and when past the second one, steer NW. ½ W., distance 3⅛

miles, passing two buoys on your starboard, and the third one on your port; this is the last of the Kettle Bottom buoys, and if in their places, you will find the best water by passing them in the order here given. When little above the last buoy named, steer NW. by W., distance 2½ miles, passing a can buoy close aboard; from this buoy to Lower Cedar Point Light the course is N. by W. ½ W., distance 3½ miles; before you get to the Light you will pass a red buoy on Cedar Point Shoal; pass this on your starboard hand, and the Lighthouse on your port. When to this Light, steer N. ½ W., until Mathias Point Light bears NW. by W. ½ W., when you will run for it open on your port, passing it on that hand, and when past it about ¼ of a mile, keep the Fog Signal Station off Cedar Point open on your starboard bow, passing it on that hand; course about W. by S. ½ S., up toward the Maryland shore; then follow up the red buoys until around Maryland Point. After getting well around the Point, or to Lower Thomas Point, the best water is nearer to the Maryland shore up to Sandy Point; from off this Point steer N. by E. about 3 miles, or until ¼ of a mile above the red buoy off Chicomuxen Creek, when you will steer NE. for Indian Head, distance nearly 6 miles; you will pass a P. S. and a black buoy on this run. The shore is quite bold at Indian Head, and you will keep that shore until Craney Island, a fishing place, bears NW., when you can steer N. ½ E., passing close by Hallowing Point on your port hand; this course will take you to White Stone Point, when you will gradually work off to E.NE., passing the White House (a summer resort) about ¼ of a mile before you get on this course, which will take you to Fort Washington on the Maryland shore, distance from the White House 4⅝ miles. From Fort Washington to Jones' Point Light the course first is N. ½ E., distance 2¾ miles; then North 1⅞ miles, to the Light. On this run of 4½ miles the channel is quite narrow, and the flats extend well off from the West shore, but if the buoys are watched, a stranger can find his way up to Alexandria by these directions, if he has any kind of a chart that will show the make of the river.

I have not thought it necessary to give all the buoys in detail as passed, with these general directions, as the colors of the buoys are expected to speak for themselves.

Distances and Bearings from Cape Henry to Cape Fear, N. C. —Currituck Beach Light bears from Cape Henry Light S. by E., distance 34 miles.

Body's Island Light bears from Currituck Beach Light S. by E. ¾ E., distance 34½ miles, and from Cape Henry Light it bears S. by E. ¼ E., distance 70 miles.

Cape Hatteras Light bears from Body's Island South, distance 35 miles.

Ocracoke Light bears SW. by W. ½ W. from Hatteras Light, distance 23½ miles.

Cape Lookout Light bears from Cape Hatteras about SW. ½ W., distance 63 miles.

Frying Pan Shoal Light Ship bears from Cape Lookout SW. ¼ W., distance 87 miles.

The distance from Cape Hatteras to Montauk Point (straight line) is 400 miles.

These bearings given have no reference to Sailing Directions.

NOTES.

When vessels are close hauled, the one on the port tack is expected to give way to those on the starboard tack, unless by so doing she will risk collision with another vessel, or run ashore by giving way. The side which the wind blows on, either starboard or port, is the tack that the vessel is on. This rule is too simple to be forgotten.

I hope the steamers will adopt the custom of sounding the whistle to pass sailing vessels, when there can be a doubt in the mind of the vessel's captain which side the steamer desires to take, both day and night.

NARRAGANSETT BAY NO. 3.

This direction for Narragansett Bay is given as the plainest to follow by daylight, and where the best water will be found, which will not be less than $3\frac{1}{2}$ *fathoms at low tide. Whereas, by the other passages,* 3 *fathoms can be had only, by observing ranges which it is not possible to give, but as* 15 *feet is the least you would find, either will do for most vessels.*

Beginning from one-fourth of a mile east of Beaver-tail Light, the course is NE. by E. $\frac{1}{4}$ E. until west of Ft. Adams, when you will steer N. $\frac{3}{4}$ E., passing Rose Island Light on your starboard hand, Gould Island will be right ahead, distant from this Light 2 miles. Pass Gould Island on your port hand, and when east of it from $\frac{1}{8}$ to $\frac{1}{4}$ of a mile, steer NE. by N. $\frac{1}{2}$ N. for Sand Point Light, which is on the east shore of Prudence Island, and distant from the north end of Gould Island $4\frac{1}{2}$ miles. On this run you will pass, on your port hand, the Spindle on Half Way Rocks, and E.NE. from that, distant $1\frac{3}{8}$ miles, a Red Buoy on the shoals below Dyer's Island; this you pass on your starboard hand. The shore on the port hand is bold until some distance above the Light.

When Sand Point Light bears west, distant from $\frac{1}{8}$ to $\frac{1}{4}$ of a mile, steer N. $\frac{1}{2}$ E., distant $1\frac{3}{4}$ miles to the Red Buoy on the SW. point of Hog Island Shoals; when a little west of this Buoy, steer N. $\frac{3}{4}$ W. for Ohio Ledge HS. Buoy, distant from this red buoy $3\frac{3}{8}$ miles. To carry the best water, pass the Ohio Ledge on your port hand a good berth, and steer N. $\frac{1}{2}$ E. until the Light on Conimicut Point bears NW. by W., when you will run for it, passing it on your port hand (then see page 30).

If you pass the Ohio Ledge on your starboard hand give it a good berth, and steer N. $\frac{3}{4}$ W. to Conimicut Point Light; on this side of it you will not find less than 17 feet of water at low tide, and in the eastern passage not less than $3\frac{1}{2}$ fathoms.

On Ohio Ledge there is 10 feet of water.

The distance by this course from Rose Island Light to Conimicut Point Light, is 14⅜ miles; and the same distance by the passage west of Prudence Island and by Warwick Neck Light.

COURSES AND DISTANCES FROM THE WHISTLING BUOY OFF THE GRAVES BOSTON BAY, EASTWARD.

From the Graves Buoy a NE. ½ E. course, distant 22 miles, will carry just outside of the Londener Rock off Thatcher's Island. From the Londener to Boone Island the course is N. by E. ¾ E., distant 29¾ miles.

(*For Isle of Shoals, Portsmouth, and Wood Island, see pages* 50 *to* 53.)

From Boone Island to Cape Elizabeth, the course is NE. by N. ¼ N., distant 28 miles.

(*For Boone Island and York Ledges, see page* 53.)

From Boone Island to Seguin Island Light, the course is NE. ¾ E., distant 45 miles. *Mile Ledge bears S. ½ W., distant ¾ of a mile from the south end of Seguin Island;* 10 *feet of water over this Ledge; marked by an HS. Buoy; good water between Ledge and the Island.*

From the Whistling Buoy, near Cape Elizabeth, to this buoy off Seguin Island, the course is E. by N. ¼ N., distant 21 miles.

From Portland Head Light to this buoy, the course is E. ¼ S., distant 20 miles.

(*For Jack-knife Ledge and Pond Island Bar Buoys, see page* 55.)

Directions for the inside passage Eastward.

From near the Jack-knife Ledge Buoy (Black) steer E.NE., (Menhegan Light bears from Seguin, E. ½ S. dist. 19 miles.)

distant about 2¾ miles. (A careful attention must be paid to the direction of the tide, as it runs very strong near the mouth of this River.)

You will first pass a black buoy on Pond Island Bar on your port hand, then on the *starboard* a Black Buoy that is on White Ledge, it being a *Port*-hand buoy for the eastern entrance to the River. It bears from Pond Island Bar Buoy SE. by E., distant nearly one mile. You will then be nearly to the Sisters, which are above water on your starboard hand, and the Black Rocks, also out of water, on your port.

(*Directions for Ebencook Harbor, see page* 57.)

From between these Rocks, steer E. by N. ¼ N., distant 3¾ miles to the Cuckolds, on which there is a Beacon. You have only to give these rocks a little berth on your port. (*For Booth Bay, see page* 58.)

You will then steer NE. by E. ¾ E., about 3 miles to the north end of Fisherman's Island, passing south of the Gangway Buoy HS., the course will then be about East until past the Thrumbcap Island, distant from this buoy 2⅜ miles.

(*For John's Bay, see page* 59.) From the Thrumbcap to one mile south of the Buoy on Old Man's Ledge, the course is E. by S., distant 10½ miles; this course will take you near Pemaquid Ledge, which has over it 16 feet of water at low tide, and marked by an HS. buoy. The Old Man's Ledge buoy bears from the north part of Monhegan Island N. by E., distant 4 miles. (*See pages* 61, 63, and 64.)

From south of Monhegan to Matinicus Rock Lights, the course is E. by S., distant 23 miles. Seal Island bears from Matinicus Rock NE. ½ N., distant 7 miles.

Directions to enter the Penobscot Bay from one mile E.NE. or NE. of Seal Island.

Steer NW. by W., about 9 miles, or until Heron Neck Light bears E.NE., when you will steer N. by W. toward

Owl's Head. On this NW. by W. course from Seal Island you will pass about one mile south of the Bay Ledges, which, in direction on page 63, you pass north of.

Mt. Desert Rock Light bears from Matinicus Rock Light E. ½ N., distant 34 miles.

Mt. Desert Harbor, see page 70, *St. John's*, 72.

From Channel Rock across Isle Haut Bay through York Narrows.

After passing Channel Rock, steer about E.SE. for two miles, when you will steer about East for Mark Island Light; before you get to the light you will pass a Black Buoy on your port; it bears NW. by W. ½ W., distant ¼ of a mile from the Light. You will pass the light on your starboard hand, steering about E. ¾ N., then haul to E.NE., into Deer Island passage.

After passing the Light, you will see a Red Buoy that is on Field's Ledge, and an HS. Buoy that is on Gangway Rock; you can pass this Buoy on either hand, but the best water will be found south of it (10 to 12 feet at low tide).

You will next pass a red buoy on your starboard hand that is on Crotch Island Ledge; it bears E.NE. ¼ E., distant ¾ of a mile from Mark Island Light.

Next you will see a black buoy which you will leave on your port hand, it lies a little east of the Docks. You will now steer from East to E. by N., passing first a red buoy that lies ½ a mile east of Rust Island, next on the starboard hand is a red buoy that lies ½ a mile north of Bold Island. After passing this buoy, you will see two black buoys on Haskell's Ledge, but the best mark is a red spindle on *Hay Cock Rock*. There is good water all around this rock, which is about 40 feet long; it is generally passed on the starboard hand going east. *Sheep Rock* lies N.NW. from this spindle.

You will next pass an HS. buoy on either hand; it is on Mark Island Ledge, and it lies about ½ a mile NW. from East Mark Island. *

After passing this Buoy, steer about E. by S., passing first

* This buoy was red July 26, 1879. The Red buoys are to be port hand going East. Note the change when made.

a black buoy on your port, on Lazygut Ledge. It lies ¼ of a mile south of Lazygut Island.* You will then see an HS. buoy on Yellow Rock Ledge; leave this on your starboard hand not less than 200 yards distant. You will then be near the York Narrows, and when going through, you will pass three black buoys on your port hand; the first is on or off the west end of Long Ledge, the second is on Buck's Ledge, and bears about E.SE., distant ½ a mile from the first; the third is on the NE. part of Long Ledge, and bears from Buck's Ledge buoy about NE. ½ E., distant little more than ½ a mile. The channel is narrow at this place, but the buoy is set in 2½ fathoms of water at low tide. The courses through the York Narrows will be from E. by S. to E.NE.

When east of the Narrows, the course to Bass Head Light on Mt. Desert is East.

The distance from Mark Island Light through York Narrows is about 14 miles.

A GENERAL RULE IN REGARD TO THE TIDES BETWEEN NANTUCKET SHOALS AND CAPE SABLE BANK.

(From the U. S. Coast Survey Report.)

The ebb current runs southwardly during the first four and a half hours after the *Southing* or *Northing* of the moon; and the flood current runs northwardly from the sixth to the eleventh hour after the *Southing* or *Northing* of the moon. The time of turning on *George's Bank* corresponds nearly with the time of high or low water at Boston and Portland. In the channel to the *Westward* of the Bank it is later, but to the *Eastward*, it is earlier.

In the Great South Channel the set of the tide on the Flood varies from N. ½ W. to N. by W. The Ebb varies from S. ½ W. to W.SW.

On George's Shoal the Flood sets from NW. ½ W. to NE. The Ebb varies from SE. to S.SW.

* Another Black buoy will be passed before you get to Yellow Ledge buoy, H S.

In Great Eastern Channel (between George's Bank and Brown's Bank) the set of the tide varies on the Flood from NW. ½ W. to N. ½ E., and on the Ebb from SE. to S.SW.

The Northern Channel (between Brown's Bank and Cape Sable Bank). The set of the Flood varies from W. by N. to W.NW., and the Ebb from SE. to S. by E.

These courses refer to the first and last quarters of *the tide* (Flood and Ebb).

TABLE

For Finding the *Distance* of an Object, by *Two Bearings*, and the *Distance* run between them.

Points.	Difference in points between the Course and the FIRST bearing as above.																	
Difference in Points between the *Course* and the *second* bearing.	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½
4	1.00																	
4½	0.81	1.23																
5	0.69	1.00	1.45															
5½	0.60	0.85	1.17	1.66														
6	0.54	0.74	1.00	1.35	1.85													
6½	0.49	0.67	0.88	1.14	1.50	2.02												
7	0.46	0.61	0.79	1.00	1.27	1.64	2.17											
7½	0.43	0.57	0.72	0.90	1.11	1.39	1.77	2.30										
8	0.41	0.53	0.67	0.82	1.00	1.22	1.50	1.87	2.41									
8½	0.40	0.51	0.63	0.76	0.92	1.09	1.31	1.58	1.96	2.50								
9	0.39	0.49	0.60	0.72	0.85	1.00	1.18	1.39	1.66	2.03	2.56							
9½	0.38	0.48	0.58	0.69	0.80	0.93	1.08	1.25	1.46	1.72	2.08	2.60						
10	0.38	0.47	0.57	0.66	0.76	0.88	1.00	1.14	1.31	1.51	1.76	2.11	2.61					
10½	0.38	0.47	0.56	0.65	0.74	0.84	0.94	1.06	1.19	1.35	1.55	1.79	2.12	2.60				
11	0.39	0.47	0.56	0.64	0.72	0.81	0.90	1.00	1.11	1.24	1.39	1.57	1.80	2.11	2.56			
11½	0.40	0.48	0.56	0.63	0.71	0.79	0.87	0.95	1.05	1.15	1.27	1.41	1.58	1.79	2.08	2.50		
12	0.41	0.49	0.57	0.64	0.71	0.78	0.85	0.92	1.00	1.08	1.18	1.29	1.41	1.57	1.76	2.03	2.41	
12½	0.43	0.51	0.58	0.65	0.71	0.77	0.83	0.90	0.97	1.03	1.11	1.20	1.29	1.41	1.55	1.72	1.96	2.30

RULE.—Multiply the distance run in the interval between the two bearings by the number found in the table under the difference between the course and first bearing, and opposite the difference between the course and second bearing. The product is the distance at the time the second bearing was taken.

EXAMPLE.—A light-house, when first seen, bore W. NW.; after running W. by S. 16 miles, it bore N. ½ W. Required its distance when the second bearing was taken.

Difference between course and first bearing - = 3 points.
Difference between course and second bearing = 8½ points.
Corresponding tabular number, - - - - - - = 0.63
And 16 miles × 0.63 = 10.08 miles, the distance required.

TABLE

Showing the Amount of One Day's Wages, from One Dollar per Month to One Hundred, allowing Thirty Days for a Month, as the General Custom is with Seamen.

Where the exact amount is not given, add the number wanted to get the desired sum, that is, from one to five dollars per month.

Wages per Month.	One Day.	Wages per Month.	One Day.
$1.00	$.03⅓	$45.00	$1.50
2.00	.06⅔	50.00	1.66⅔
3.00	.10	55.00	1.83⅓
4.00	.13⅓	60.00	2.00
5.00	.16⅔	65.00	2.16⅔
10.00	.33⅓	70.00	2.33⅓
15.00	.50	75.00	2.50
20.00	.66⅔	80.00	2.66⅔
25.00	.83⅓	85.00	2.83⅓
30.00	1.00	90.00	3.00
35.00	1.16⅔	95.00	3.16⅔
40.00	1.33⅓	100.00	3.33⅓

PICKLE FOR SAILS.

The best preparation to prevent mildew in sails and awnings that I have yet found, is mixed, and used as follows: For a schooner's sails of 150 tons O. M., take about one peck of good lime, slack it with a little water, then add from 10 to 20 pounds of pulverized alum, and not less than 4 bushels of salt. Mix in a hogshead if you can, fill it with fresh water, and keep the mixture well stirred when using it. Scrub both sides of the sails, then roll them up as snug as possible, and let them remain rolled and covered not less than 24 hours, but one week if possible, keeping the sun from them. I recommend fresh water, as I think it is the best.

To do this work on a sand beach is a very hard task for all hands, and for the benefit of some, I will recommend Essex on the Connecticut river, as the best and most convenient

place for this work that there is on the coast, as there is a dock, part of which is used for that purpose, always clean, and no lifting and boating sails required.

For smaller sails, keep nearly the quantity of alum, and plenty of salt—in fact, use all that the water will dissolve. Alum that is not pulverized dissolves very slowly.

SEAMEN'S PROVERBS.

THE BAROMETER.

Long foretold, long last,—short notice, soon past.

First rise after very low, foretells stronger blow.

When the glass falls low, prepare for a blow; when it rises high, let all your kites fly.

At sea with low and falling glass, soundly sleeps a careless ass. Only when it's high and rising, truly rests a careful wise one.

WIND AND WEATHER.

A red sky in the morning, sailors take warning; a red sky at night is a sailor's delight.

The evening red and morning gray are sure signs of a fine day; but the evening gray and morning red make the sailor shake his head.

SQUALLS.

When rain comes before wind, halyard, sheets, and braces mind.

When wind comes before rain, soon you may make sail again.

TIDE TABLE.

This table will give approximately the time of high water or near as can be calculated the time that the tide turns from *flood to ebb*, on any given day *after* or *before* the time given for high water at New London by Daboll's Almanac, in the seventh column of each month. *B.* signifies *before*, and *A. after* the time.

h. m.		h. m.	
B. 3 00	Baltimore.	A. 1 00	Little Gull Island.
B. 1 10	Old Point Comfort, Va.	B. 1 08	Montauk Point.
A. 3 00	Cape May, N. J.	B. 0 26	Watch Hill Light.
A. 4 10	Philadelphia.	B. 0 56	Block Island, No. Point.
B. 2 00	Sandy Hook.	B. 1 56	Point Judith.
B. 1 15	New York.	B. 1 33	Newport.
A. 1 52	Throgg's Point.	B. 1 26	Gay Head.
A. 1 45	Sand's Point.	B. 1 00	West Chop Light.
A. 1 40	Eaton's Neck.	A. 5 30	Monomoy Point.
A. 1 35	Old Field Light.	A. 2 14	Race Point, Cape Cod.
A. 1 30	New Haven Light.	A. 2 16	Boston.
A. 1 00	Horton's Point.	A. 2 10	Portland, Me.
A. 0 35	*Cornfield Light Ship.*	A. 1 13	Eastport, Me.

F. W. LINCOLN & CO.,

126 COMMERCIAL STREET,

BOSTON.

RIGHT OF WAY.

NAVY AND SIGNAL MARINE GLASSES.

YACHT BINNACLES AND COMPASSES.

When both side lights you see ahead,
  Port your helm and show your Red;
Green to Green, or Red to Red,
  Perfect safety, go ahead.

If on the Port tack you steer,
  It is your duty to keep clear
Of every close-hauled ship ahead,
  No matter whether Green or Red;

But when upon your port is seen;
  A stranger's Starboard light of Green,
There's not so much for you to do,
  For Green to Port keeps clear of you.

Both in safety and in doubt,
  Always keep a good lookout.

AGENTS FOR

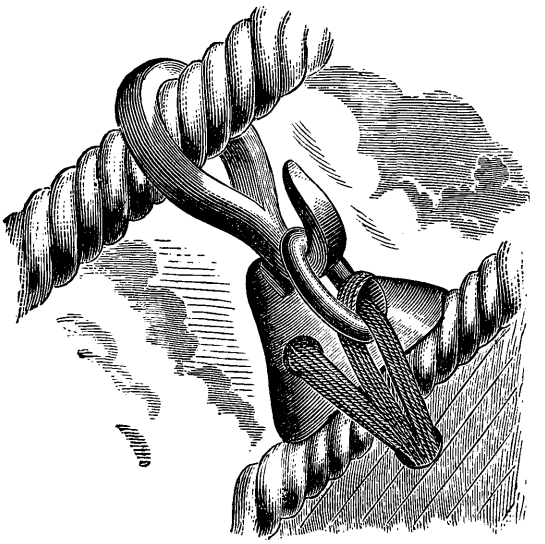
U. S. GOVERNMENT CHARTS

AND BOOKS.

Yachters' and Coasters' Reference Book.

PRATT'S
PATENT JIB HANK.

IMPROVED.



Having made an important improvement in the attachment to this Hank, I can recommend it as the best yet invented, being simple in its construction, and sure to stand the test of being the most convenient and the cheapest patent hank ever made. With these hanks a sail can be bent or unbent in five to ten minutes when the attachments have once been seized on to the sail.

For two sails it requires the attachment on each sail; then they can be changed in a few minutes.

DIRECTIONS.

Reeve the Hank on the stay with the *hook* up; seize the attachment to the luff of the sail with the *eye* up, as seen in the cut.

Put them on with marline and use a marlinespike to get the turns well tight, and they will stand for one or two years.

PRICES.

For the smallest or one inch, $2.50 per dozen complete.
Extra attachments, 50 cents per dozen.
1½ inch, $3.00 per dozen.
Extra attachments, 50 cents per dozen.

The small size is large enough for any jib-topsail.

Address, CAPT. W. A. PRATT,
DEEP RIVER, CONN.

Swedish poem.

Jag kämpar om min unga brud
om, och det var mot dundrets Gud
var trygg var glad min hvita lilja
ve den som dig och mig min skilja.

Ich kämpfe um meine junge Braut,
Doch wäre es gegen Donners Gott
Mächtets Trug wächst schön
Mein weisse Lilien
Wehe ihm der uns uns
Weib's vertrennen.

For my young bride I draw my sword,
Nor were it against great thunders god
~~Be happy, glad and fine~~
~~be~~ lily white, be true
of heart.
For woe to him, who
will us part.

Recd. $150.00

Expenses of Eastern Cruise

	Oscar	$25.00
	Hooks	.15
	Rev. cart.	1.60
	Rifle "	2.00
	Powder	.45
	Fireworks	4.50
	Cigars	11.30
	Wash.	2.00
	Groceries	28.09
	Decanters	3.30
" 13	Provisions	1.10
" 14	Dinner	1.20
" 15	Fixing boat	8.00
" 16	Prout's House	4.50
" "	Peak's Island	1.00
" 17	Rott's harbor	.85
" 18	Provisions	2.00
" 19	Meals	1.00
" "	Oscar	1.00
" 21	Rockland.	3.50
" 13	Charts & book	5.00
" 23	Dinners	1.00
" "	Provisions	.90
" 24	Books etc.	.75
" 26	Charts, Bar Harbor etc.	5.00
" "	Provisions	1.00
" "	"	.75
" 28	Pilot	3.00
" 28	Prout hotel	2.50
" 29	Hotel	.25
" "	Charts	1.00
" "	Hotel	1.50
" "	Butter	.25
" 31	Work on boat	19.75
		130.29

			130.29
July 31.		Hotel	2.00
Aug.	1	"	1.50
"	"	Prov.	.50
"	2	Naptha	2.00
"	2.	Potatoes	1.10
"	"	Campobello	1.00
"	"	Brooms etc.	.35
"	"	Bread etc.	.75
"	3	Milk & eggs.	.25
Aug. Recd.		~~*200.00~~	
			2.10
Aug.	6.	Knife	18.60
"	"	Groceries	30.00
"	"	Walter.	3.00
"	"	Hotel	.50
"	"	Discount	1.00
"	"	Hack	10.00
"	"	Clear	16.00
"	7	Purchases.	1.00
"	"	Provisions	5.00
"	"	Clear	3.00
"	8	Boat tickets	1.00
"	"	dinner	6.00
"	9	Repairs	1.50
"	9	Hotel (Fairport)	2.00
"	"	tickets	1.00
"	9	dinner	1.10
"	"	Supper + lodging	.65
"	10	Cartridges	2.00
"		Pilot on acct.	.75
"		Provisions	1.00
"		Clear	3.00
"	10	Dinner + supper	.60
"	11	Provisions	18.00
"	12.	Pilot	.25
"	12.	Provisions	132.00

Aug.	13.	Provisions.	3.00
"	14+15	Bar Harbor etc.	10.00
"	16	Provisions	1.75
"	18	Laundry	1.50
"	"	Hotel	6.00
"	20	U. Port	1.20
"	21.	Hotel	2.50
"	22	Medicine	1.00
"	"	Telegram	1.00
"	18	F.R. Telegrams	1.65
"	24	Carriage etc.	2.00
"	23	Provisions	2.25
"	25	Supplies	1.00
"	26	Shines	1.50
"	26	Incidentals	1.00
"	28	Portland	2.00
			39.65